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Print Form

Notice of Determination

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To:

☒ Office of Planning and Research

U.S. Mail: P.O. Box 3044, Sacramento, CA 95812-3044

Street Address: 1400 Tenth St., Rm 113, Sacramento, CA 95814

☒ County Clerk
County of: Orange
Address: 601 N. Ross Street
Santa Ana, CA 92701

From:
Public Agency: Irvine Ranch Water District
Address: 15600 Sand Canyon Avenue
Irvine, CA 92618
Contact: Jo Ann Corey
Phone: (949) 453-5326

Lead Agency (if different from above):
Address:
Contact:
Phone:

BY: DEPUTY
ORANGE COUNTY CLERK-RECORDER DEPARTMENT
DEC 14 2021
POSTED

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): 2007021140

Project Title: Addendum No. 2 Reservoir Management System and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs Final Initial Study/Mitigated Negative Declaration

Project Applicant: Irvine Ranch Water District

Project Location (include county): 13 1/2 Minaret Drive, Irvine, Orange County, California

Project Description:

An NOD was filed on May 1, 2007 for the original 2007 MND, and on May 12, 2015, the NOD was re-filed for Addendum No. 1.

The proposed modifications to the original project are summarized below:
-A new, approximately 279-square-foot RMS building with chemical storage, metering pumps, chlorine residual analyzers, and mixers
-A new concrete stairway and walkway connecting the pump station building to the top of the reservoir
-A widened access road with security gate
-A new security fence and elongated existing retaining wall
-Relocation of existing electrical conduit and gas lines leading to the pump station
-A new sewer connection

FILED
DEC 14 2021
HUGH NGUYEN, CLERK-RECORDER
BY: DEPUTY

This is to advise that the Irvine Ranch Water District (☒ Lead Agency or ☐ Responsible Agency) has ~~approved the above~~ described project on 12/13/2021 (date) and has made the following determinations regarding the above described project.

1. The project [☐ will ☒ will not] have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☒ were ☐ were not] made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [☐ was ☒ was not] adopted for this project.
5. A statement of Overriding Considerations [☐ was ☒ was not] adopted for this project.
6. Findings [☒ were ☐ were not] made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at:
https://www.irwd.com/doing-business/environmental-documents

Signature (Public Agency): _____ Title: Environmental Compliance Analyst

Date: 12/14/2021 Date Received for filing at OPR: _____

Authority cited: Sections 21083, Public Resources Code.
Reference Section 21000-21174, Public Resources Code.

Revised 2011

Addendum No. 2

Reservoir Management System and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs Final Initial Study/Mitigated Negative Declaration

DECEMBER 2021

Prepared for:

IRVINE RANCH WATER DISTRICT
15600 Sand Canyon Avenue
Irvine, California 92618
Contact: Jo Ann Corey, MPA

Prepared by:

DUDEK

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San Juan Capistrano, California 92675

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TABLES

FIGURES

APPENDICES

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
BMP	best management practice
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CH_4	methane
City	City of Irvine
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
dBA	A-weighted decibel
EIR	Environmental Impact Report
GHG	greenhouse gas
GWP	global warming potential
HCP	Habitat Conservation Plan
HFC	hydrofluorocarbon
IRWD	Irvine Ranch Water District
MND	Mitigated Negative Declaration
MT	metric ton
N_2O	nitrous oxide
NCCP	Natural Community Conservation Plan
NF_3	nitrogen trifluoride
NO_2	nitrogen dioxide
NOx	oxides of nitrogen
O_3	ozone
PFC	perfluorocarbon
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to 10 microns
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to 2.5 microns
RMS	Reservoir Management System
RTP	Regional Transportation Plan
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategy
SF_6	sulfur hexafluoride
SOx	sulfur oxides
TRHA	Turtle Rock Homeowner's Association
VOC	volatile organic compound

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1 Introduction and Background

Irvine Ranch Water District (IRWD) has experienced degraded water quality in several existing potable water reservoirs due to nitrification caused by the loss of chlorine residual, excess free ammonia, and low water supply turn-over within its existing reservoirs. In 2007, IRWD proposed to install a Reservoir Management System (RMS) at nine reservoirs, and Chlorine Analyzers and Reservoir Mixers/Samplers at 10 additional reservoirs to address the water quality issues (original project). The 19 project locations are listed below.

RMS Installations:

1. Quail Hill Zone 3 Reservoir in Irvine, California
2. Coastal Zone 6 Reservoir in Newport Beach, California
3. Central Zone 1 Reservoir in Irvine, California
4. Santiago Hills Zone 5 Reservoir in Irvine, California
5. Los Alisos Zone 2 East Reservoir in Lake Forest, California
6. Los Alisos Zone 2 West Reservoir in Lake Forest, California
7. Los Alisos Emergency Zone 1 Reservoir in Lake Forest, California
8. Williams Canyon Reservoir in Silverado Canyon, California
9. IIC East Irvine Zone 3 Reservoir in Irvine, California

Chlorine Analyzers and Reservoir Mixer/Sampler Installations:

10. Turtle Rock Zone 3 Reservoir in Irvine, California
11. Shady Canyon Reservoir in Irvine, California
12. Northwood Zone 3 East Reservoir in Irvine, California
13. Quail Hill Zone 4 Reservoir in Irvine, California
14. Portola Zone 8 Reservoir in Portola Hills, California
15. Foothill Zone 6 Reservoir in Foothill Ranch, California
16. Foothill Zone 6A Reservoir in Foothill Ranch, California
17. East Irvine Zone 4 Reservoir in Irvine, California
18. Northwood Zone 2 Reservoir in Irvine, California
19. Portola Zone 9 Reservoir in Portola Hills, California

Potential environmental effects from installing the RMS and Chlorine Analyzer and Reservoir Mixers/Samplers at the 19 reservoirs were previously analyzed in the RMS and Chlorine Analyzers and Reservoir Mixers/Samples at Domestic Water Reservoirs Final Initial Study/Mitigated Negative Declaration (MND) (SCH# 2007021140).

Following the 2007 MND adoption by IRWD's Board of Directors (IRWD 2007), IRWD installed RMS at the nine drinking water reservoirs. In 2015, IRWD evaluated and approved Addendum No. 1, which modified the Portola Zone 8 and Foothill Zone 6 Reservoirs with an RMS rather than Chlorine Analyzers and Reservoir Mixer/Samplers, as originally proposed in the approved 2007 MND (IRWD 2015).

A similar retrofit RMS installation at the Turtle Rock Zone 3 Reservoir was proposed in 2015; however, that effort was postponed because of land acquisition challenges. The Turtle Rock Homeowner's Association (TRHA) was unwilling to provide an expanded permanent easement for the project, and IRWD needed to seek other alternatives that did not require additional land or easements to be obtained. The proposed RMS installation at the Turtle Rock Zone 3 Reservoir (project site) has since been redesigned to avoid the need for additional easement acquisition.

The purpose of this second addendum to the 2007 MND is necessary to evaluate modifying the Turtle Rock Zone 3 Reservoir with a full RMS system and other ancillary improvements.

1.1 Project Setting

The existing Turtle Rock Zone 3 Reservoir is located in the city of Irvine in Orange County, California (Figure 1, Regional Map). The project site is located within IRWD's service area. More specifically, the location of the project site is at 13 ½ Minaret Drive in Irvine (Figure 2, Vicinity Map). Surrounding uses include open space with a recreation trail system directly west of the project site, and single-family residential uses to the north, east, and south.

The project site is also located within the boundaries of the Orange County Central and Coastal Subregion Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP). The NCCP/HCP is a planning and policy document designed to protect and manage habitat supporting a broad range of plant and animal populations within the Central and Coastal Subregion. The NCCP/HCP creates a subregional habitat reserve system and implements a coordinated program to manage biological resources within the habitat reserves. According to the NCCP/HCP, the project site is located outside of the reserve space and is mapped as residential/urban land. However, Non-Reserve Open Space (Turtle Rock Existing Use Area) is located immediately adjacent, west of the project site (County of Orange 1996).

Existing Facility

The existing reservoir facility is located on an approximately 1.24-acre parcel that is owned by IRWD. The site is accessed from Minaret Drive and supplies potable water to the surrounding Turtle Rock community, as well as IRWD's Zone 3 to Zone 4 Pump Station serving the portion of that community residing at a higher elevation. The reservoir is a dual-tank, below-grade reinforced concrete structure consisting of two concentric circular tanks, with the inner tank having a capacity of 870,000 gallons and the outer tank having a capacity of 4,153,400 gallons. The reservoir was constructed in 1978, with the pump station constructed adjacent to the reservoir in 1980. Reservoir mixers and chlorine analyzers were constructed in 2007. Three natural gas and two electric pumps are installed at the pump station. The two electric and one natural gas pumps operate under normal and peak demand conditions, and the remaining two natural gas pumps provide the capacity to meet the fire flow requirements. The average daily water demand for the facility is approximately 173 gallons per minute with a maximum daily demand of approximately 311 gallons per minute.

1.2 Description of Project Modifications

The original project analyzed in the 2007 MND at the project site consisted of the installation of a chlorine analyzer in a stainless steel cabinet near the existing reservoir, installation of a reservoir mixer/sampler inside the existing reservoir, and construction of two, 2-inch, conduits to convey a water sample and electric power between the reservoir mixer/sampler and the chlorine analyzer cabinet.

SOURCE: ESRI Basemap 2014

FIGURE 1

Regional Map

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SOURCE: Bing Maps (Accessed 2021), Orange County 2019

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FIGURE 2

Vicinity Map

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The proposed modifications to the original project are summarized below:

- A new, approximately 279-square-foot RMS building with chemical storage, metering pumps, chlorine residual analyzers, and mixers
- A new concrete stairway and walkway connecting the pump station building to the top of the reservoir
- A widened access road with security gate
- A new security fence and elongated existing retaining wall
- Relocation of existing electrical conduit and gas lines leading to the pump station
- A new sewer connection

A site plan is provided as Figure 3. A rendering of the proposed project modifications is provided as Figure 4.

Demolition and Vegetation Removal

Approximately 30 feet of an existing retaining wall and a portion of the existing concrete driveway would be demolished in order to construct the RMS building and widen the concrete driveway. An estimated 47 tons of demolition debris would be generated during demolition activities. Existing landscaping and one street tree located east of the pump station building would be removed. A few additional trees would be removed for the construction of the proposed concrete stairway and walkway.

Grading

Some minor grading and cut/fill activities would be required during project construction. The total estimated ground disturbance footprint for the proposed project improvements is approximately 0.40 acres. An estimated 40 cubic yards of surplus cut would be exported and disposed of at an approved off-site facility.

RMS Building

The approximately 279-square-foot RMS building would include a 100-gallon storage tank for aqueous ammonia and a 500-gallon tank for sodium hypochlorite, peristaltic metering pumps, two chlorine residual analyzers, and associated power and communications equipment. The chemical tanks would be installed within secondary containment with a chemical leak detection system. An eyewash and safety shower would also be installed. Existing vent stacks would be relocated during building construction.

Utilities

A new drain and sewer connection would be installed for the RMS building safety shower. The relocation of one, 4-inch, electrical conduit may also be required. The existing 4-inch Southern California Edison electrical conduit would also be rerouted around the proposed RMS building location. Southern California Edison would shut down the power and provide a new service cable.

Site Access, Security, and Lighting

Site access to the existing reservoir is currently via an existing 8- to 10-foot-wide concrete driveway. To provide improved maintenance truck access, the modifications would involve the re-grading and widening of the access

road to 10 feet wide. A new wrought iron fence and security gate across the access road would also be installed to fully secure the project site and deter trespassers from using the access road to illegally access the trail of the existing TRHA fence. Exterior security lighting on the RMS building would be installed. Lighting fixtures would feature a design to keep illumination within the property and prevent spillover to the neighboring properties.

Landscaping

Upon completion of construction, landscaping would be provided in areas of construction disturbance. The landscape palette would include a variety of drought-tolerant plants and shrubs designed to blend with the surrounding natural environment and conform to the landscaping requirements of the TRHA. Trees requiring removal would be replaced at a 1:1 ratio. Replacement trees in the vicinity of the concrete walkway would be placed to screen the view of the facilities from adjacent residences.

1.3 Project Construction and Scheduling

Project construction is anticipated to begin in late spring 2022 and is estimated to be completed by spring 2023. The anticipated duration of construction activities is approximately 8 months. An average of six construction workers would be on site each day during construction. During peak construction activity, the project would generate twelve maximum daily trips. Approximately seven haul truck trips would be required for off-site disposal of demolition debris and surplus spoils at the nearest approved facility. Tree and vegetation removal would occur outside of the nesting bird season, which is generally February 15 through August 31.

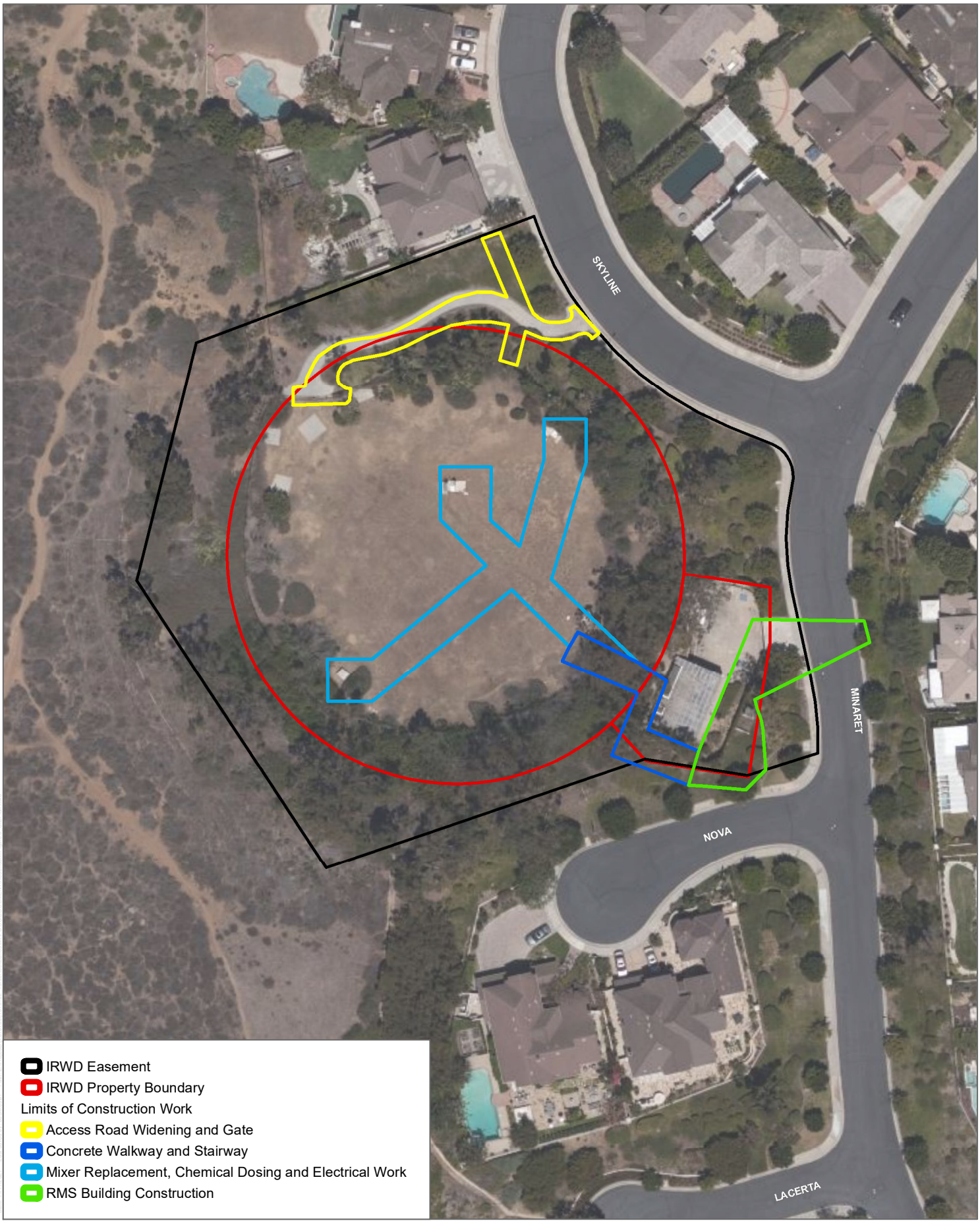
1.4 Project Operational Characteristics

Upon completion of construction, the project would primarily serve as a remotely operated water storage and distribution facility. Like the existing conditions, IRWD staff would occasionally visit the site for routine operation maintenance or in the event of an emergency. The proposed project improvement would generate an additional one to two maximum daily employee trips, and one maximum daily delivery trip every two weeks.

1.5 Project Approvals

No new permits or approvals beyond those identified for the original project in the 2007 MND are anticipated. As stated in the 2007 MND, it is anticipated that the following regulatory permits and approvals would be required:

Orange County Fire Authority Notification and Permitting. The RMS would use liquid sodium hypochlorite and aqueous ammonia. Per Orange County Fire Authority requirements, a Fire Master Plan would thus be required. The Fire Master Plan would include hazardous materials identification, chemical classification packet, and the installation of aboveground chemical storage tanks with secondary containment surrounding each tank and leak detection systems.



SOURCE: Bing Maps (Accessed 2021), Orange County 2019

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FIGURE 3

Site Plan

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SOURCE: IRWD

FIGURE 4

Rendering of Proposed Project Modifications

Addendum No. 2 to the RMS and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs Final IS/MND

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2 Environmental Impact Analysis

This section evaluates the proposed project modifications, described in Section 1, Introduction and Background, in relation to the analysis presented in the 2007 MND and 2015 Addendum. For the Turtle Rock Reservoir Zone 3 project site, the 2007 MND previously identified no environmental impacts with respect to agricultural resources, biological resources, cultural resources, hazards and hazardous materials, hydrology and water quality, mineral resources, population and housing, public services, recreation, transportation, and utilities and service systems. Less-than-significant impacts for the project site for geology and soils, noise, and mandatory findings significance were identified. Air quality impacts were determined to be less than significant with mitigation incorporated.

The results of this analysis demonstrate and confirm that the proposed project modifications do not meet any of the criteria in Section 15162 of the California Environmental Quality Act (CEQA) Guidelines for preparation of a subsequent or supplemental Environmental Impact Report (EIR), and that the proposed project modifications do meet the criteria of Section 15164 of the State CEQA Guidelines for preparation of an addendum.

As supported in the following discussion, implementing the proposed project modifications would not cause new significant or substantially more severe impacts on environmental resources relative to those discussed in the 2007 MND and 2015 Addendum. No circumstances have changed that would result in new significant or potentially significant effects on environmental resources. No new information exists that shows that the proposed project modifications would have significant or potentially significant impacts not discussed in the 2007 MND and/or 2015 Addendum. Given these conditions, the proposed project modifications are consistent with CEQA requirements for the use of an addendum. The analysis of potential impacts on environmental resources in the 2007 MND and 2015 Addendum, supplemented by the information in this Addendum No. 2 for the proposed project modifications, is sufficient to meet CEQA requirements and support the approval of the proposed project modifications.

2.1 Aesthetics

Proposed project modifications would involve the removal of a portion of landscaping and a few trees, construction of a new 16-foot-high RMS building and adjacent perimeter wall, construction of a new concrete walkway, and a widened access road with security gate. Following construction, areas would be relandscaped and trees would be replaced. As shown in Figure 4, the proposed new site components have been designed with architectural features and proposed landscaping similar to the surrounding residential neighborhood. The building would be a height similar to the existing pump station building. Additionally, the new permanent perimeter fence and security gate would be constructed of low-glare materials and would not substantially impact daytime views. IRWD has developed aesthetic design features and site renderings in consultation with the TRHA.

Incorporation of architectural features and landscaping consistent with the surrounding areas, adherence to standard lighting design requirements, and coordination with the TRHA would minimize any adverse aesthetic impacts associated with the proposed project modifications. Therefore, impacts would be less than significant and not a substantial increase in the severity of impacts identified in the 2007 MND.

Consequently, none of the conditions described in California Code of Regulations (CCR) Section 15162 of the State CEQA Guidelines would occur relative to aesthetics. The analysis of potential impacts on aesthetics in the 2007

MND, supplemented by the 2015 Addendum and information in this second addendum, is sufficient to meet CEQA requirements and support the approval of the proposed project modifications.

2.2 Agricultural Resources

Agricultural resources that could be affected by the proposed project modifications and the type and severity of potential impacts are similar with those evaluated in the 2007 MND. According to the California Department of Conservation Important Farmland Finder (CDOC 2016), the site is designated as "Urban and Built-Up Land," and is immediately next to land designated as "Other Land." Therefore, the project site and the surrounding area are not identified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. No agricultural activities are practiced on the site, and no Williamson Act contract is in force on the property. Consistent with the 2007 MND, there would be no impacts from the proposed project modifications on agricultural resources.

2.3 Air Quality

An updated air quality analysis was performed to confirm that the type and severity of potential air quality impacts as a result of the proposed project modifications are similar with those evaluated in the 2007 MND and 2015 Addendum. Both the 2007 MND and 2015 Addendum determined that potential air quality impacts associated with construction and operation of the proposed projects would be less than significant with mitigation incorporated.

The project site is located within the South Coast Air Basin and is within the jurisdictional boundaries of the South Coast Air Quality Management District (SCAQMD). A quantitative analysis was conducted to determine whether the proposed project modifications might result in emissions of criteria air pollutants that may exceed the SCAQMD construction or operational mass daily thresholds and/or would result in a more severe impact than previously evaluated in the 2007 MND. Criteria air pollutants include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide, particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}; course particulate matter), particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$; fine particulate matter), and lead. Pollutants that are evaluated herein include volatile organic compounds (VOCs) and oxides of nitrogen (NO_x), which are important because they are precursors to O_3, as well as CO, sulfur oxides (SO_x), PM_{10}, and $PM_{2.5}$.

The air quality environmental setting is generally the same as provided in the 2007 MND and the regulatory setting is similar to what is described in the 2007 MND; however, the regulatory framework has evolved with the addition of and revisions to guidance, rules, and regulations enacted by the SCAQMD since the 2007 MND was drafted. The SCAQMD CEQA Air Quality Significance Thresholds, as revised in April 2019, set forth quantitative emission significance thresholds for criteria air pollutants, which, if exceeded, would indicate the potential for a project to contribute to violations of the California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS) (SCAQMD 2019). Notably, the 2019 SCAQMD mass daily construction thresholds for VOC, NO_x, CO, SO_x, and PM_{10} are the same as applied in the 2007 MND. Consistent with requirements at the time of preparation and emission modeling outputs, $PM_{2.5}$ was not estimated specifically in the 2007 MND; however, $PM_{2.5}$ is a subset of PM_{10}, so particulate matter was evaluated. $PM_{2.5}$ is not a topic that constitutes "new information" triggering preparation of an EIR or negative declaration; rather, the prior EIR or negative declaration did not analyze $PM_{2.5}$ emissions impacts. Accordingly, project-generated $PM_{2.5}$ emissions and associated impacts are estimated herein for disclosure, but cannot be compared to 2007 MND results.

Construction of the proposed project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (e.g., off-road construction equipment, soil disturbance, and off-gassing from architectural coatings and asphalt pavement application) and off-site sources (e.g., haul trucks, vendor trucks, and worker vehicle trips). Operation of the project is not anticipated to require additional employee vehicle trips above existing conditions; however, to conservatively model potential operational emissions, periodic employee and maintenance vehicle trips were assumed along with operation of the new RMS building. Consistent with the SCAQMD modeling recommendations, the California Emissions Estimator Model (CalEEMod) Version 2020.4.0 was used to estimate emissions from construction and operation of the proposed project modifications. Estimated project-generated construction and operational emissions are compared to the appropriate SCAQMD mass daily thresholds to evaluate the potential significance of emissions. Because the SCAQMD thresholds are for mass daily emissions, construction emissions from the components analyzed in 2007 MND and the 2015 Addendum are not additive to the proposed project modifications because construction activity would not overlap in the same day. Conversely, operational emissions can be considered additive because they reflect complete operation of the proposed project as evaluated in the 2007 MND and modified in the 2015 Addendum and herein. Accordingly, construction emissions are evaluated for the proposed project modifications individually, while operational emissions are added to the previous estimated operational emissions, as discussed further below.

Construction Emissions

For purposes of estimating emissions associated with proposed project modifications, it is assumed that construction of the project would last approximately 8 months.[1] General construction equipment modeling assumptions for the project are provided in Table 2.3-1. Construction schedule assumptions, including phase type, duration, and sequencing, were based on information provided by IRWD and is intended to represent a reasonable scenario based on the best information available. Default values provided in CalEEMod were used where detailed project information was not available. Overlap of construction phases is anticipated to occur, which is provided in Appendix A, along with detailed construction modeling assumptions.

Table 2.3-1. Construction Scenario Assumptions

Construction Phase	Duration (Number of days)	One-Way Vehicle Trips			Equipment		
		Average Daily Worker Trips	Average Daily Vendor Truck Trips	Total Haul Truck Trips	Equipment Type	Quantity	Usage Hours
Demolition	5	10	2	6	Concrete/Industrial Saws	1	8
					Rubber-Tired Dozers	1	1
					Tractors/Loaders/Backhoes	2	6
Site Preparation	3	6	2	6	Graders	1	4
					Tractors/Loaders/Backhoes	1	8

[1] The analysis assumes a construction start date of June 2022, which represents the earliest date construction would initiate. Assuming the earliest start date for construction represents the worst-case scenario for criteria air pollutant and greenhouse gas emissions because off-road equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years.

Table 2.3-1. Construction Scenario Assumptions

Construction Phase	Duration (Number of days)	One-Way Vehicle Trips			Equipment		
		Average Daily Worker Trips	Average Daily Vendor Truck Trips	Total Haul Truck Trips	Equipment Type	Quantity	Usage Hours
Grading 1	2	8	2	6	Graders	1	6
					Rubber-Tired Dozers	1	6
					Tractors/Loaders/Backhoes	1	7
Building Construction 1 (Building, Wall, and Stairway)	160	12	2	4	Cranes	1	4
					Forklifts	2	6
					Generator Sets	1	8
					Tractors/Loaders/Backhoes	1	7
Building Construction 2 (Installation of Mixers and Construction of Reservoirs' Roof Modifications)	30	4	2	0	Cranes	1	4
					Forklifts	1	3
					Skid Steer Loader	1	6
Paving 1	4	8	2	2	Pavers	1	7
					Rollers	1	7
					Tractors/Loaders/Backhoes	1	7
Grading 2	2	8	2	0	Graders	1	6
					Rubber-Tired Dozers	1	6
					Tractors/Loaders/Backhoes	1	7
Architectural Coating	1	2	2	0	Air Compressors	1	6
Paving 2	4	8	2	2	Pavers	1	7
					Rollers	1	7
					Tractors/Loaders/Backhoes	1	7

Notes:
During demolition, approximately 47 tons of debris is estimated to be exported.
During grading 1, approximately 40 cubic yards of export is anticipated.
Overlap of construction phases is anticipated to occur, which is provided in Appendix A, along with additional construction assumption details.

Implementation of the proposed project modifications would generate criteria air pollutant emissions from entrained dust, off-road equipment, vehicle emissions, architectural coatings, and asphalt pavement application. Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. The project would be required to comply with SCAQMD Rule 403 to control dust emissions generated during grading activities. Standard construction practices that were assumed to be employed to reduce fugitive dust emissions per SCAQMD Rule 403, and were quantified in CalEEMod, include watering of the active sites two times per day depending on weather conditions. Internal combustion engines used

by construction equipment, haul trucks, vendor trucks (i.e., delivery trucks), and worker vehicles would result in emissions of VOCs, NO_x, CO, PM_{10}, and $PM_{2.5}$. The application of architectural coatings, although anticipated to be minimal, such as exterior application/interior paint and other finishes, and application of asphalt pavement, would also produce VOC emissions; however, the contractor is required to procure architectural coatings from a supplier in compliance with the requirements of SCAQMD's Rule 1113 (Architectural Coatings). Construction emissions can vary substantially from day to day, depending on the level of activity; the specific type of operation; and, for dust, the prevailing weather conditions. Therefore, such emissions levels can only be estimated, with a corresponding uncertainty in precise ambient air quality impacts.

Construction emissions were calculated for the estimated maximum day over the construction period associated with each phase and reported as the maximum daily emissions estimated during each year of construction (2022 through 2023). Table 2.3-2 presents the estimated maximum daily construction emissions generated during construction of the project modifications. Details of the emission calculations are provided in Appendix A. As previously discussed, construction emissions from the proposed modifications should not be added to estimated construction emissions from the 2007 MND or the 2015 Addendum because activity would not occur on the same day and the SCAQMD construction thresholds evaluate mass daily emissions.

Table 2.3-2. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions

Year	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
2022	1.53	17.34	13.84	0.03	3.48	1.89
2023	4.77	16.78	20.09	0.04	3.25	1.81
Maximum daily emissions	**4.77**	**17.34**	**20.09**	**0.04**	**3.48**	**1.89**
SCAQMD threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = particulate matter with an aerodynamic diameter equal to or less than 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter equal to or less than 2.5 microns; SCAQMD = South Coast Air Quality Management District.
See Appendix A for complete results.
The values shown are the maximum summer or winter daily emissions results from CalEEMod and provided in Appendix A.
The estimates reflect control of fugitive dust (watering two times daily) required by South Coast Air Quality Management District Rule 403.

As shown in Table 2.3-2, maximum daily construction emissions would not exceed the significance thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$ during construction in all construction years.

Regarding construction toxic air contaminants, other emissions such as odors, and localized construction emissions, no substantial changes from what was analyzed within the 2007 MND would occur with implementation of the proposed project modifications.

Consistent with the 2007 MND, there would be less-than-significant construction air quality impacts from the proposed project modifications.

Operational Emissions

For background, the 2007 MND determined that there would be no significant air quality impacts from operation of the RMS and ancillary facilities or the chlorine analyzers and reservoir mixers, and that the facilities would be

maintained through periodic site visits by an IRWD operator checking equipment and by subcontractors to inspect/repair equipment as needed. The 2015 Addendum assumed that operation of the modified project would require 12 maintenance trips per year per site, and 52 annual chemical delivery trips per chemical, and estimated that emissions would not exceed the SCAQMD mass daily operational criteria air pollutant thresholds. Both the 2007 MND and the 2015 Addendum determined potential operational-related air quality impacts would be less than significant.

Operation of the proposed project modifications would potentially generate VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from mobile sources, including vehicular traffic generated by minimal employees and delivery trucks; energy sources from natural gas usage; area sources, including the use of landscaping equipment and consumer products; and from architectural coatings.

Regarding mobile sources, it was assumed that the maximum daily trips made by employees would be two round trips (four one-way trips in light-duty vehicles) and the maximum daily delivery trips would be one round trip (two one-way trips in heavy-duty trucks). As noted above, the project is not anticipated to generate additional employee vehicle trips above existing conditions; however, minimal trips were assumed to provide a conservative analysis. For the new RMS building with new chemical storage tanks, an approximately 279-square-foot building was assumed in CalEEMod and default values for area and energy sources were assumed, which is conservative because the building operation would not involve as intensive of use as a typical building would.

Table 2.3-3 presents the maximum daily area, energy, and mobile source emissions associated with proposed project modification operation (year 2023), which are compared against pollutant thresholds established by the SCAQMD (last updated in April 2019, although the thresholds are the same for the criteria air pollutants evaluated in the 2007 MND and the 2015 Addendum). As discussed above, operational emissions from the project evaluated in the 2007 MND and the modifications evaluated in the 2015 Addendum are additive to the proposed modifications evaluated herein as they reflect complete operation of the project. The 2007 MND did not anticipate an increase in operational activity or associated criteria air pollutant emissions, and the 2015 MND estimated a minimal increase in vehicle trips and associated mobile source emissions. Air quality impacts associated with operation of the proposed project modifications plus previously estimated emissions for the project in the 2007 MND and the 2015 Addendum modifications would be considered significant if any of the pollutant thresholds presented in Table 2.3-3 were exceeded. Details of the emission calculations are provided in Appendix A.

Table 2.3-3. Estimated Maximum Daily Operational Criteria Air Pollutant Emissions

Emission Source	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
2021 Proposed Project Modifications						
Area	<0.01	0.00	<0.01	0.00	0.00	0.00
Energy	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Mobile	0.01	0.04	0.14	<0.01	0.06	0.02
Subtotal	*0.01*	*0.04*	*0.14*	*<0.01*	*0.06*	*0.02*
2015 Addendum Modifications						
Total (mobile only)	0.04	0.44	0.56	<0.01	0.04	0.01

Table 2.3-3. Estimated Maximum Daily Operational Criteria Air Pollutant Emissions

Emission Source	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
2007 Proposed Project						
Total	—	—	—	—	—	—
Combined Project and Modifications						
Total	0.05	0.48	0.70	<0.01	0.10	0.03
SCAQMD Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Threshold Exceeded?	No	No	No	No	No	No

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = particulate matter with an aerodynamic diameter equal to or less than 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter equal to or less than 2.5 microns; <0.01 = reported value less than 0.01; SCAQMD = South Coast Air Quality Management District; — = none estimated.
The values shown are the maximum summer or winter daily emissions results from CalEEMod and provided in Appendix A.
See Appendix A for complete results.

As shown in Table 2.3-3, operation of proposed project modifications would not exceed the SCAQMD criteria air pollutant operational thresholds individually or when combined with previously estimated operational air pollutant emissions from the 2007 MND and 2015 Addendum.

Regarding operational toxic air contaminants and other emissions, such as odors, no substantial changes from what was analyzed within the 2007 MND would occur with implementation of the proposed project modifications. Specifically, regarding the potential for off-gassing of toxic air contaminants, IRWD will ensure sodium hypochlorite concentrations are at an appropriate temperature to reduce the potential for degradation (IRWD 2021). As sodium hypochlorite degrades, it creates gas bubbles, and off-gassing occurs. The bubbles often get trapped in piping, valves, and pumps, causing potential pipe or valve failure, exploding pump heads, and inconsistent feed. In some instances, diaphragm pumps can become vapor-locked. To help mitigate the effects of off-gassing, the new RMS building would have ventilation with louvers and thermostat-controlled exhaust fan to reduce factors contributing to heat and UV radiation decomposition. In addition, the valve location and chemical piping layout would be designed to minimize entrapped gas possibilities, and anti-gas/vapor lock pump protection would also be installed (IRWD 2021). These design measures would minimize the potential impacts associated with toxic air contaminant emissions. Consistent with the 2007 MND, there would be less-than-significant operational air quality impacts from the proposed project modifications.

Although no significant construction or operational impacts were identified, the following fugitive dust control mitigation measure (MM-AQ-1) was recommended in the 2007 MND and amended by the 2015 Addendum to reduce potential air quality impacts during construction of the proposed project and to ensure that significant impacts would not occur. No revisions to the MM-AQ-1 are recommended as a result of the proposed project modifications. The specific mitigation measure from the 2007 MND is listed below as amended by the 2015 Addendum to reflect compliance with SCAQMD Rule 403, Fugitive Dust:[2]

[2] Estimated emissions in Table AQ-4 assume watering of active sites two times daily as a surrogate to reflect compliance with SCAQMD Rule 403, Fugitive Dust. Implementation of MM-AQ-1 would further reduce potential fugitive dust generated during project construction.

MM-AQ-1 The following fugitive dust control measures are recommended to reduce PM_{10} emissions:

- Water all active construction areas as needed to minimize dust.
- During clearing, grading, earthmoving, excavating, or transporting cut or fill materials, use water trucks or sprinkler systems to prevent dust from leaving the site and to create a crust after each day's activities cease.
- During construction, use water trucks or sprinkler systems to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this shall include wetting down such areas later in the morning, after work is completed for the day, and whenever winds exceed 15 miles per hour.
- Cover, keep moist, or treat with soil binders all soil stockpiled for more than 2 days to prevent dust generation.
- Maintain speeds on unpaved roads at less than 15 miles per hour.
- Sweep, vacuum, and/or wash all dirt and debris spilled onto paved surfaces at the project site and onto adjacent roadways at the end of each workday.
- At a minimum, at each vehicle egress from the project site to a paved public road, install a rumble strip at the exit of IRWD's property adjacent to the areas which will be excavated to reduce trackout and carryout onto public roads.
- Cover all off-site haul trucks or maintain at least 2 feet of freeboard.
- Cover or water any on-site stockpiles of debris, dirt, or other dusty material to minimize dust.
- Suspend all grading and trenching operations if winds exceed 25 miles per hour.

2.4 Biological Resources

A biological resources assessment, conducted by Dudek in October 2021, was performed to confirm that the biological resources that could be affected by the proposed project modifications and the type and severity of potential impacts are similar with those evaluated in the 2007 MND. This assessment included a field reconnaissance and review of the latest available relevant literature; published research; and maps on soils, hydrology, wetlands, and special-status species distributions to determine those resources that have the potential to occur within the 1.24-acre parcel located at 13½ Minaret Drive, Irvine (Assessor's Parcel Numbers 463-641-31, 463-641-02, and 463-641-01) (project site) and surrounding 300-foot buffer (the biological study area) (Figure 5, Biological Resources).

For the purposes of this analysis, special-status species include those that are (1) listed, proposed for listing, or candidates for listing under the federal Endangered Species Act as threatened or endangered; (2) listed or candidates for listing under the California Endangered Species Act as threatened or endangered; (3) a state fully protected species; (4) a California Department of Fish and Wildlife (CDFW) Species of Special Concern; (5) a species listed on the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants with a California Rare Plant Rank of 1B or 2B; or (6) a "covered species" under the Orange County NCCP/HCP (County of Orange 1996). Sensitive vegetation communities are those communities identified as high priority for inventory in CDFW's List of Vegetation Alliances and Associations (or Natural Communities List) (CDFW 2021a), which is based on A Manual of California Vegetation, Second Edition (Sawyer et al. 2009), by a state rarity ranking of S1, S2, or S3.

SOURCE: Bing Maps (Accessed 2021), Orange County 2019

0 70 140 Feet

FIGURE 5

Biological Resources

Addendum No. 2 to the RMS and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs Final IS/MND

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Other sensitive vegetation communities include unique stands that support habitats found only in the region, local representatives of species not generally found in Orange County, or outstanding examples of CDFW special-status vegetation communities. Additionally, riparian areas, wetlands, bays, estuaries, marshes, and wildlife corridors are generally considered special-status biological resources.

Literature Review

Prior to conducting field reconnaissance, Dudek searched the CDFW California Natural Diversity Database (CNDDB) (CDFW 2021b–e), the CNPS Inventory of Rare and Endangered Plants (CNPS 2021), and the U.S. Fish and Wildlife Service's Information for Planning and Conservation occurrence data (USFWS 2021a) to identify special-status biological resources that are known to occur in the region. The CNDDB and CNPS databases were searched based on the U.S. Geological Survey 7.5-minute topographic quadrangle map series. The project site is located within the 'Tustin' U.S. Geological Survey 7.5-minute quadrangle map, which was used in the search, as well as the surrounding seven U.S. Geological Survey 7.5-minute quadrangle maps (i.e., Anaheim, Black Star Canyon, Laguna Beach, El Toro, Newport Beach, Orange, and San Juan Capistrano). Results of the CNDDB, CNPS, and Information for Planning and Conservation database searches are included as Appendix B-1 of this document. In addition, potential and/or historical drainages and aquatic features were investigated based on a review of U.S. Geological Survey topographic maps (1:24,000 scale), aerial photographs, the National Wetland Inventory database (USFWS 2021b), and the Natural Resource Conservation Service Web Soil Survey (USDA 2021).

Field Reconnaissance

Following the literature and data review, Dudek biologist Rachel Swick conducted a reconnaissance-level survey on October 28, 2021, to identify existing biological resources and potential biological constraints within the biological study area. The survey was conducted from 10:00 a.m. to 11:39 a.m., and weather conditions were favorable, with clear skies and 0% cloud cover, a temperature that ranged from 76°F to 80°F, and wind speeds from 0 to 1 mile per hour. Vegetation community and land cover mapping was previously conducted by the Natural Communities Coalition in 2015 across the entire Orange County NCCP/HCP reserve system (AIS 2015). During the survey, Dudek conducted a field verification of this map to confirm it represented existing site conditions. Additionally, the extent and distribution of potentially jurisdictional aquatic resources (e.g., waters of the United States and waters of the state) that may be subject to regulation by the U.S. Army Corps of Engineers, Regional Water Quality Control Board, and/or CDFW were investigated. During the survey, Dudek compiled a general inventory of plant and wildlife species detected by sight, calls, tracks, scat, or other signs, and made a determination concerning the potential for special-status species to occur within the biological study area.

Vegetation Communities and Plants

During the field reconnaissance, vegetation communities and land cover types within the biological study area were confirmed and their extents updated. The project site supports one non-natural land cover: introduced trees, shrubs. The surrounding vicinity within the biological study area supports two natural vegetation communities: California sagebrush–California buckwheat alliance and California Buckwheat alliance. Figure 5 illustrates the distribution, and Table 2.4-1 summarizes the extent of vegetation communities and land covers within the biological study area. Descriptions of these vegetation communities and land covers are summarized below.

Table 2.4-1. Vegetation Communities and Land Covers within the Biological Study Area

Vegetation Community or Land Cover	Project Site (acres)	Biological Study Area (acres)
Herbaceous Alliances and Stands		
California sagebrush–California buckwheat alliance	—	0.72
California buckwheat scrub alliance	—	3.53
Non-Natural Land Covers/Unvegetated Communities		
Introduced trees, shrubs	2.25	10.69
Total*	**2.25**	**14.94**

* Acreages may not total due to rounding

California Sagebrush-California Buckwheat Scrub Alliance

California sagebrush-California buckwheat scrub is described by Jones and Stokes (1993) as dominated by California sagebrush (*Artemisia californica*) and California buckwheat (*Eriogonum fasciculatum*), with a diversity of other low-statured shrubs such as black sage (*Salvia mellifera*), white sage (*Salvia apiana*), bush monkeyflower (*Mimulus aurantiacus*), California bush sunflower (*Encelia californica*), common deerweed (*Lotus scoparius*), coastal goldenbush (*Isocoma menziesii*), and giant wild rye (*Leymus condensatus*); broad-leaved shrubs such as lemonade berry (*Rhus integrifolia*), coyote brush (*Baccharis pilularis*), and chaparral bush mallow (*Malacothamnus fasciculatus*); and an understory of non-native and native grasses, as well as forbs such as blue dicks (*Dichelostemma capitata*) and bicolor cudweed (*Gnaphalium bicolor*). Within the biological study area, this vegetation community is dominated by California sagebrush and California buckwheat, as well as common deerweed.

California Buckwheat Scrub Alliance

The California buckwheat scrub alliance includes California buckwheat as the dominant or co-dominant shrub in the canopy. This alliance has a continuous or intermittent shrub canopy less than 7 feet in height, with a variable ground layer that may be grassy (Sawyer et al. 2009). Species associated with the alliance include California sagebrush, chaparral bush mallow, coastal goldenbush, coyote brush, common deerweed, black sage, and white sage (Sawyer et al. 2009). Within the biological study area, this vegetation community is dominated by California buckwheat.

Introduced Trees, Shrubs

This non-natural land cover refers to areas that have been developed or otherwise physically altered to the point where naturally occurring vegetation is no longer present. This mapping unit includes urban areas and parks with permanent or semi-permanent structures, hardscapes, and landscaped areas that require irrigation and periodic maintenance. This mapping unit is not defined in A Manual of California Vegetation, Second Edition (Sawyer et al. 2009), nor included on the California Natural Community List (CDFW 2021a), but has been used in this report because it best describes what was observed in the field. As such, this community is not globally or state ranked, and is not considered a sensitive natural community. This land cover characterizes the project site and a large portion of the biological study area, the majority of which consists of planted, ornamental species that are frequently maintained. Ornamental trees and shrubs include trailing shrub verbena (*Lantana montevidensis*), bank catclaw (*Acacia redolens*), Cape leadwort (*Plumbago auriculata*), wattle (Acacia sp.), English ivy (*Hedera helix*), rose

(*Rosa* sp.), and eucalyptus species (*Eucalyptus camaldulensis*, *Eucalyptus* sp.). Single-family residences and paved roads also occur within this land cover and are present to the immediate north, east, and south of the project site.

Wildlife

A limited number of wildlife species were observed or detected during the reconnaissance-level survey of the biological study area. Six bird species detected within the biological study area are American crow (*Corvus brachyrhynchos*), Anna's hummingbird (*Calypte anna*), northern mockingbird (*Mimus polyglottos*), black phoebe (*Sayornis nigricans*), house finch (*Haemorhous mexicanus*), and spotted towhee (*Pipilo maculatus*). No active bird nests were detected within the biological study area.

Jurisdictional Aquatic Resources

No jurisdictional aquatic resources, including wetlands and non-wetland waters, regulated by the U.S. Army Corps of Engineers, Regional Water Quality Control Board, or CDFW occur within the project impact footprint or biological study area.

Conclusions

Consistent with the findings of the 2007 MND, implementation of the proposed project modifications would not result in any impacts with respect to state or federally protected wetlands, nor the movement of any native resident or migratory species, wildlife corridors, or use of native wildlife nursery sites. Although the proposed project modifications would require tree removal, these ornamental species do not occur within public rights-of-way and/or on City-owned property. As a result, the removal and replacement of ornamental trees associated with the project would not conflict with the City of Irvine's ordinances protecting trees. Similarly, there would be no other conflicts with any local policies or ordinances protecting biological resources with the implementation of the proposed project modifications, nor would it conflict with or prevent implementation of the conservation objectives of the County of Orange Central and Coastal NCCP/HCP.

Although there were no riparian or other sensitive vegetation communities identified on the project site, the biological resources assessment found that construction of the proposed project modifications is located adjacent to non-reserve, open space areas of the Central and Coastal NCCP/HCP (Turtle Rock Existing Use Area), which supports a sensitive vegetation community (coastal sage scrub). Construction activities could potentially result in short-term indirect construction impacts to coastal sage habitat related to erosion, runoff, and dust; however, all project ground-disturbing activities would be subject to the typical restrictions (e.g., best management practices [BMPs]) and requirements that address erosion and runoff, and MM-AQ-1 would minimize any potential indirect impacts related to dust. Therefore, any indirect impacts to sensitive vegetation communities associated with construction of the proposed project modifications would be less than significant and not a substantial increase in the severity of impacts identified in the 2007 MND.

The biological resources assessment also identified that although special-status wildlife species are not expected to occur within the proposed construction footprint due to lack of suitable habitat, the project site contains suitable foraging and nesting habitat for several common raptor and passerine species (see potential to occur tables in Appendix B-2). Therefore, project construction could result in direct or indirect impacts to nesting birds, including the loss of nests, eggs, and fledglings, if vegetation clearing and ground-disturbing activities occur during the nesting season (generally February 15 through August 31). As discussed in the 2007 MND, IRWD is committed to

ensuring compliance with the Migratory Bird Treaty Act. As described in Section 1.3, Project Construction and Scheduling, IRWD has incorporated tree and vegetation removal to occur outside of the nesting bird season, which would avoid potential direct and indirect impacts to nesting birds.

Suitable habitat was also identified for several special-status wildlife species adjacent to the project site within the California sagebrush–California buckwheat scrub alliance and California buckwheat scrub alliance, including orange-throated whiptail (*Aspidoscelis hyperythra*), red diamondback rattlesnake (*Crotalus ruber*), coastal California gnatcatcher (*Polioptila californica californica*), Blainville's horned lizard (*Phrynosoma blainvillii*), coast patch-nosed snake (*Salvadora hexalepis virgultea*), and northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*). Potential indirect impacts to these species would be limited to short-term construction impacts related to noise, erosion, runoff, and dust. As described previously, all project ground-disturbing activities would be subject to the typical restrictions (e.g., BMPs) and requirements that address erosion and runoff, and MM-AQ-1 would minimize any potential indirect impacts related to dust.

Additional potential indirect impacts associated with short-term construction noise could occur to coastal California gnatcatcher. Suitable coastal sage scrub habitat for coastal California gnatcatcher occurs approximately 120 feet west of project impact footprint. This habitat is immediately adjacent to the existing facility, several single-family residences, and a heavily used public trail system. As discussed in Section 2.12, Noise and Vibration, the existing noise levels ranged from 41 to 62 A-weighted decibels (dBA). Construction-related noise generated during the most intense activities (demolition, grading, and paving) at a distance of 110 feet was modeled at a maximum of 77 dBA. This slight increase in noise above baseline conditions during the 17-day demolition/grading/paving period (see Table 2.3-1) is not anticipated to result in significant impacts to coastal California gnatcatcher, if present. Therefore, any indirect impacts to special-status wildlife species associated with construction of the proposed project modifications would be less than significant and not a substantial increase in the severity of impacts identified in the 2007 MND.

Results of the analysis indicate that all impacts with respect to biological resources would not result in a substantial increase in the severity of impacts from those identified in the 2007 MND. Any impacts associated with implementation of the proposed project modifications would be avoided or reduced to less than significant with the implementation of standard construction BMPs, MM-AQ-1, removal of vegetation outside of the nesting bird season, and compliance with the Migratory Bird Treaty Act. Consequently, none of the conditions described in CCR Section 15162 of the State CEQA Guidelines would occur relative to biological resources. The analysis of potential impacts on biological resources in the 2007 MND, supplemented by the 2015 Addendum and information in this second addendum, is sufficient to meet CEQA requirements and support the approval of the proposed project modifications.

2.5 Cultural Resources

Cultural resources that could be affected by the proposed project modifications and the type and severity of potential impacts are similar to those evaluated in the 2007 MND. As discussed in the 2007 MND, the project site is located at an existing buried reservoir where the site has been previously disturbed by construction of the reservoir, access road, slopes, drainage improvements, and other work. The proposed project modifications would involve earth-disturbing activities of approximately 0.4 acres to construct the RMS building and concrete walkway, expand the access road, and install utilities; however, all areas have been subject to previous disturbance related to previous reservoir construction and no impacts to paleontological, historic built environment, or archaeological resources are anticipated during construction of the proposed modifications. Federal, state, and local regulations

related to unanticipated cultural resource discovery or any indications of the presence of archaeological materials, including historic era and prehistoric cultural material or deposits, and/or human remains, require that construction work be halted to evaluate the discovery and determine whether further evaluation or treatment is warranted. As stated in the 2015 Addendum, IRWD's project manual will require workers to halt construction if any cultural resources are exposed, and to contact IRWD for direction by a qualified archaeological, historical, or paleontological professional (IRWD 2019). Consistent with the 2007 MND, there would be no impacts from the proposed project modifications on cultural resources.

2.6 Geology and Soils

Geology and soils that could be affected by the proposed project modifications and the type and severity of potential impacts are generally similar to those evaluated in the 2007 MND. As discussed in the 2007 MND, a geotechnical review was conducted for the project site. The review did not identify any potential to encounter groundwater at the relatively shallow depths expected to be excavated for the building footings and for conduit installation. The geotechnical review found no evidence for active faulting within the project site analyzed in the 2007 MND. An updated site-specific geotechnical study prepared for the proposed modifications indicates that due to the close proximity to several known active and potentially active faults, there is a potential for severe ground shaking (IRWD 2021). Project modifications would be designed in accordance with site-specific geotechnical recommendations, the most recent California Building Code, and IRWD design standards to address geotechnical concerns identified in the study (IRWD 2021). In addition, construction activities would be in compliance with IRWD's construction standards (IRWD 2019). The proposed project modifications would involve disturbance of approximately 0.4 acres to construct the RMS building and concrete walkway, expand the access road, and install utilities. Standard construction BMPs would also be implemented to minimize erosion and stormwater runoff. Consistent with the 2007 MND, impacts would be less than significant from the proposed project modifications on geology and soils.

2.7 Greenhouse Gases

Greenhouse gas (GHG) emissions were not analyzed in the 2007 MND because Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) did not include GHG significance criteria at the time the 2007 MND was published. However, since then, California laws have expanded with regard to GHG emissions with the passage of the California's Global Warming Solutions Act of 2005 (Assembly Bill 32) and Senate Bill 32. While CEQA now requires evaluation of potential GHG emission impacts of a project, based on the findings of *Citizens for Responsible Equitable Environmental Development v. City of San Diego*, GHG impacts is not a topic that constitutes "new information" triggering preparation of an EIR or negative declaration as opposed to relying on analysis from a prior EIR or negative declaration that did not analyze GHG impacts. Accordingly, a new GHG emissions analysis is not required for the proposed project modifications. The 2015 Addendum did quantify GHG emissions generated from project construction and operation and concluded that emissions would be minimal and would not result in a new or significant impact. Consistent with the 2015 Addendum, for informational purposes, the GHG emissions from the proposed project modifications are presented herein to understand the potential magnitude of project-generated emissions.

For background, climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period of time (decades or longer). The Earth's temperature depends on the balance between energy entering and leaving the planet's system, and many factors (natural and

human) can cause changes in Earth's energy balance. The greenhouse effect is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature, and it creates a livable environment on Earth. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect and causing the Earth's surface temperature to rise. Global climate change is a cumulative impact; a project contributes to this impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs. Thus, GHG impacts are recognized exclusively as cumulative impacts (CAPCOA 2008).

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. As defined in California Health and Safety Code Section 38505(g) for purposes of administering many of the state's primary GHG emissions reduction programs, GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3) (also refer to 14 CCR 15364.5). The three GHGs evaluated herein are CO_2, CH_4, and N_2O.[3]

Gases in the atmosphere can contribute to climate change both directly and indirectly. The Intergovernmental Panel on Climate Change developed the global warming potential (GWP) concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons (MT) of CO_2 equivalent (CO_2e). Consistent with CalEEMod Version 2020.4.0, this GHG emissions analysis assumed the GWP for CH_4 is 25 (i.e., emissions of 1 MT of CH_4 are equivalent to emissions of 25 MT of CO_2), and the GWP for N_2O is 298, based on the Intergovernmental Panel on Climate Change's Fourth Assessment Report (IPCC 2007).

For informational purposes, according to current Appendix G of the CEQA Guidelines, a significant impact related to GHG emissions would occur if the project would (a) generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or (b) conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

Construction Emissions

Construction of the project modifications would result in GHG emissions primarily associated with the use of off-road construction equipment, on-road hauling and vendor trucks, and worker vehicles. As stated above, GHG emissions generated during construction of the project modifications are included in this assessment for disclosure purposes.

CalEEMod was used to calculate the annual GHG emissions based on the construction scenario described in Section 2.3, Air Quality. On-site sources of GHG emissions include off-road equipment, and off-site sources include hauling and vendor trucks and worker vehicles. Table 2.7-1 presents construction emissions for the project modifications from on-site and off-site emissions sources.

[3] Emissions of HFCs, PFCs, SF_6, and NF_3 are generally associated with industrial activities, including the manufacturing of electrical components and heavy-duty air conditioning units and the insulation of electrical transmission equipment (substations, power lines, and switch gears). Therefore, emissions of these GHGs were not evaluated or estimated in this analysis because the proposed project modifications would not include these activities or components and would not generate HFCs, PFCs, SF_6, or NF_3 in measurable quantities.

Table 2.7-1. Estimated Annual Construction GHG Emissions

Year	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2021	134.57	0.03	0.01	135.61
2022	20.73	<0.01	<0.01	20.90
Total	**155.30**	**0.03**	**0.01**	**156.51**

Notes: GHG = greenhouse gas; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent, <0.01 = reported value less than 0.01.
See Appendix A for complete results.

As shown in Table 2.7-1, the estimated total GHG emissions during construction of the project modifications would be approximately 157 MT CO_2e. As with project-generated construction air quality pollutant emissions, GHG emissions generated during construction of the proposed project modifications would be short term, lasting only for the duration of the construction period, and would not represent a long-term source of GHG emissions.

The 2015 Addendum estimated that the proposed project would result in approximately 123 MT CO_2e during construction. As explained previously, the 2007 MND, while it anticipated construction activity, did not estimate GHG emissions from project construction. Nonetheless, for informational purposes, the proposed modification construction emissions of 157 MT CO_2e plus the 2015 Addendum construction emissions of 123 MT CO_2e total 280 MT CO_2e.

The SCAQMD Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold (SCAQMD 2008) recommends that "construction emissions be amortized over a 30-year project lifetime, so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies." As such, estimated project-generated construction emissions amortized over 30 years would be approximately 5 MT CO_2e per year, which were added to the operational GHG emissions in the following text.

Operational Greenhouse Gas Emissions

CalEEMod Version 2020.4.0 was used to estimate potential project-generated operational GHG emissions from vehicular sources, area sources (natural gas combustion and landscape maintenance), electrical generation (including electrical generation associated with water supply and wastewater treatment), and solid waste. As explained in Section 2.3, Air Quality, CalEEMod default values were primarily assumed for the approximately 279-square-foot chloramine booster station building, which conservatively estimates emissions because the building would likely not operate at the same intensity as the modeled surrogate land use of light industry space.

Estimated mobile source emissions were based on project specifics reflecting a maximum of two employees and one delivery truck (four one-way trips in light-duty vehicles and two one-way trips in heavy-duty trucks), which, for annual trip estimation, was conservatively assumed to occur every weekday, while it is anticipated that trips would not routinely occur on a daily basis. CalEEMod was used to estimate GHG emissions from the project's area sources, including landscape maintenance equipment, which produce minimal GHG emissions. The estimation of operational energy emissions (natural gas and electricity per CalEEMod) was also based on CalEEMod land use default values and square footage of the proposed chloramine booster station building. The project modifications would generate minimal solid waste; however, to estimate potential GHG emissions associated with landfill off-gassing, CalEEMod default values for solid waste generation were used to estimate GHG emissions associated with

solid waste. Similarly, the project modifications are not anticipated to require water supply or generate wastewater; however, to estimate potential GHG emissions from supply, conveyance, treatment, and distribution of water and wastewater treatment, CalEEMod water and wastewater default values were applied.

Estimated project-generated GHG emissions from area sources, energy usage, motor vehicles, solid waste generation, and water usage and wastewater generation for project buildout (2023) are shown in Table 2.7-2.

Table 2.7-2. Estimated Annual Operational GHG Emissions

Emission Source	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
Area	<0.01	0.00	0.00	<0.01
Energy	0.72	<0.01	<0.01	0.72
Mobile	7.69	<0.01	<0.01	7.81
Solid waste	0.07	<0.01	0.00	0.18
Water and wastewater	0.17	<0.01	<0.01	0.24
			Total	**8.95**
			Amortized 30-Year Construction Emissions	*5.22*
			Project Operations + Amortized Construction Total	**14.17**

Notes: GHG = greenhouse gas; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent, <0.01 = reported value less than 0.01.
See Appendix A for complete results.

As shown in Table 2.7-2, estimated annual modified project-generated GHG emissions would be approximately 9 MT CO_2e due to project operation only. Estimated annual project-generated operational GHG emissions in 2023 plus amortized construction emissions (approximately 5 MT CO_2e per year) would be approximately 14 MT CO_2e per year. Consistent with the 2015 Addendum, project modifications would result in minor generation of GHG emissions.

The 2015 Addendum estimated that the proposed project would result in a total of approximately 1 MT CO_2e during operation because of minimal employee maintenance trips and chemical delivery trips. As explained previously, the 2007 MND did not anticipate an increase in operational activity and did not specifically evaluate GHG emissions from project operation. Nonetheless, for informational purposes, the proposed modification operational emissions of 14 MT CO_2e plus the 2015 Addendum operational emissions of 1 MT CO_2e would total 15 MT CO_2e. With amortized construction emissions of 9 MT CO_2e (280 MT CO_2e amortized over 30 years) from the proposed modifications and the 2015 Addendum modifications, combined GHG emissions would be 24 MT CO_2e.

Potential to Conflict with Applicable GHG Reduction Plans, Policies, or Regulations

The proposed project modifications would not conflict with GHG emission reduction strategies for the reasons described below.

IRWD adopted an Energy and GHG Master Plan in 2012 with the goal of identifying a portfolio of cost-effective projects to reduce IRWD's existing and future energy usage and costs, and as required under future regulatory conditions, to reduce GHG emissions (IRWD 2012). The Energy and GHG Master Plan is not a qualified GHG emissions reduction plan under CEQA pursuant to CEQA Guidelines Sections 15183.5; therefore, individual projects cannot tier or streamline CEQA review under the Master Plan. Nonetheless, it is briefly discussed for informational

purposes. The five-step Master Plan process included the following actions: (1) develop supporting materials, (2) perform project assessments, (3) evaluate and rank the projects, (4) perform portfolio and scenario analyses, and (5) create the master plan report. Twenty top projects were selected from the 61 identified projects that would potentially reduce energy use and/or reduce GHG emissions and 18 projects were evaluated and ranked by cost/cost-effectiveness, operational impacts, risk and uncertainty, GHG impacts, and environmental impacts. The Master Plan's goal is to identify a portfolio of cost-effective projects to reduce IRWD's existing and future energy costs with corresponding reductions in GHG emissions, and eight portfolios were evaluated. The Master Plan recommended Portfolio 5 (all short-listed projects minus two projects) and Project Number 3 (accelerated local groundwater supplies) to reduce IRWD GHG emissions. The proposed modifications would not conflict with IRWD's goals to reduce energy consumption, and associated energy cost and GHG emissions and would not impede IRWD from implementing its Energy and GHG Master Plan, specifically Portfolio 5 and Project Number 3.

The Climate Change Scoping Plan, approved by the California Air Resources Board (CARB) in 2008 and updated in 2014 and 2017, provides a framework for actions to reduce California's GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. The Scoping Plan is not directly applicable to specific projects, and it is not intended to be used for project-level evaluations.[4] Under the Scoping Plan, however, several state regulatory measures aim to identify and reduce GHG emissions. CARB and other state agencies have adopted many of the measures identified in the Scoping Plan. Most of these measures focus on area-source emissions (e.g., energy usage and high-GWP GHGs in consumer products) and changes to the vehicle fleet (e.g., hybrid, electric, and more fuel-efficient vehicles) and associated fuels, among others. Nonetheless, the project would comply with various GHG emissions reduction regulations to the extent they apply to the project's emissions sources.

The Southern California Association of Governments 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) is a regional growth management strategy that targets per-capita GHG reduction from passenger vehicles and light trucks in the Southern California region pursuant to Senate Bill 375. In addition to demonstrating the region's ability to attain the GHG emission-reduction targets set forth by CARB, the 2020–2045 RTP/SCS outlines a series of actions and strategies for integrating the transportation network with an overall land use pattern that responds to projected growth, housing needs, changing demographics, and transportation demands. Thus, successful implementation of the 2020–2045 RTP/SCS would result in more complete communities with various transportation and housing choices while reducing automobile use. The following strategies are intended to be supportive of implementing the 2020–2045 RTP/SCS and reducing GHGs: focus growth near destinations and mobility options, promote diverse housing choices, leverage technology innovations, support implementation of sustainability policies, and promote a green region (SCAG 2020). The key 2020–2045 RTP/SCS strategies are not applicable to the project, which does not include residential or employment growth because project operation and maintenance would be served by existing IRWD employees. Regarding the Southern California Association of Governments' goal of promoting a green region, this is through efforts such as supporting local policies for renewable energy production and promoting more resource efficient development (e.g., reducing energy consumption) to reduce GHG emissions. The proposed modifications would not consume substantial energy or result in substantial associated GHG emissions. Overall, the project would not conflict with or impede implementation of the Southern California Association of Governments' 2020–2045 RTP/SCS.

[4] The Final Statement of Reasons for the amendments to the CEQA Guidelines reiterates the statement in the Initial Statement of Reasons that "[t]he Scoping Plan may not be appropriate for use in determining the significance of individual projects because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan" (California Natural Resources Agency 2009).

The City of Irvine (City) is in the process of developing a Climate Action and Adaptation Plan that will (a) guide the City on the implementation of measurable actions to meet or exceed the state's GHG emissions targets and climate neutrality goal; (b) recommend adaptation measures that build resilience to current and future climate threats, such as drought, extreme heat, and wildfires; and (c) emphasize climate goals for the community, establishing an aspirational, yet achievable path that provides options to realize aggressive emission reduction targets by 2030, 2035, and 2045. In addition, the City has taken several steps to identify climate impacts and to begin preparing for a climate resilient future by completing a Local Hazard Mitigation Plan and a Strategic Energy Plan, and led the formation of the first Community Choice Energy initiative in an effort to give consumers clean energy choices and reduce GHG emissions. The City has yet to release a draft Climate Action and Adaptation Plan for public review. Nonetheless, due to the nature of the proposed modifications and the minimal GHG emissions generated during project implementation, it is anticipated that the project would not impede the City's future implementation of any GHG emission reduction strategies or plan.

The SCAQMD has not adopted any GHG-reduction measures that would apply to GHG emissions associated with project modifications. Therefore, consistent with the 2015 Addendum, the proposed project modifications would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

2.8 Hazards and Hazardous Materials

The proposed project modifications would involve installation of a 100-gallon aqueous ammonia storage tank and a 500-gallon tank for sodium hypochlorite within the RMS building. The chemical tanks would be installed within secondary containment with a chemical leak detection system. An eyewash and safety shower would also be installed. Notification stickers would be placed in areas where on-site hazardous materials are stored. Delivery of chemicals to the project site would be required approximately once every 2 weeks. The proposed chemical storage building would be designed in a fire-resistant manner that includes a sloped metal deck roof, an exhaust fan for ventilation, and fire-resistant doors in accordance with Orange County Fire Authority notification and permitting requirements. As presented in the 2007 MND, the Orange County Fire Authority would require a Fire Master Plan to be prepared for the site.

In addition, the State of California requires an owner or operator of a facility to complete and submit a Hazardous Materials Business Plan if the facility handles a hazardous material or mixture containing a liquid hazardous material that has a quantity equal to or greater than 55 gallons (liquids). The Hazardous Materials Business Plan would include an inventory of hazardous materials at a facility; emergency response plans and procedures in the event of a reportable release or threatened release of a hazardous material; employee training and safety procedures in the event of a release or threatened release of a hazardous material; and a site map that shows emergency shutoffs, evacuation staging areas, hazardous material handling and storage areas, and emergency response equipment.

Approval from the Orange County Fire Authority and adherence to applicable federal, state, and local health and safety laws and regulations would minimize health risk to the public associated with the routine transport, use, or storage of hazardous materials at the project site. Therefore, any impacts associated with hazardous materials would be less than significant and not a substantial increase in the severity of impacts identified in the 2007 MND.

Consequently, none of the conditions described in CCR Section 15162 of the State CEQA Guidelines would occur relative to hazards and hazardous materials. The analysis of potential impacts on hazards and hazardous materials

in the 2007 MND, supplemented by the 2015 Addendum and information in this second addendum, is sufficient to meet CEQA requirements and support the approval of the proposed project modifications.

2.9 Hydrology and Water Quality

The proposed project modifications would involve disturbance of approximately 0.4 acres to construct the RMS building and concrete walkway, expand the access road, and install utilities. Standard construction BMPs would be implemented to minimize the potential for erosion, sedimentation, and polluted stormwater runoff during all ground-disturbing activities in accordance with IRWD requirements. The depth to groundwater beneath the site is anticipated to be greater than 30 feet below ground surface; therefore, dewatering during construction is not anticipated (IRWD 2021).

Project modifications would result in a minor increase in impervious surfaces; however, on-site drainage would be designed in accordance with most recent California Building Code and IRWD design standards to address the minor increase in stormwater run-off. Project modifications are not anticipated to substantially alter the existing drainage pattern of the project site in a manner that would result in substantial erosion or siltation on or off site.

Compliance with appliable design standards and implementation of standard construction BMPs would minimize any impacts associated with construction of the proposed project modifications with respect to hydrology and water quality. Impacts would be less than significant and not a substantial increase in the severity of impacts identified in the 2007 MND.

Consequently, none of the conditions described in CCR Section 15162 of the State CEQA Guidelines would occur relative to hydrology and water quality. The analysis of potential impacts on hydrology and water quality in the 2007 MND, supplemented by the 2015 Addendum and information in this second addendum, is sufficient to meet CEQA requirements and support the approval of the proposed project modifications.

2.10 Land Use and Planning

Land use and planning that could be affected by the proposed project modifications and the type and severity of potential impacts are similar with those evaluated in the 2007 MND. The project site is surrounded by areas zoned for residential and open space uses, and IRWD has permanent easements to access the reservoir. As discussed in the 2007 MND, IRWD does not have jurisdictional authority over land use decisions, but it is mandated to provide feasible domestic water, recycled water, and sewer services within its service area. Project modifications would not conflict with the City's General Plan or zoning. Consistent with the 2007 MND, there would be no impacts from the proposed project modifications on land use and planning.

2.11 Minerals

Mineral resources that could be affected by the proposed project modifications and the type and severity of potential impacts are similar with those evaluated in the 2007 MND. Proposed project modifications would occur in the same site that was previously analyzed in the 2007 MND. The project site has been previously disturbed by the construction of the reservoir, access road, slopes, drainage improvements, and other work. Project modifications would not require the substantial use of mineral resources, nor would it affect the availability of any

known mineral resource. Consistent with the 2007 MND, there would be no impacts from the proposed project modifications on minerals.

2.12 Noise and Vibration

A noise and vibration assessment, conducted by Dudek in October 2021, was performed to confirm that the project setting and the noise and vibration levels that could be generated by the proposed project modifications and associated potential impacts are similar to those evaluated in the 2007 MND. Consistent with the setting as described in the 2007 MND, single-family residential uses are to the north, east, and south (separated by local roadways), and open space is directly west of the project site.

2.12.1 Noise

Several short-term noise measurements (15 minutes in duration each) were conducted on October 28, 2021, to characterize the local noise environment. Noise measurements were conducted during the mid-morning hours at three locations adjacent to the three nearest noise-sensitive (residential) land uses, using a calibrated ANSI Type 2 (General Purpose) sound level meter. The resulting noise measurements were conducted while the pump station's existing pumps were operational (which is typical during daytime hours). The resulting noise measurements were consistent with a quiet residential neighborhood that is relatively distant from major noise sources; the energy-averaged (L_{eq}) noise levels ranged from 41 to 46 dBA, and maximum (L_{max}) noise levels ranged from 50 to 62 dBA (see Appendix C for field noise data sheets). The technician conducting the noise measurements observed that the noise from the existing on-site mechanical equipment was barely audible at the nearby measured locations.

During construction, short-term noise would result. Using construction phasing and equipment assumptions consistent with the proposed project modification's air quality analysis, noise from project construction was estimated using the Federal Highway Administration Roadway Construction Noise Model (FHWA 2008). Input variables for the Roadway Construction Noise Model consist of the receiver/land use types, the equipment type and number of each (e.g., two graders, a loader, a tractor), the duty cycle for each piece of equipment (e.g., percentage of hours the equipment typically works per day), and the distance from the noise-sensitive receiver. No topographical or structural shielding was assumed in the modeling of construction noise. Construction noise levels were estimated at the nearest noise-sensitive receptor (a residence located south of the project site, approximately 90 feet from the nearest construction work) and the second-nearest noise-sensitive receptors (residence located east of the project site, approximately 110 feet from the nearest construction work). Table 2.12-1 summarizes these estimated construction noise levels, with separate calculations provided for the different types of construction activities that would occur for this project. The detailed Roadway Construction Noise Model input and output is provided in Appendix C.

Table 2.12-1. Construction Noise Model Results Summary

Construction Phase	Construction Noise at Representative Receiver Distances (L_{eq} [dBA])	
	Nearest Source - Residence Distance (90 feet)	Next-Nearest Source - Residence Distance (110 feet)
Demolition	78	77
Site Preparation	76	75
Grading 1	78	76
Building Construction 1	73	72
Building Construction 2	70	69
Paving 1	72	70
Grading 2	78	77
Architectural Coating	69	68
Paving 2	74	73

Source: Appendix C

As shown in Table 2.12-1, noise levels from construction activities would be as high as 78 dBA equivalent continuous sound level (L_{eq}) at the nearest existing residence, approximately 90 feet away, during the demolition and grading phases. Noise levels during other construction phases, and at more distant locations, would be lower. Although nearby off-site residences would be exposed to elevated construction noise levels, the exposure would be short term and would cease upon completion of project construction. Construction associated with the project modifications would take place within the allowable hours per Section 6.8-205 (Special Provisions) of the City of Irvine Municipal Code (7:00 a.m. to 7:00 p.m. Monday through Friday, and 9:00 a.m. to 6:00 p.m. on Saturdays), and would not occur outside of those hours or on Sundays or federal holidays. Construction activity noise is specifically exempt from the numerical ordinance standards as long as they occur between these hours. These standards apply to both on-site construction and to the operation of any vehicle on City streets that is involved in the delivery of building materials. Thus, consistent with the 2007 MND, the proposed project modifications would result in less-than-significant impacts to noise. No mitigation is required.

During operation, the project would primarily serve as a remotely operated water storage and distribution facility. Like the existing conditions, IRWD staff would occasionally visit the site for routine operation maintenance or in the event of an emergency. No permanent on-site workers would be required to operate or maintain the proposed project. Activities associated with long-term operations and maintenance would therefore be minimal. Noise associated with these activities would range from no noise to negligible amounts of noise and, therefore, impacts would be less than significant.

In terms of mechanical operating equipment associated with the project modifications, the noise levels from any new equipment, similarly to the existing equipment, would be minimal. Based on information provided by IRWD, the only piece of noise-generating equipment with potential to increase noise levels in the project area would be limited to one 1/4-horsepower exhaust fan. All other mechanical equipment would be located within an enclosed, concrete masonry unit building with louvers and the above-mentioned exhaust fan, located approximately 90 feet or more from the nearest noise-sensitive land uses (residences located to the south and east). The noise level generated by the fan, based on the manufacturers' data, would be approximately 38 dBA at the nearest residence, 90 feet or more away. This noise level would be less than the measured ambient noise levels of 41 to 46 dBA L_{eq} in the project

area and is thus anticipated to be inaudible at nearby noise-sensitive receiver locations. Noise associated with operational noise would therefore be less than significant.

2.12.2 Vibration

Groundborne vibration is a small, rapidly fluctuating motion transmitted through the ground that diminishes (attenuates) fairly rapidly over distance. Construction activities may generate excessive groundborne vibration or groundborne noise, causing a potentially significant impact. The California Department of Transportation (Caltrans) has collected groundborne vibration information related to construction activities (Caltrans 2020). Information from Caltrans indicates that transient vibration levels of 0.035 peak particle velocity in inches per second represents the approximately threshold of perception for persons of normal sensitivity, and continuous vibrations with a peak particle velocity of approximately 0.1 inches per second begin to cause annoyance. Heavier pieces of construction equipment, such as bulldozers, have peak particle velocities of approximately 0.089 inches per second or less at a distance of 25 feet (FTA 2018). Groundborne vibration from heavy equipment operations during construction of the proposed project was evaluated and compared with relevant vibration impact criteria using the Federal Transit Administration's Transit Noise and Vibration Impact Assessment, which provides vibration impact criteria and recommended methodologies and guidance for assessment of vibration effects (FTA 2018).

At the nearest vibration-sensitive use (the residence to the south approximately 90 feet from the project site), the vibration level from heavy construction equipment (such as a heavy bulldozer) would be approximately 0.013 peak particle velocity in inches per second. Vibration levels of this magnitude would not be perceptible at nearby residences and would be well below the Caltrans threshold of annoyance. Furthermore, vibration from construction would be well below the Federal Transit Administration threshold of potential damage for normal structures (0.20 peak particle velocity in inches per second) and would not be considered excessive. Therefore, short-term construction-related vibration impacts would be less than significant.

Once operational, the project would not generate excessive levels of groundborne vibration. Any vibrating machinery, such as pumps or motors, would be fastened to the foundation using flexible mounts as necessary, and as such would not impart substantial levels of vibration into the surrounding ground. As such, no annoyance or building damage would occur as a result of project-related vibration during construction or operation. Impacts related to groundborne vibration would be less than significant.

2.13 Population and Housing

Population and housing that could be affected by the proposed project modifications and the type and severity of potential impacts are similar with those evaluated in the 2007 MND. Project modifications would entail construction of RMS facilities and other improvements at an existing reservoir site. The project would not include new homes or businesses, or otherwise generate population growth. Consistent with the 2007 MND, there would be no impacts from the proposed project modifications on population and housing.

2.14 Public Services

Public services that could be affected by the proposed project modifications and the type and severity of potential impacts are similar with those evaluated in the 2007 MND. Project modifications would not require additional fire

services or police protection; would not result in impacts to schools, libraries, or other public facilities; and would not require construction or expansion of recreational facilities. During construction, ingress and egress to public and private facilities may be temporarily affected. Similar to the 2007 MND, construction of the proposed project may result in a temporary rather than permanent impact to the access of public services. Consistent with the 2007 MND, there would be no impacts from the proposed project modifications on public services.

2.15 Recreation

Recreation facilities that could be affected by the proposed project modifications and the type and severity of potential impacts are similar to those evaluated in the 2007 MND. Project modifications would not generate an increase in population; therefore, an increase in the local neighborhood and regional park use would not occur. Consistent with the 2007 MND, there would be no impacts from the proposed project modifications on recreation.

2.16 Transportation and Circulation

As part of the proposed project modifications, the existing concrete driveway would be widened to improve maintenance truck access and on-site circulation. During peak construction activity, the project modifications would generate eight maximum daily employee trips and four maximum daily delivery trips. During operations, the project would generate an additional one to two maximum daily employee trips, and one maximum daily delivery trips every 2 weeks. A temporary lane closure on Minaret Drive would be required during tree removal, tree planting, and installation of the sewer connection. During pipe installation across Minaret Drive, at least one lane will remain open at all times to allow for continued access to residential areas. Standard traffic control measures would also be implemented during installation, and the TRHA would be notified prior to work within the street. Impacts associated with project modifications would be less than significant and not a substantial increase in the severity of impacts identified in the 2007 MND.

Consequently, none of the conditions described in CCR Section 15162 of the State CEQA Guidelines would occur relative to transportation and circulation. The analysis of potential impacts on transportation and circulation in the 2007 MND, supplemented by the 2015 Addendum and information in this second addendum, is sufficient to meet CEQA requirements and support the approval of the proposed project modifications.

2.17 Utilities and Service Systems

Utilities and service systems that could be affected by the proposed project modifications and the type and severity of potential impacts are similar with those evaluated in the 2007 MND. Proposed modifications include a new sewer line for the safety shower in the proposed chemical storage building. The existing 4-inch Southern California Edison electrical conduit would also be rerouted around the proposed RMS building location. Southern California Edison would temporarily shutdown the power and provide a new service cable. The new sewer line would connect to an existing sewer line within Minaret Drive. Impacts associated with the relocation of the 4-inch electrical conduit and the sewer line connection would be less than significant and not a substantial increase in the severity of impacts identified in the 2007 MND.

Consequently, none of the conditions described in CCR Section 15162 of the State CEQA Guidelines would occur relative to utilities. The analysis of potential impacts on utilities in the 2007 MND, supplemented by the 2015 Addendum and information in this second addendum, is sufficient to meet CEQA requirements and support the approval of the proposed project modifications.

2.18 Mandatory Findings of Significance

The analysis for each resource area in this document concluded that implementing the proposed project modifications would result in less-than-significant impacts or no impacts on aesthetics, agriculture resources, biological resources, cultural resources, GHG emissions, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, and utilities and service systems. Although no significant construction or operational air quality impacts were identified in this analysis, fugitive dust control mitigation recommended in the 2007 MND and amended by the 2015 Addendum would be implemented to ensure that significant impacts would not occur.

The results of the analysis did not reveal any indication that the proposed project modifications would 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.

The cumulative effects of the proposed project modifications, when considered with the effects of other past, present, and reasonably foreseeable projects, including the original project and modifications described in the 2015 Addendum, would be minor and would not be cumulatively considerable with implementation of design features; construction BMPs; adherence to work windows for vegetation removal; compliance with the Migratory Bird Treaty Act, and the revised mitigation measure MM-AQ-1 from the 2015 Addendum.

The effectiveness of the mitigation measures identified in the 2015 Addendum is unchanged and no additional mitigation measures are needed. The proposed project modifications, when considered with the original project as modified in the 2015 Addendum, would not make a cumulatively considerable incremental contribution to any significant cumulative impacts.

The analysis in this document has determined that implementing the proposed project modifications would not make a cumulatively considerable incremental contribution to any significant cumulative impacts for any resources affected by past, current, or probable future projects in the project vicinity.

Consistent with the findings for the original project in the 2007 MND as amended in the 2015 Addendum, implementation of additional water treatment technology associated with the proposed project modifications would not result in growth-inducing effects nor would it cause substantial adverse effects on human beings, either directly or indirectly.

3 Determination

Based on the information and analysis in this addendum, pursuant to Section 15162 of the CEQA Guidelines, IRWD determines the following.

Modifications to the proposed project as described in this addendum and any altered conditions since adoption of the Project's 2007 MND and 2015 Addendum:

- would not result in any new significant or potentially significant environmental effects, and
- would not substantially increase the severity or intensity of previously identified effects.

In addition, no new information of substantial importance has arisen that shows that:

- the proposed project modifications would have new significant or potentially significant effects,
- the proposed project modifications would have substantially more severe effects,
- mitigation measures previously found to be infeasible would in fact be feasible, or
- mitigation measures that are considerably different from those analyzed in the 2007 MND and 2015 Addendum would substantially reduce one or more significant or potentially significant effects on the environment.

Thus, none of the conditions described in CCR Section 15162 of the State CEQA Guidelines calling for preparation of a subsequent MND have occurred. For this reason, Addendum No. 2to the 2007 MND is consistent with CCR Section 15164 of the State CEQA Guidelines, and is the appropriate mechanism to address the proposed project modifications.

12/3/21

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Appendix A

Air Quality/Greenhouse Gas CalEEMod Results

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

IRWD Turtle Rock Zone 3 Reservoir Project

Orange County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	0.28	1000sqft	0.01	279.00	0
Other Non-Asphalt Surfaces	3.67	1000sqft	0.08	3,670.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See 1.0, Project Characteristics.

Land Use - Project-specific information. General Light Industry represents the new RMS building.

Construction Phase - Project-specific schedule.

Off-road Equipment - Architectural Coating: Default CalEEMod equipment.

Off-road Equipment - Building Construction 1: Modified default CalEEMod equipment.

Off-road Equipment - Building Construction 2: Modified default CalEEMod equipment.

Off-road Equipment - Demolition: Default CalEEMod equipment.

Off-road Equipment - Grading 1: Default CalEEMod equipment.

Off-road Equipment - Grading 2: Default CalEEMod equipment.

Off-road Equipment - Paving 1: Modified default CalEEMod equipment.

Off-road Equipment - Paving 2: Modified default CalEEMod equipment.

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - Site Prepation: Modified default CalEEMod equipment.

Trips and VMT - Mix of project-specific values and CalEEMod default values.

Demolition - 47 tons of debris.

Grading - Grading 1: 40 CY export. Default CalEEMod values for grading.

On-road Fugitive Dust - Default CalEEMod values.

Architectural Coating - Default CalEEMod values.

Vehicle Emission Factors - Default CalEEMod values.

Vehicle Emission Factors - Default CalEEMod values.

Vehicle Emission Factors - Default CalEEMod values.

Fleet Mix - General Light Industry used for Employee trips (light-duty automobile and truck mix). Other Non-Asphalt Surface used for Delivery Trips (heavy-duty truck mix).

Road Dust - Default CalEEMod values.

Woodstoves - Default CalEEMod values (no hearths).

Consumer Products - Default CalEEMod values.

Area Coating - Default CalEEMod values.

Landscape Equipment - Default CalEEMod values.

Energy Use - Default CalEEMod values.

Water And Wastewater - Default CalEEMod values.

Solid Waste - Default CalEEMod values.

Operational Off-Road Equipment - No operational offroad equipment.

Stationary Sources - User Defined - No operational stationary sources.

Construction Off-road Equipment Mitigation - Water Exposed Area: 2x daily.

Mobile Land Use Mitigation - No traffic mitigation.

Mobile Commute Mitigation - No traffic mitigation.

Area Mitigation - No area mitigation.

Energy Mitigation - No energy mitigation.

Water Mitigation - No water mitigation.

Waste Mitigation - No solid waste mitigation.

Vehicle Trips - General Light Industry used for Employee trips. Other Non-Asphalt Surface used for Delivery Trips. Weekday trips only.

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	1.00	3.00
tblConstructionPhase	NumDays	100.00	160.00
tblConstructionPhase	NumDays	100.00	30.00
tblConstructionPhase	NumDays	5.00	4.00
tblConstructionPhase	NumDays	5.00	1.00
tblConstructionPhase	NumDays	5.00	4.00
tblFleetMix	HHD	4.8550e-003	0.00
tblFleetMix	HHD	4.8550e-003	0.10
tblFleetMix	LDA	0.54	0.69
tblFleetMix	LDA	0.54	0.00
tblFleetMix	LDT1	0.06	0.07
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT2	0.19	0.24
tblFleetMix	LDT2	0.19	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD1	0.02	0.49
tblFleetMix	LHD2	6.5220e-003	0.00
tblFleetMix	LHD2	6.5220e-003	0.13
tblFleetMix	MCY	0.02	0.00
tblFleetMix	MCY	0.02	0.00
tblFleetMix	MDV	0.13	0.00
tblFleetMix	MDV	0.13	0.00
tblFleetMix	MH	3.9420e-003	0.00
tblFleetMix	MH	3.9420e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	MHD	0.01	0.28
tblFleetMix	OBUS	6.5600e-004	0.00

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblFleetMix	OBUS	6.5600e-004	0.00
tblFleetMix	SBUS	7.2300e-004	0.00
tblFleetMix	SBUS	7.2300e-004	0.00
tblFleetMix	UBUS	3.8500e-004	0.00
tblFleetMix	UBUS	3.8500e-004	0.00
tblGrading	MaterialExported	0.00	40.00
tblLandUse	LandUseSquareFeet	280.00	279.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblTripsAndVMT	HaulingTripNumber	5.00	6.00
tblTripsAndVMT	HaulingTripNumber	0.00	6.00
tblTripsAndVMT	HaulingTripNumber	5.00	6.00
tblTripsAndVMT	HaulingTripNumber	0.00	4.00
tblTripsAndVMT	HaulingTripNumber	0.00	2.00
tblTripsAndVMT	HaulingTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	1.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	1.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	5.00	6.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblTripsAndVMT	WorkerTripNumber	2.00	12.00
tblTripsAndVMT	WorkerTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	2.00	4.00
tblVehicleTrips	CC_TTP	28.00	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	0.00	100.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	1.99	0.00
tblVehicleTrips	SU_TR	5.00	0.00
tblVehicleTrips	WD_TR	4.96	14.29
tblVehicleTrips	WD_TR	0.00	0.54

2.0 Emissions Summary

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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					
2022	1.5276	17.3357	13.8043	0.0256	5.8486	0.6995	6.5481	2.6703	0.6438	3.3141	0.0000	2,539.0459	2,539.0459	0.6828	0.0693	2,576.7829
2023	4.7706	16.7827	20.0422	0.0357	5.5251	0.7966	6.1685	2.6257	0.7432	3.2178	0.0000	3,467.5864	3,467.5864	0.8433	0.0277	3,496.9185
Maximum	**4.7706**	**17.3357**	**20.0422**	**0.0357**	**5.8486**	**0.7966**	**6.5481**	**2.6703**	**0.7432**	**3.3141**	**0.0000**	**3,467.5864**	**3,467.5864**	**0.8433**	**0.0693**	**3,496.9185**

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					
2022	1.5276	17.3357	13.8043	0.0256	2.7800	0.6995	3.4795	1.2416	0.6438	1.8855	0.0000	2,539.0459	2,539.0459	0.6828	0.0693	2,576.7829
2023	4.7706	16.7827	20.0422	0.0357	2.6035	0.7966	3.2470	1.2130	0.7432	1.8051	0.0000	3,467.5864	3,467.5864	0.8433	0.0277	3,496.9185
Maximum	**4.7706**	**17.3357**	**20.0422**	**0.0357**	**2.7800**	**0.7966**	**3.4795**	**1.2416**	**0.7432**	**1.8855**	**0.0000**	**3,467.5864**	**3,467.5864**	**0.8433**	**0.0693**	**3,496.9185**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	52.67	0.00	47.11	53.65	0.00	43.50	0.00	0.00	0.00	0.00	0.00	0.00

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	7.8500e-003	0.0000	4.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		8.6000e-004	8.6000e-004	0.0000		9.2000e-004
Energy	1.7000e-004	1.5600e-003	1.3100e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		1.8669	1.8669	4.0000e-005	3.0000e-005	1.8780
Mobile	7.6400e-003	0.0413	0.1329	6.3000e-004	0.0627	4.8000e-004	0.0631	0.0169	4.5000e-004	0.0173		64.6985	64.6985	1.3900e-003	3.4800e-003	65.7706
Total	**0.0157**	**0.0428**	**0.1346**	**6.4000e-004**	**0.0627**	**6.0000e-004**	**0.0633**	**0.0169**	**5.7000e-004**	**0.0175**		**66.5663**	**66.5663**	**1.4300e-003**	**3.5100e-003**	**67.6495**

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	7.8500e-003	0.0000	4.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		8.6000e-004	8.6000e-004	0.0000		9.2000e-004
Energy	1.7000e-004	1.5600e-003	1.3100e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		1.8669	1.8669	4.0000e-005	3.0000e-005	1.8780
Mobile	7.6400e-003	0.0413	0.1329	6.3000e-004	0.0627	4.8000e-004	0.0631	0.0169	4.5000e-004	0.0173		64.6985	64.6985	1.3900e-003	3.4800e-003	65.7706
Total	**0.0157**	**0.0428**	**0.1346**	**6.4000e-004**	**0.0627**	**6.0000e-004**	**0.0633**	**0.0169**	**5.7000e-004**	**0.0175**		**66.5663**	**66.5663**	**1.4300e-003**	**3.5100e-003**	**67.6495**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	6/1/2022	6/7/2022	5	5	
2	Site Preparation	Site Preparation	6/6/2022	6/8/2022	5	3	
3	Grading 1	Grading	6/8/2022	6/9/2022	5	2	
4	Building Construction 1	Building Construction	6/10/2022	1/19/2023	5	160	
5	Building Construction 2	Building Construction	12/9/2022	1/19/2023	5	30	
6	Paving 1	Paving	1/15/2023	1/19/2023	5	4	
7	Grading 2	Grading	1/20/2023	1/23/2023	5	2	
8	Architectural Coating	Architectural Coating	1/20/2023	1/20/2023	5	1	
9	Paving 2	Paving	1/22/2023	1/26/2023	5	4	

Acres of Grading (Site Preparation Phase): 0.75

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0.08

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 419; Non-Residential Outdoor: 140; Striped Parking Area: 220 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Graders	1	4.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading 1	Graders	1	6.00	187	0.41
Grading 1	Rubber Tired Dozers	1	6.00	247	0.40
Grading 1	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction 1	Cranes	1	4.00	231	0.29
Building Construction 1	Forklifts	2	6.00	89	0.20
Building Construction 1	Generator Sets	1	8.00	84	0.74
Building Construction 1	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving 1	Cement and Mortar Mixers	0	6.00	9	0.56
Paving 1	Pavers	1	7.00	130	0.42
Paving 1	Rollers	1	7.00	80	0.38
Paving 1	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction 2	Cranes	1	4.00	231	0.29
Building Construction 2	Forklifts	1	3.00	89	0.20
Building Construction 2	Skid Steer Loaders	1	6.00	65	0.37
Building Construction 2	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading 2	Graders	1	6.00	187	0.41
Grading 2	Rubber Tired Dozers	1	6.00	247	0.40
Grading 2	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving 2	Cement and Mortar Mixers	0	6.00	9	0.56
Paving 2	Pavers	1	7.00	130	0.42
Paving 2	Rollers	1	7.00	80	0.38
Paving 2	Tractors/Loaders/Backhoes	1	7.00	97	0.37

Trips and VMT

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	4	10.00	2.00	6.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	6.00	2.00	6.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading 1	3	8.00	2.00	6.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 1	6	12.00	2.00	4.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving 1	3	8.00	2.00	2.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 2	3	4.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading 2	3	8.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	3	8.00	2.00	2.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 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					
Fugitive Dust					0.2012	0.0000	0.2012	0.0305	0.0000	0.0305			0.0000			0.0000
Off-Road	0.7094	6.4138	7.4693	0.0120		0.3375	0.3375		0.3225	0.3225		1,147.9025	1,147.9025	0.2119		1,153.2001
Total	**0.7094**	**6.4138**	**7.4693**	**0.0120**	**0.2012**	**0.3375**	**0.5387**	**0.0305**	**0.3225**	**0.3530**		**1,147.9025**	**1,147.9025**	**0.2119**		**1,153.2001**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 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	4.7400e-003	0.1942	0.0533	7.2000e-004	0.0209	1.4200e-003	0.0224	5.7300e-003	1.3600e-003	7.0900e-003		81.1509	81.1509	7.7300e-003	0.0130	85.2173
Vendor	3.2800e-003	0.0933	0.0330	3.8000e-004	0.0128	8.8000e-004	0.0137	3.6800e-003	8.4000e-004	4.5200e-003		41.4845	41.4845	2.3700e-003	5.9500e-003	43.3167
Worker	0.0328	0.0222	0.3058	9.3000e-004	0.1118	6.0000e-004	0.1124	0.0296	5.5000e-004	0.0302		93.7501	93.7501	2.3700e-003	2.3600e-003	94.5111
Total	**0.0408**	**0.3096**	**0.3921**	**2.0300e-003**	**0.1455**	**2.9000e-003**	**0.1484**	**0.0391**	**2.7500e-003**	**0.0418**		**216.3855**	**216.3855**	**0.0125**	**0.0213**	**223.0452**

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					0.0905	0.0000	0.0905	0.0137	0.0000	0.0137			0.0000			0.0000
Off-Road	0.7094	6.4138	7.4693	0.0120		0.3375	0.3375		0.3225	0.3225	0.0000	1,147.9025	1,147.9025	0.2119		1,153.2001
Total	**0.7094**	**6.4138**	**7.4693**	**0.0120**	**0.0905**	**0.3375**	**0.4280**	**0.0137**	**0.3225**	**0.3363**	**0.0000**	**1,147.9025**	**1,147.9025**	**0.2119**		**1,153.2001**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 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	4.7400e-003	0.1942	0.0533	7.2000e-004	0.0209	1.4200e-003	0.0224	5.7300e-003	1.3600e-003	7.0900e-003		81.1509	81.1509	7.7300e-003	0.0130	85.2173
Vendor	3.2800e-003	0.0933	0.0330	3.8000e-004	0.0128	8.8000e-004	0.0137	3.6800e-003	8.4000e-004	4.5200e-003		41.4845	41.4845	2.3700e-003	5.9500e-003	43.3167
Worker	0.0328	0.0222	0.3058	9.3000e-004	0.1118	6.0000e-004	0.1124	0.0296	5.5000e-004	0.0302		93.7501	93.7501	2.3700e-003	2.3600e-003	94.5111
Total	**0.0408**	**0.3096**	**0.3921**	**2.0300e-003**	**0.1455**	**2.9000e-003**	**0.1484**	**0.0391**	**2.7500e-003**	**0.0418**		**216.3855**	**216.3855**	**0.0125**	**0.0213**	**223.0452**

3.3 Site Preparation - 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					
Fugitive Dust					0.2651	0.0000	0.2651	0.0286	0.0000	0.0286			0.0000			0.0000
Off-Road	0.3722	4.3044	3.0988	6.4200e-003		0.1737	0.1737		0.1598	0.1598		621.8784	621.8784	0.2011		626.9066
Total	**0.3722**	**4.3044**	**3.0988**	**6.4200e-003**	**0.2651**	**0.1737**	**0.4389**	**0.0286**	**0.1598**	**0.1885**		**621.8784**	**621.8784**	**0.2011**		**626.9066**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 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	7.9000e-003	0.3236	0.0887	1.1900e-003	0.0349	2.3600e-003	0.0372	9.5500e-003	2.2600e-003	0.0118		135.2514	135.2514	0.0129	0.0217	142.0289
Vendor	3.2800e-003	0.0933	0.0330	3.8000e-004	0.0128	8.8000e-004	0.0137	3.6800e-003	8.4000e-004	4.5200e-003		41.4845	41.4845	2.3700e-003	5.9500e-003	43.3167
Worker	0.0197	0.0133	0.1835	5.6000e-004	0.0671	3.6000e-004	0.0674	0.0178	3.3000e-004	0.0181		56.2501	56.2501	1.4200e-003	1.4100e-003	56.7067
Total	**0.0308**	**0.4302**	**0.3052**	**2.1300e-003**	**0.1147**	**3.6000e-003**	**0.1183**	**0.0310**	**3.4300e-003**	**0.0345**		**232.9860**	**232.9860**	**0.0167**	**0.0290**	**242.0523**

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					0.1193	0.0000	0.1193	0.0129	0.0000	0.0129			0.0000			0.0000
Off-Road	0.3722	4.3044	3.0988	6.4200e-003		0.1737	0.1737		0.1598	0.1598	0.0000	621.8784	621.8784	0.2011		626.9066
Total	**0.3722**	**4.3044**	**3.0988**	**6.4200e-003**	**0.1193**	**0.1737**	**0.2930**	**0.0129**	**0.1598**	**0.1727**	**0.0000**	**621.8784**	**621.8784**	**0.2011**		**626.9066**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 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	7.9000e-003	0.3236	0.0887	1.1900e-003	0.0349	2.3600e-003	0.0372	9.5500e-003	2.2600e-003	0.0118		135.2514	135.2514	0.0129	0.0217	142.0289
Vendor	3.2800e-003	0.0933	0.0330	3.8000e-004	0.0128	8.8000e-004	0.0137	3.6800e-003	8.4000e-004	4.5200e-003		41.4845	41.4845	2.3700e-003	5.9500e-003	43.3167
Worker	0.0197	0.0133	0.1835	5.6000e-004	0.0671	3.6000e-004	0.0674	0.0178	3.3000e-004	0.0181		56.2501	56.2501	1.4200e-003	1.4100e-003	56.7067
Total	**0.0308**	**0.4302**	**0.3052**	**2.1300e-003**	**0.1147**	**3.6000e-003**	**0.1183**	**0.0310**	**3.4300e-003**	**0.0345**		**232.9860**	**232.9860**	**0.0167**	**0.0290**	**242.0523**

3.4 Grading 1 - 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					
Fugitive Dust					5.3142	0.0000	5.3142	2.5689	0.0000	2.5689			0.0000			0.0000
Off-Road	1.0832	12.0046	5.9360	0.0141		0.5173	0.5173		0.4759	0.4759		1,364.8198	1,364.8198	0.4414		1,375.8551
Total	**1.0832**	**12.0046**	**5.9360**	**0.0141**	**5.3142**	**0.5173**	**5.8315**	**2.5689**	**0.4759**	**3.0448**		**1,364.8198**	**1,364.8198**	**0.4414**		**1,375.8551**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading 1 - 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	0.0119	0.4854	0.1331	1.7900e-003	0.0523	3.5400e-003	0.0559	0.0143	3.3900e-003	0.0177		202.8771	202.8771	0.0193	0.0325	213.0433
Vendor	3.2800e-003	0.0933	0.0330	3.8000e-004	0.0128	8.8000e-004	0.0137	3.6800e-003	8.4000e-004	4.5200e-003		41.4845	41.4845	2.3700e-003	5.9500e-003	43.3167
Worker	0.0262	0.0178	0.2447	7.4000e-004	0.0894	4.8000e-004	0.0899	0.0237	4.4000e-004	0.0242		75.0001	75.0001	1.8900e-003	1.8800e-003	75.6089
Total	**0.0414**	**0.5964**	**0.4108**	**2.9100e-003**	**0.1545**	**4.9000e-003**	**0.1594**	**0.0417**	**4.6700e-003**	**0.0464**		**319.3617**	**319.3617**	**0.0236**	**0.0403**	**331.9689**

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					2.3914	0.0000	2.3914	1.1560	0.0000	1.1560			0.0000			0.0000
Off-Road	1.0832	12.0046	5.9360	0.0141		0.5173	0.5173		0.4759	0.4759	0.0000	1,364.8198	1,364.8198	0.4414		1,375.8551
Total	**1.0832**	**12.0046**	**5.9360**	**0.0141**	**2.3914**	**0.5173**	**2.9087**	**1.1560**	**0.4759**	**1.6319**	**0.0000**	**1,364.8198**	**1,364.8198**	**0.4414**		**1,375.8551**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading 1 - 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	0.0119	0.4854	0.1331	1.7900e-003	0.0523	3.5400e-003	0.0559	0.0143	3.3900e-003	0.0177		202.8771	202.8771	0.0193	0.0325	213.0433
Vendor	3.2800e-003	0.0933	0.0330	3.8000e-004	0.0128	8.8000e-004	0.0137	3.6800e-003	8.4000e-004	4.5200e-003		41.4845	41.4845	2.3700e-003	5.9500e-003	43.3167
Worker	0.0262	0.0178	0.2447	7.4000e-004	0.0894	4.8000e-004	0.0899	0.0237	4.4000e-004	0.0242		75.0001	75.0001	1.8900e-003	1.8800e-003	75.6089
Total	**0.0414**	**0.5964**	**0.4108**	**2.9100e-003**	**0.1545**	**4.9000e-003**	**0.1594**	**0.0417**	**4.6700e-003**	**0.0464**		**319.3617**	**319.3617**	**0.0236**	**0.0403**	**331.9689**

3.5 Building Construction 1 - 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	1.0163	9.9540	10.8286	0.0180		0.5188	0.5188		0.4891	0.4891		1,726.9739	1,726.9739	0.3866		1,736.6398
Total	**1.0163**	**9.9540**	**10.8286**	**0.0180**		**0.5188**	**0.5188**		**0.4891**	**0.4891**		**1,726.9739**	**1,726.9739**	**0.3866**		**1,736.6398**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction 1 - 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	1.0000e-004	4.0500e-003	1.1100e-003	1.0000e-005	4.4000e-004	3.0000e-005	4.7000e-004	1.2000e-004	3.0000e-005	1.5000e-004		1.6906	1.6906	1.6000e-004	2.7000e-004	1.7754
Vendor	3.2800e-003	0.0933	0.0330	3.8000e-004	0.0128	8.8000e-004	0.0137	3.6800e-003	8.4000e-004	4.5200e-003		41.4845	41.4845	2.3700e-003	5.9500e-003	43.3167
Worker	0.0393	0.0266	0.3670	1.1100e-003	0.1341	7.2000e-004	0.1349	0.0356	6.7000e-004	0.0362		112.5001	112.5001	2.8400e-003	2.8300e-003	113.4133
Total	**0.0427**	**0.1240**	**0.4011**	**1.5000e-003**	**0.1474**	**1.6300e-003**	**0.1490**	**0.0394**	**1.5400e-003**	**0.0409**		**155.6753**	**155.6753**	**5.3700e-003**	**9.0500e-003**	**158.5054**

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	1.0163	9.9540	10.8286	0.0180		0.5188	0.5188		0.4891	0.4891	0.0000	1,726.9739	1,726.9739	0.3866		1,736.6398
Total	**1.0163**	**9.9540**	**10.8286**	**0.0180**		**0.5188**	**0.5188**		**0.4891**	**0.4891**	**0.0000**	**1,726.9739**	**1,726.9739**	**0.3866**		**1,736.6398**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction 1 - 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	1.0000e-004	4.0500e-003	1.1100e-003	1.0000e-005	4.4000e-004	3.0000e-005	4.7000e-004	1.2000e-004	3.0000e-005	1.5000e-004		1.6906	1.6906	1.6000e-004	2.7000e-004	1.7754
Vendor	3.2800e-003	0.0933	0.0330	3.8000e-004	0.0128	8.8000e-004	0.0137	3.6800e-003	8.4000e-004	4.5200e-003		41.4845	41.4845	2.3700e-003	5.9500e-003	43.3167
Worker	0.0393	0.0266	0.3670	1.1100e-003	0.1341	7.2000e-004	0.1349	0.0356	6.7000e-004	0.0362		112.5001	112.5001	2.8400e-003	2.8300e-003	113.4133
Total	**0.0427**	**0.1240**	**0.4011**	**1.5000e-003**	**0.1474**	**1.6300e-003**	**0.1490**	**0.0394**	**1.5400e-003**	**0.0409**		**155.6753**	**155.6753**	**5.3700e-003**	**9.0500e-003**	**158.5054**

3.5 Building Construction 1 - 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	0.9381	9.1342	10.7664	0.0180		0.4485	0.4485		0.4229	0.4229		1,727.6434	1,727.6434	0.3847		1,737.2599
Total	**0.9381**	**9.1342**	**10.7664**	**0.0180**		**0.4485**	**0.4485**		**0.4229**	**0.4229**		**1,727.6434**	**1,727.6434**	**0.3847**		**1,737.2599**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction 1 - 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	5.0000e-005	3.1100e-003	1.0300e-003	1.0000e-005	4.4000e-004	2.0000e-005	4.6000e-004	1.2000e-004	2.0000e-005	1.4000e-004		1.6003	1.6003	1.6000e-004	2.6000e-004	1.6809
Vendor	1.9500e-003	0.0732	0.0300	3.6000e-004	0.0128	3.6000e-004	0.0132	3.6800e-003	3.5000e-004	4.0300e-003		39.5480	39.5480	2.3400e-003	5.6800e-003	41.2989
Worker	0.0369	0.0237	0.3414	1.0800e-003	0.1341	6.8000e-004	0.1348	0.0356	6.3000e-004	0.0362		108.9338	108.9338	2.5800e-003	2.6300e-003	109.7818
Total	**0.0389**	**0.1001**	**0.3724**	**1.4500e-003**	**0.1474**	**1.0600e-003**	**0.1484**	**0.0394**	**1.0000e-003**	**0.0404**		**150.0821**	**150.0821**	**5.0800e-003**	**8.5700e-003**	**152.7615**

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	0.9381	9.1342	10.7664	0.0180		0.4485	0.4485		0.4229	0.4229	0.0000	1,727.6434	1,727.6434	0.3847		1,737.2599
Total	**0.9381**	**9.1342**	**10.7664**	**0.0180**		**0.4485**	**0.4485**		**0.4229**	**0.4229**	**0.0000**	**1,727.6434**	**1,727.6434**	**0.3847**		**1,737.2599**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction 1 - 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	5.0000e-005	3.1100e-003	1.0300e-003	1.0000e-005	4.4000e-004	2.0000e-005	4.6000e-004	1.2000e-004	2.0000e-005	1.4000e-004		1.6003	1.6003	1.6000e-004	2.6000e-004	1.6809
Vendor	1.9500e-003	0.0732	0.0300	3.6000e-004	0.0128	3.6000e-004	0.0132	3.6800e-003	3.5000e-004	4.0300e-003		39.5480	39.5480	2.3400e-003	5.6800e-003	41.2989
Worker	0.0369	0.0237	0.3414	1.0800e-003	0.1341	6.8000e-004	0.1348	0.0356	6.3000e-004	0.0362		108.9338	108.9338	2.5800e-003	2.6300e-003	109.7818
Total	**0.0389**	**0.1001**	**0.3724**	**1.4500e-003**	**0.1474**	**1.0600e-003**	**0.1484**	**0.0394**	**1.0000e-003**	**0.0404**		**150.0821**	**150.0821**	**5.0800e-003**	**8.5700e-003**	**152.7615**

3.6 Building Construction 2 - 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	0.2813	3.1842	2.4192	5.0100e-003		0.1390	0.1390		0.1278	0.1278		485.2202	485.2202	0.1569		489.1434
Total	**0.2813**	**3.1842**	**2.4192**	**5.0100e-003**		**0.1390**	**0.1390**		**0.1278**	**0.1278**		**485.2202**	**485.2202**	**0.1569**		**489.1434**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Building Construction 2 - 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	0.0000
Vendor	3.2800e-003	0.0933	0.0330	3.8000e-004	0.0128	8.8000e-004	0.0137	3.6800e-003	8.4000e-004	4.5200e-003		41.4845	41.4845	2.3700e-003	5.9500e-003	43.3167
Worker	0.0131	8.8800e-003	0.1223	3.7000e-004	0.0447	2.4000e-004	0.0450	0.0119	2.2000e-004	0.0121		37.5000	37.5000	9.5000e-004	9.4000e-004	37.8045
Total	**0.0164**	**0.1021**	**0.1553**	**7.5000e-004**	**0.0575**	**1.1200e-003**	**0.0586**	**0.0155**	**1.0600e-003**	**0.0166**		**78.9846**	**78.9846**	**3.3200e-003**	**6.8900e-003**	**81.1212**

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	0.2813	3.1842	2.4192	5.0100e-003		0.1390	0.1390		0.1278	0.1278	0.0000	485.2202	485.2202	0.1569		489.1434
Total	**0.2813**	**3.1842**	**2.4192**	**5.0100e-003**		**0.1390**	**0.1390**		**0.1278**	**0.1278**	**0.0000**	**485.2202**	**485.2202**	**0.1569**		**489.1434**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Building Construction 2 - 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	0.0000
Vendor	3.2800e-003	0.0933	0.0330	3.8000e-004	0.0128	8.8000e-004	0.0137	3.6800e-003	8.4000e-004	4.5200e-003		41.4845	41.4845	2.3700e-003	5.9500e-003	43.3167
Worker	0.0131	8.8800e-003	0.1223	3.7000e-004	0.0447	2.4000e-004	0.0450	0.0119	2.2000e-004	0.0121		37.5000	37.5000	9.5000e-004	9.4000e-004	37.8045
Total	**0.0164**	**0.1021**	**0.1553**	**7.5000e-004**	**0.0575**	**1.1200e-003**	**0.0586**	**0.0155**	**1.0600e-003**	**0.0166**		**78.9846**	**78.9846**	**3.3200e-003**	**6.8900e-003**	**81.1212**

3.6 Building Construction 2 - 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	0.2630	2.9162	2.3856	5.0100e-003		0.1239	0.1239		0.1139	0.1139		485.2859	485.2859	0.1570		489.2096
Total	**0.2630**	**2.9162**	**2.3856**	**5.0100e-003**		**0.1239**	**0.1239**		**0.1139**	**0.1139**		**485.2859**	**485.2859**	**0.1570**		**489.2096**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Building Construction 2 - 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	0.0000
Vendor	1.9500e-003	0.0732	0.0300	3.6000e-004	0.0128	3.6000e-004	0.0132	3.6800e-003	3.5000e-004	4.0300e-003		39.5480	39.5480	2.3400e-003	5.6800e-003	41.2989
Worker	0.0123	7.9100e-003	0.1138	3.6000e-004	0.0447	2.3000e-004	0.0449	0.0119	2.1000e-004	0.0121		36.3113	36.3113	8.6000e-004	8.8000e-004	36.5939
Total	**0.0143**	**0.0811**	**0.1438**	**7.2000e-004**	**0.0575**	**5.9000e-004**	**0.0581**	**0.0155**	**5.6000e-004**	**0.0161**		**75.8592**	**75.8592**	**3.2000e-003**	**6.5600e-003**	**77.8928**

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	0.2630	2.9162	2.3856	5.0100e-003		0.1239	0.1239		0.1139	0.1139	0.0000	485.2859	485.2859	0.1570		489.2096
Total	**0.2630**	**2.9162**	**2.3856**	**5.0100e-003**		**0.1239**	**0.1239**		**0.1139**	**0.1139**	**0.0000**	**485.2859**	**485.2859**	**0.1570**		**489.2096**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Building Construction 2 - 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	0.0000
Vendor	1.9500e-003	0.0732	0.0300	3.6000e-004	0.0128	3.6000e-004	0.0132	3.6800e-003	3.5000e-004	4.0300e-003		39.5480	39.5480	2.3400e-003	5.6800e-003	41.2989
Worker	0.0123	7.9100e-003	0.1138	3.6000e-004	0.0447	2.3000e-004	0.0449	0.0119	2.1000e-004	0.0121		36.3113	36.3113	8.6000e-004	8.8000e-004	36.5939
Total	**0.0143**	**0.0811**	**0.1438**	**7.2000e-004**	**0.0575**	**5.9000e-004**	**0.0581**	**0.0155**	**5.6000e-004**	**0.0161**		**75.8592**	**75.8592**	**3.2000e-003**	**6.5600e-003**	**77.8928**

3.7 Paving 1 - 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	0.4349	4.4000	6.0959	9.1400e-003		0.2213	0.2213		0.2036	0.2036		884.5388	884.5388	0.2861		891.6908
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4349**	**4.4000**	**6.0959**	**9.1400e-003**		**0.2213**	**0.2213**		**0.2036**	**0.2036**		**884.5388**	**884.5388**	**0.2861**		**891.6908**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Paving 1 - 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	9.8000e-004	0.0621	0.0207	2.8000e-004	8.7200e-003	3.8000e-004	9.1000e-003	2.3900e-003	3.7000e-004	2.7600e-003		32.0064	32.0064	3.2200e-003	5.1300e-003	33.6170
Vendor	1.9500e-003	0.0732	0.0300	3.6000e-004	0.0128	3.6000e-004	0.0132	3.6800e-003	3.5000e-004	4.0300e-003		39.5480	39.5480	2.3400e-003	5.6800e-003	41.2989
Worker	0.0246	0.0158	0.2276	7.2000e-004	0.0894	4.6000e-004	0.0899	0.0237	4.2000e-004	0.0241		72.6226	72.6226	1.7200e-003	1.7500e-003	73.1879
Total	**0.0276**	**0.1512**	**0.2782**	**1.3600e-003**	**0.1109**	**1.2000e-003**	**0.1121**	**0.0298**	**1.1400e-003**	**0.0309**		**144.1769**	**144.1769**	**7.2800e-003**	**0.0126**	**148.1038**

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	0.4349	4.4000	6.0959	9.1400e-003		0.2213	0.2213		0.2036	0.2036	0.0000	884.5388	884.5388	0.2861		891.6908
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4349**	**4.4000**	**6.0959**	**9.1400e-003**		**0.2213**	**0.2213**		**0.2036**	**0.2036**	**0.0000**	**884.5388**	**884.5388**	**0.2861**		**891.6908**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Paving 1 - 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	9.8000e-004	0.0621	0.0207	2.8000e-004	8.7200e-003	3.8000e-004	9.1000e-003	2.3900e-003	3.7000e-004	2.7600e-003		32.0064	32.0064	3.2200e-003	5.1300e-003	33.6170
Vendor	1.9500e-003	0.0732	0.0300	3.6000e-004	0.0128	3.6000e-004	0.0132	3.6800e-003	3.5000e-004	4.0300e-003		39.5480	39.5480	2.3400e-003	5.6800e-003	41.2989
Worker	0.0246	0.0158	0.2276	7.2000e-004	0.0894	4.6000e-004	0.0899	0.0237	4.2000e-004	0.0241		72.6226	72.6226	1.7200e-003	1.7500e-003	73.1879
Total	**0.0276**	**0.1512**	**0.2782**	**1.3600e-003**	**0.1109**	**1.2000e-003**	**0.1121**	**0.0298**	**1.1400e-003**	**0.0309**		**144.1769**	**144.1769**	**7.2800e-003**	**0.0126**	**148.1038**

3.8 Grading 2 - 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					
Fugitive Dust					5.3119	0.0000	5.3119	2.5686	0.0000	2.5686			0.0000			0.0000
Off-Road	0.9335	10.1789	5.5516	0.0141		0.4201	0.4201		0.3865	0.3865		1,364.7713	1,364.7713	0.4414		1,375.8062
Total	**0.9335**	**10.1789**	**5.5516**	**0.0141**	**5.3119**	**0.4201**	**5.7320**	**2.5686**	**0.3865**	**2.9550**		**1,364.7713**	**1,364.7713**	**0.4414**		**1,375.8062**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.8 Grading 2 - 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	0.0000
Vendor	1.9500e-003	0.0732	0.0300	3.6000e-004	0.0128	3.6000e-004	0.0132	3.6800e-003	3.5000e-004	4.0300e-003		39.5480	39.5480	2.3400e-003	5.6800e-003	41.2989
Worker	0.0246	0.0158	0.2276	7.2000e-004	0.0894	4.6000e-004	0.0899	0.0237	4.2000e-004	0.0241		72.6226	72.6226	1.7200e-003	1.7500e-003	73.1879
Total	**0.0266**	**0.0890**	**0.2576**	**1.0800e-003**	**0.1022**	**8.2000e-004**	**0.1030**	**0.0274**	**7.7000e-004**	**0.0282**		**112.1705**	**112.1705**	**4.0600e-003**	**7.4300e-003**	**114.4868**

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					2.3904	0.0000	2.3904	1.1559	0.0000	1.1559			0.0000			0.0000
Off-Road	0.9335	10.1789	5.5516	0.0141		0.4201	0.4201		0.3865	0.3865	0.0000	1,364.7713	1,364.7713	0.4414		1,375.8062
Total	**0.9335**	**10.1789**	**5.5516**	**0.0141**	**2.3904**	**0.4201**	**2.8105**	**1.1559**	**0.3865**	**1.5423**	**0.0000**	**1,364.7713**	**1,364.7713**	**0.4414**		**1,375.8062**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.8 Grading 2 - 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	0.0000
Vendor	1.9500e-003	0.0732	0.0300	3.6000e-004	0.0128	3.6000e-004	0.0132	3.6800e-003	3.5000e-004	4.0300e-003		39.5480	39.5480	2.3400e-003	5.6800e-003	41.2989
Worker	0.0246	0.0158	0.2276	7.2000e-004	0.0894	4.6000e-004	0.0899	0.0237	4.2000e-004	0.0241		72.6226	72.6226	1.7200e-003	1.7500e-003	73.1879
Total	**0.0266**	**0.0890**	**0.2576**	**1.0800e-003**	**0.1022**	**8.2000e-004**	**0.1030**	**0.0274**	**7.7000e-004**	**0.0282**		**112.1705**	**112.1705**	**4.0600e-003**	**7.4300e-003**	**114.4868**

3.9 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	3.6107					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	**3.8023**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.9 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	0.0000
Vendor	1.9500e-003	0.0732	0.0300	3.6000e-004	0.0128	3.6000e-004	0.0132	3.6800e-003	3.5000e-004	4.0300e-003		39.5480	39.5480	2.3400e-003	5.6800e-003	41.2989
Worker	6.1600e-003	3.9600e-003	0.0569	1.8000e-004	0.0224	1.1000e-004	0.0225	5.9300e-003	1.0000e-004	6.0300e-003		18.1556	18.1556	4.3000e-004	4.4000e-004	18.2970
Total	**8.1100e-003**	**0.0772**	**0.0869**	**5.4000e-004**	**0.0352**	**4.7000e-004**	**0.0356**	**9.6100e-003**	**4.5000e-004**	**0.0101**		**57.7036**	**57.7036**	**2.7700e-003**	**6.1200e-003**	**59.5959**

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	3.6107					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	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**3.8023**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.9 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	0.0000
Vendor	1.9500e-003	0.0732	0.0300	3.6000e-004	0.0128	3.6000e-004	0.0132	3.6800e-003	3.5000e-004	4.0300e-003		39.5480	39.5480	2.3400e-003	5.6800e-003	41.2989
Worker	6.1600e-003	3.9600e-003	0.0569	1.8000e-004	0.0224	1.1000e-004	0.0225	5.9300e-003	1.0000e-004	6.0300e-003		18.1556	18.1556	4.3000e-004	4.4000e-004	18.2970
Total	**8.1100e-003**	**0.0772**	**0.0869**	**5.4000e-004**	**0.0352**	**4.7000e-004**	**0.0356**	**9.6100e-003**	**4.5000e-004**	**0.0101**		**57.7036**	**57.7036**	**2.7700e-003**	**6.1200e-003**	**59.5959**

3.10 Paving 2 - 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	0.4349	4.4000	6.0959	9.1400e-003		0.2213	0.2213		0.2036	0.2036		884.5388	884.5388	0.2861		891.6908
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4349**	**4.4000**	**6.0959**	**9.1400e-003**		**0.2213**	**0.2213**		**0.2036**	**0.2036**		**884.5388**	**884.5388**	**0.2861**		**891.6908**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.10 Paving 2 - 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	9.8000e-004	0.0621	0.0207	2.8000e-004	8.7200e-003	3.8000e-004	9.1000e-003	2.3900e-003	3.7000e-004	2.7600e-003		32.0064	32.0064	3.2200e-003	5.1300e-003	33.6170
Vendor	1.9500e-003	0.0732	0.0300	3.6000e-004	0.0128	3.6000e-004	0.0132	3.6800e-003	3.5000e-004	4.0300e-003		39.5480	39.5480	2.3400e-003	5.6800e-003	41.2989
Worker	0.0246	0.0158	0.2276	7.2000e-004	0.0894	4.6000e-004	0.0899	0.0237	4.2000e-004	0.0241		72.6226	72.6226	1.7200e-003	1.7500e-003	73.1879
Total	**0.0276**	**0.1512**	**0.2782**	**1.3600e-003**	**0.1109**	**1.2000e-003**	**0.1121**	**0.0298**	**1.1400e-003**	**0.0309**		**144.1769**	**144.1769**	**7.2800e-003**	**0.0126**	**148.1038**

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	0.4349	4.4000	6.0959	9.1400e-003		0.2213	0.2213		0.2036	0.2036	0.0000	884.5388	884.5388	0.2861		891.6908
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4349**	**4.4000**	**6.0959**	**9.1400e-003**		**0.2213**	**0.2213**		**0.2036**	**0.2036**	**0.0000**	**884.5388**	**884.5388**	**0.2861**		**891.6908**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.10 Paving 2 - 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	9.8000e-004	0.0621	0.0207	2.8000e-004	8.7200e-003	3.8000e-004	9.1000e-003	2.3900e-003	3.7000e-004	2.7600e-003		32.0064	32.0064	3.2200e-003	5.1300e-003	33.6170
Vendor	1.9500e-003	0.0732	0.0300	3.6000e-004	0.0128	3.6000e-004	0.0132	3.6800e-003	3.5000e-004	4.0300e-003		39.5480	39.5480	2.3400e-003	5.6800e-003	41.2989
Worker	0.0246	0.0158	0.2276	7.2000e-004	0.0894	4.6000e-004	0.0899	0.0237	4.2000e-004	0.0241		72.6226	72.6226	1.7200e-003	1.7500e-003	73.1879
Total	**0.0276**	**0.1512**	**0.2782**	**1.3600e-003**	**0.1109**	**1.2000e-003**	**0.1121**	**0.0298**	**1.1400e-003**	**0.0309**		**144.1769**	**144.1769**	**7.2800e-003**	**0.0126**	**148.1038**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	7.6400e-003	0.0413	0.1329	6.3000e-004	0.0627	4.8000e-004	0.0631	0.0169	4.5000e-004	0.0173		64.6985	64.6985	1.3900e-003	3.4800e-003	65.7706
Unmitigated	7.6400e-003	0.0413	0.1329	6.3000e-004	0.0627	4.8000e-004	0.0631	0.0169	4.5000e-004	0.0173		64.6985	64.6985	1.3900e-003	3.4800e-003	65.7706

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	4.00	0.00	0.00	17,269	17,269
Other Non-Asphalt Surfaces	1.98	0.00	0.00	3,555	3,555
Total	5.98	0.00	0.00	20,825	20,825

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	16.60	8.40	6.90	100.00	0.00	0.00	100	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	100.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.689126	0.074455	0.236419	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Other Non-Asphalt Surfaces	0.000000	0.000000	0.000000	0.000000	0.487620	0.130440	0.284840	0.097100	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Historical Energy Use: N

5.1 Mitigation Measures 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	1.7000e-004	1.5600e-003	1.3100e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		1.8669	1.8669	4.0000e-005	3.0000e-005	1.8780
NaturalGas Unmitigated	1.7000e-004	1.5600e-003	1.3100e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		1.8669	1.8669	4.0000e-005	3.0000e-005	1.8780

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	15.8686	1.7000e-004	1.5600e-003	1.3100e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		1.8669	1.8669	4.0000e-005	3.0000e-005	1.8780
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		**1.7000e-004**	**1.5600e-003**	**1.3100e-003**	**1.0000e-005**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**		**1.8669**	**1.8669**	**4.0000e-005**	**3.0000e-005**	**1.8780**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

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	0.0158686	1.7000e-004	1.5600e-003	1.3100e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		1.8669	1.8669	4.0000e-005	3.0000e-005	1.8780
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		**1.7000e-004**	**1.5600e-003**	**1.3100e-003**	**1.0000e-005**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**		**1.8669**	**1.8669**	**4.0000e-005**	**3.0000e-005**	**1.8780**

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	7.8500e-003	0.0000	4.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		8.6000e-004	8.6000e-004	0.0000		9.2000e-004
Unmitigated	7.8500e-003	0.0000	4.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		8.6000e-004	8.6000e-004	0.0000		9.2000e-004

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	9.9000e-004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	6.8200e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.0000e-005	0.0000	4.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		8.6000e-004	8.6000e-004	0.0000		9.2000e-004
Total	**7.8500e-003**	**0.0000**	**4.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**8.6000e-004**	**8.6000e-004**	**0.0000**		**9.2000e-004**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	9.9000e-004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	6.8200e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.0000e-005	0.0000	4.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		8.6000e-004	8.6000e-004	0.0000		9.2000e-004
Total	**7.8500e-003**	**0.0000**	**4.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**8.6000e-004**	**8.6000e-004**	**0.0000**		**9.2000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

IRWD Turtle Rock Zone 3 Reservoir Project

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	0.28	1000sqft	0.01	279.00	0
Other Non-Asphalt Surfaces	3.67	1000sqft	0.08	3,670.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See 1.0, Project Characteristics.

Land Use - Project-specific information. General Light Industry represents the new RMS building.

Construction Phase - Project-specific schedule.

Off-road Equipment - Architectural Coating: Default CalEEMod equipment.

Off-road Equipment - Building Construction 1: Modified default CalEEMod equipment.

Off-road Equipment - Building Construction 2: Modified default CalEEMod equipment.

Off-road Equipment - Demolition: Default CalEEMod equipment.

Off-road Equipment - Grading 1: Default CalEEMod equipment.

Off-road Equipment - Grading 2: Default CalEEMod equipment.

Off-road Equipment - Paving 1: Modified default CalEEMod equipment.

Off-road Equipment - Paving 2: Modified default CalEEMod equipment.

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - Site Prepation: Modified default CalEEMod equipment.

Trips and VMT - Mix of project-specific values and CalEEMod default values.

Demolition - 47 tons of debris.

Grading - Grading 1: 40 CY export. Default CalEEMod values for grading.

On-road Fugitive Dust - Default CalEEMod values.

Architectural Coating - Default CalEEMod values.

Vehicle Emission Factors - Default CalEEMod values.

Vehicle Emission Factors - Default CalEEMod values.

Vehicle Emission Factors - Default CalEEMod values.

Fleet Mix - General Light Industry used for Employee trips (light-duty automobile and truck mix). Other Non-Asphalt Surface used for Delivery Trips (heavy-duty truck mix).

Road Dust - Default CalEEMod values.

Woodstoves - Default CalEEMod values (no hearths).

Consumer Products - Default CalEEMod values.

Area Coating - Default CalEEMod values.

Landscape Equipment - Default CalEEMod values.

Energy Use - Default CalEEMod values.

Water And Wastewater - Default CalEEMod values.

Solid Waste - Default CalEEMod values.

Operational Off-Road Equipment - No operational offroad equipment.

Stationary Sources - User Defined - No operational stationary sources.

Construction Off-road Equipment Mitigation - Water Exposed Area: 2x daily.

Mobile Land Use Mitigation - No traffic mitigation.

Mobile Commute Mitigation - No traffic mitigation.

Area Mitigation - No area mitigation.

Energy Mitigation - No energy mitigation.

Water Mitigation - No water mitigation.

Waste Mitigation - No solid waste mitigation.

Vehicle Trips - General Light Industry used for Employee trips. Other Non-Asphalt Surface used for Delivery Trips. Weekday trips only.

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	1.00	3.00
tblConstructionPhase	NumDays	100.00	160.00
tblConstructionPhase	NumDays	100.00	30.00
tblConstructionPhase	NumDays	5.00	4.00
tblConstructionPhase	NumDays	5.00	1.00
tblConstructionPhase	NumDays	5.00	4.00
tblFleetMix	HHD	4.8550e-003	0.00
tblFleetMix	HHD	4.8550e-003	0.10
tblFleetMix	LDA	0.54	0.69
tblFleetMix	LDA	0.54	0.00
tblFleetMix	LDT1	0.06	0.07
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT2	0.19	0.24
tblFleetMix	LDT2	0.19	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD1	0.02	0.49
tblFleetMix	LHD2	6.5220e-003	0.00
tblFleetMix	LHD2	6.5220e-003	0.13
tblFleetMix	MCY	0.02	0.00
tblFleetMix	MCY	0.02	0.00
tblFleetMix	MDV	0.13	0.00
tblFleetMix	MDV	0.13	0.00
tblFleetMix	MH	3.9420e-003	0.00
tblFleetMix	MH	3.9420e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	MHD	0.01	0.28
tblFleetMix	OBUS	6.5600e-004	0.00

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblFleetMix	OBUS	6.5600e-004	0.00
tblFleetMix	SBUS	7.2300e-004	0.00
tblFleetMix	SBUS	7.2300e-004	0.00
tblFleetMix	UBUS	3.8500e-004	0.00
tblFleetMix	UBUS	3.8500e-004	0.00
tblGrading	MaterialExported	0.00	40.00
tblLandUse	LandUseSquareFeet	280.00	279.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblTripsAndVMT	HaulingTripNumber	5.00	6.00
tblTripsAndVMT	HaulingTripNumber	0.00	6.00
tblTripsAndVMT	HaulingTripNumber	5.00	6.00
tblTripsAndVMT	HaulingTripNumber	0.00	4.00
tblTripsAndVMT	HaulingTripNumber	0.00	2.00
tblTripsAndVMT	HaulingTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	1.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	1.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	5.00	6.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblTripsAndVMT	WorkerTripNumber	2.00	12.00
tblTripsAndVMT	WorkerTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	2.00	4.00
tblVehicleTrips	CC_TTP	28.00	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	0.00	100.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	1.99	0.00
tblVehicleTrips	SU_TR	5.00	0.00
tblVehicleTrips	WD_TR	4.96	14.29
tblVehicleTrips	WD_TR	0.00	0.54

2.0 Emissions Summary

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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					
2022	1.5244	17.2953	13.8385	0.0256	5.8486	0.6995	6.5481	2.6703	0.6438	3.3141	0.0000	2,545.5491	2,545.5491	0.6828	0.0691	2,583.2180
2023	4.7681	16.7665	20.0894	0.0358	5.5251	0.7966	6.1685	2.6257	0.7432	3.2177	0.0000	3,478.3209	3,478.3209	0.8432	0.0273	3,507.5434
Maximum	**4.7681**	**17.2953**	**20.0894**	**0.0358**	**5.8486**	**0.7966**	**6.5481**	**2.6703**	**0.7432**	**3.3141**	**0.0000**	**3,478.3209**	**3,478.3209**	**0.8432**	**0.0691**	**3,507.5434**

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					
2022	1.5244	17.2953	13.8385	0.0256	2.7800	0.6995	3.4795	1.2416	0.6438	1.8854	0.0000	2,545.5491	2,545.5491	0.6828	0.0691	2,583.2180
2023	4.7681	16.7665	20.0894	0.0358	2.6035	0.7966	3.2470	1.2130	0.7432	1.8050	0.0000	3,478.3209	3,478.3209	0.8432	0.0273	3,507.5434
Maximum	**4.7681**	**17.2953**	**20.0894**	**0.0358**	**2.7800**	**0.7966**	**3.4795**	**1.2416**	**0.7432**	**1.8854**	**0.0000**	**3,478.3209**	**3,478.3209**	**0.8432**	**0.0691**	**3,507.5434**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	52.67	0.00	47.11	53.65	0.00	43.50	0.00	0.00	0.00	0.00	0.00	0.00

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	7.8500e-003	0.0000	4.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		8.6000e-004	8.6000e-004	0.0000		9.2000e-004
Energy	1.7000e-004	1.5600e-003	1.3100e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		1.8669	1.8669	4.0000e-005	3.0000e-005	1.8780
Mobile	7.7500e-003	0.0393	0.1413	6.5000e-004	0.0627	4.8000e-004	0.0631	0.0169	4.5000e-004	0.0173		66.7251	66.7251	1.3800e-003	3.4200e-003	67.7776
Total	**0.0158**	**0.0408**	**0.1430**	**6.6000e-004**	**0.0627**	**6.0000e-004**	**0.0633**	**0.0169**	**5.7000e-004**	**0.0175**		**68.5928**	**68.5928**	**1.4200e-003**	**3.4500e-003**	**69.6565**

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	7.8500e-003	0.0000	4.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		8.6000e-004	8.6000e-004	0.0000		9.2000e-004
Energy	1.7000e-004	1.5600e-003	1.3100e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		1.8669	1.8669	4.0000e-005	3.0000e-005	1.8780
Mobile	7.7500e-003	0.0393	0.1413	6.5000e-004	0.0627	4.8000e-004	0.0631	0.0169	4.5000e-004	0.0173		66.7251	66.7251	1.3800e-003	3.4200e-003	67.7776
Total	**0.0158**	**0.0408**	**0.1430**	**6.6000e-004**	**0.0627**	**6.0000e-004**	**0.0633**	**0.0169**	**5.7000e-004**	**0.0175**		**68.5928**	**68.5928**	**1.4200e-003**	**3.4500e-003**	**69.6565**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	6/1/2022	6/7/2022	5	5	
2	Site Preparation	Site Preparation	6/6/2022	6/8/2022	5	3	
3	Grading 1	Grading	6/8/2022	6/9/2022	5	2	
4	Building Construction 1	Building Construction	6/10/2022	1/19/2023	5	160	
5	Building Construction 2	Building Construction	12/9/2022	1/19/2023	5	30	
6	Paving 1	Paving	1/15/2023	1/19/2023	5	4	
7	Grading 2	Grading	1/20/2023	1/23/2023	5	2	
8	Architectural Coating	Architectural Coating	1/20/2023	1/20/2023	5	1	
9	Paving 2	Paving	1/22/2023	1/26/2023	5	4	

Acres of Grading (Site Preparation Phase): 0.75

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0.08

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 419; Non-Residential Outdoor: 140; Striped Parking Area: 220 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Graders	1	4.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading 1	Graders	1	6.00	187	0.41
Grading 1	Rubber Tired Dozers	1	6.00	247	0.40
Grading 1	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction 1	Cranes	1	4.00	231	0.29
Building Construction 1	Forklifts	2	6.00	89	0.20
Building Construction 1	Generator Sets	1	8.00	84	0.74
Building Construction 1	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving 1	Cement and Mortar Mixers	0	6.00	9	0.56
Paving 1	Pavers	1	7.00	130	0.42
Paving 1	Rollers	1	7.00	80	0.38
Paving 1	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction 2	Cranes	1	4.00	231	0.29
Building Construction 2	Forklifts	1	3.00	89	0.20
Building Construction 2	Skid Steer Loaders	1	6.00	65	0.37
Building Construction 2	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading 2	Graders	1	6.00	187	0.41
Grading 2	Rubber Tired Dozers	1	6.00	247	0.40
Grading 2	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving 2	Cement and Mortar Mixers	0	6.00	9	0.56
Paving 2	Pavers	1	7.00	130	0.42
Paving 2	Rollers	1	7.00	80	0.38
Paving 2	Tractors/Loaders/Backhoes	1	7.00	97	0.37

Trips and VMT

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	4	10.00	2.00	6.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	6.00	2.00	6.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading 1	3	8.00	2.00	6.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 1	6	12.00	2.00	4.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving 1	3	8.00	2.00	2.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 2	3	4.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading 2	3	8.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	3	8.00	2.00	2.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 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					
Fugitive Dust					0.2012	0.0000	0.2012	0.0305	0.0000	0.0305			0.0000			0.0000
Off-Road	0.7094	6.4138	7.4693	0.0120		0.3375	0.3375		0.3225	0.3225		1,147.9025	1,147.9025	0.2119		1,153.2001
Total	**0.7094**	**6.4138**	**7.4693**	**0.0120**	**0.2012**	**0.3375**	**0.5387**	**0.0305**	**0.3225**	**0.3530**		**1,147.9025**	**1,147.9025**	**0.2119**		**1,153.2001**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 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	4.8600e-003	0.1868	0.0525	7.2000e-004	0.0209	1.4100e-003	0.0223	5.7300e-003	1.3500e-003	7.0800e-003		81.1316	81.1316	7.7300e-003	0.0130	85.1972
Vendor	3.3300e-003	0.0897	0.0319	3.8000e-004	0.0128	8.7000e-004	0.0137	3.6800e-003	8.4000e-004	4.5200e-003		41.4715	41.4715	2.3800e-003	5.9400e-003	43.3020
Worker	0.0301	0.0202	0.3286	9.7000e-004	0.1118	6.0000e-004	0.1124	0.0296	5.5000e-004	0.0302		98.4712	98.4712	2.3200e-003	2.2100e-003	99.1885
Total	**0.0383**	**0.2968**	**0.4130**	**2.0700e-003**	**0.1455**	**2.8800e-003**	**0.1484**	**0.0391**	**2.7400e-003**	**0.0418**		**221.0742**	**221.0742**	**0.0124**	**0.0211**	**227.6877**

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					0.0905	0.0000	0.0905	0.0137	0.0000	0.0137			0.0000			0.0000
Off-Road	0.7094	6.4138	7.4693	0.0120		0.3375	0.3375		0.3225	0.3225	0.0000	1,147.9025	1,147.9025	0.2119		1,153.2001
Total	**0.7094**	**6.4138**	**7.4693**	**0.0120**	**0.0905**	**0.3375**	**0.4280**	**0.0137**	**0.3225**	**0.3363**	**0.0000**	**1,147.9025**	**1,147.9025**	**0.2119**		**1,153.2001**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 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	4.8600e-003	0.1868	0.0525	7.2000e-004	0.0209	1.4100e-003	0.0223	5.7300e-003	1.3500e-003	7.0800e-003		81.1316	81.1316	7.7300e-003	0.0130	85.1972
Vendor	3.3300e-003	0.0897	0.0319	3.8000e-004	0.0128	8.7000e-004	0.0137	3.6800e-003	8.4000e-004	4.5200e-003		41.4715	41.4715	2.3800e-003	5.9400e-003	43.3020
Worker	0.0301	0.0202	0.3286	9.7000e-004	0.1118	6.0000e-004	0.1124	0.0296	5.5000e-004	0.0302		98.4712	98.4712	2.3200e-003	2.2100e-003	99.1885
Total	**0.0383**	**0.2968**	**0.4130**	**2.0700e-003**	**0.1455**	**2.8800e-003**	**0.1484**	**0.0391**	**2.7400e-003**	**0.0418**		**221.0742**	**221.0742**	**0.0124**	**0.0211**	**227.6877**

3.3 Site Preparation - 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					
Fugitive Dust					0.2651	0.0000	0.2651	0.0286	0.0000	0.0286			0.0000			0.0000
Off-Road	0.3722	4.3044	3.0988	6.4200e-003		0.1737	0.1737		0.1598	0.1598		621.8784	621.8784	0.2011		626.9066
Total	**0.3722**	**4.3044**	**3.0988**	**6.4200e-003**	**0.2651**	**0.1737**	**0.4389**	**0.0286**	**0.1598**	**0.1885**		**621.8784**	**621.8784**	**0.2011**		**626.9066**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 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	8.1000e-003	0.3114	0.0875	1.1900e-003	0.0349	2.3600e-003	0.0372	9.5500e-003	2.2500e-003	0.0118		135.2193	135.2193	0.0129	0.0217	141.9954
Vendor	3.3300e-003	0.0897	0.0319	3.8000e-004	0.0128	8.7000e-004	0.0137	3.6800e-003	8.4000e-004	4.5200e-003		41.4715	41.4715	2.3800e-003	5.9400e-003	43.3020
Worker	0.0181	0.0121	0.1972	5.8000e-004	0.0671	3.6000e-004	0.0674	0.0178	3.3000e-004	0.0181		59.0827	59.0827	1.3900e-003	1.3300e-003	59.5131
Total	**0.0295**	**0.4133**	**0.3165**	**2.1500e-003**	**0.1147**	**3.5900e-003**	**0.1183**	**0.0310**	**3.4200e-003**	**0.0345**		**235.7735**	**235.7735**	**0.0167**	**0.0289**	**244.8105**

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					0.1193	0.0000	0.1193	0.0129	0.0000	0.0129			0.0000			0.0000
Off-Road	0.3722	4.3044	3.0988	6.4200e-003		0.1737	0.1737		0.1598	0.1598	0.0000	621.8784	621.8784	0.2011		626.9066
Total	**0.3722**	**4.3044**	**3.0988**	**6.4200e-003**	**0.1193**	**0.1737**	**0.2930**	**0.0129**	**0.1598**	**0.1727**	**0.0000**	**621.8784**	**621.8784**	**0.2011**		**626.9066**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 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	8.1000e-003	0.3114	0.0875	1.1900e-003	0.0349	2.3600e-003	0.0372	9.5500e-003	2.2500e-003	0.0118		135.2193	135.2193	0.0129	0.0217	141.9954
Vendor	3.3300e-003	0.0897	0.0319	3.8000e-004	0.0128	8.7000e-004	0.0137	3.6800e-003	8.4000e-004	4.5200e-003		41.4715	41.4715	2.3800e-003	5.9400e-003	43.3020
Worker	0.0181	0.0121	0.1972	5.8000e-004	0.0671	3.6000e-004	0.0674	0.0178	3.3000e-004	0.0181		59.0827	59.0827	1.3900e-003	1.3300e-003	59.5131
Total	**0.0295**	**0.4133**	**0.3165**	**2.1500e-003**	**0.1147**	**3.5900e-003**	**0.1183**	**0.0310**	**3.4200e-003**	**0.0345**		**235.7735**	**235.7735**	**0.0167**	**0.0289**	**244.8105**

3.4 Grading 1 - 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					
Fugitive Dust					5.3142	0.0000	5.3142	2.5689	0.0000	2.5689			0.0000			0.0000
Off-Road	1.0832	12.0046	5.9360	0.0141		0.5173	0.5173		0.4759	0.4759		1,364.8198	1,364.8198	0.4414		1,375.8551
Total	**1.0832**	**12.0046**	**5.9360**	**0.0141**	**5.3142**	**0.5173**	**5.8315**	**2.5689**	**0.4759**	**3.0448**		**1,364.8198**	**1,364.8198**	**0.4414**		**1,375.8551**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading 1 - 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	0.0122	0.4671	0.1312	1.7900e-003	0.0523	3.5300e-003	0.0559	0.0143	3.3800e-003	0.0177		202.8289	202.8289	0.0193	0.0325	212.9930
Vendor	3.3300e-003	0.0897	0.0319	3.8000e-004	0.0128	8.7000e-004	0.0137	3.6800e-003	8.4000e-004	4.5200e-003		41.4715	41.4715	2.3800e-003	5.9400e-003	43.3020
Worker	0.0241	0.0162	0.2629	7.8000e-004	0.0894	4.8000e-004	0.0899	0.0237	4.4000e-004	0.0242		78.7769	78.7769	1.8500e-003	1.7700e-003	79.3508
Total	**0.0395**	**0.5730**	**0.4260**	**2.9500e-003**	**0.1545**	**4.8800e-003**	**0.1594**	**0.0417**	**4.6600e-003**	**0.0464**		**323.0774**	**323.0774**	**0.0236**	**0.0402**	**335.6458**

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					2.3914	0.0000	2.3914	1.1560	0.0000	1.1560			0.0000			0.0000
Off-Road	1.0832	12.0046	5.9360	0.0141		0.5173	0.5173		0.4759	0.4759	0.0000	1,364.8198	1,364.8198	0.4414		1,375.8551
Total	**1.0832**	**12.0046**	**5.9360**	**0.0141**	**2.3914**	**0.5173**	**2.9087**	**1.1560**	**0.4759**	**1.6319**	**0.0000**	**1,364.8198**	**1,364.8198**	**0.4414**		**1,375.8551**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading 1 - 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	0.0122	0.4671	0.1312	1.7900e-003	0.0523	3.5300e-003	0.0559	0.0143	3.3800e-003	0.0177		202.8289	202.8289	0.0193	0.0325	212.9930
Vendor	3.3300e-003	0.0897	0.0319	3.8000e-004	0.0128	8.7000e-004	0.0137	3.6800e-003	8.4000e-004	4.5200e-003		41.4715	41.4715	2.3800e-003	5.9400e-003	43.3020
Worker	0.0241	0.0162	0.2629	7.8000e-004	0.0894	4.8000e-004	0.0899	0.0237	4.4000e-004	0.0242		78.7769	78.7769	1.8500e-003	1.7700e-003	79.3508
Total	**0.0395**	**0.5730**	**0.4260**	**2.9500e-003**	**0.1545**	**4.8800e-003**	**0.1594**	**0.0417**	**4.6600e-003**	**0.0464**		**323.0774**	**323.0774**	**0.0236**	**0.0402**	**335.6458**

3.5 Building Construction 1 - 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	1.0163	9.9540	10.8286	0.0180		0.5188	0.5188		0.4891	0.4891		1,726.9739	1,726.9739	0.3866		1,736.6398
Total	**1.0163**	**9.9540**	**10.8286**	**0.0180**		**0.5188**	**0.5188**		**0.4891**	**0.4891**		**1,726.9739**	**1,726.9739**	**0.3866**		**1,736.6398**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction 1 - 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	1.0000e-004	3.8900e-003	1.0900e-003	1.0000e-005	4.4000e-004	3.0000e-005	4.7000e-004	1.2000e-004	3.0000e-005	1.5000e-004		1.6902	1.6902	1.6000e-004	2.7000e-004	1.7749
Vendor	3.3300e-003	0.0897	0.0319	3.8000e-004	0.0128	8.7000e-004	0.0137	3.6800e-003	8.4000e-004	4.5200e-003		41.4715	41.4715	2.3800e-003	5.9400e-003	43.3020
Worker	0.0361	0.0243	0.3944	1.1700e-003	0.1341	7.2000e-004	0.1349	0.0356	6.7000e-004	0.0362		118.1654	118.1654	2.7800e-003	2.6600e-003	119.0262
Total	**0.0395**	**0.1179**	**0.4273**	**1.5600e-003**	**0.1474**	**1.6200e-003**	**0.1490**	**0.0394**	**1.5400e-003**	**0.0409**		**161.3271**	**161.3271**	**5.3200e-003**	**8.8700e-003**	**164.1032**

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	1.0163	9.9540	10.8286	0.0180		0.5188	0.5188		0.4891	0.4891	0.0000	1,726.9739	1,726.9739	0.3866		1,736.6398
Total	**1.0163**	**9.9540**	**10.8286**	**0.0180**		**0.5188**	**0.5188**		**0.4891**	**0.4891**	**0.0000**	**1,726.9739**	**1,726.9739**	**0.3866**		**1,736.6398**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction 1 - 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	1.0000e-004	3.8900e-003	1.0900e-003	1.0000e-005	4.4000e-004	3.0000e-005	4.7000e-004	1.2000e-004	3.0000e-005	1.5000e-004		1.6902	1.6902	1.6000e-004	2.7000e-004	1.7749
Vendor	3.3300e-003	0.0897	0.0319	3.8000e-004	0.0128	8.7000e-004	0.0137	3.6800e-003	8.4000e-004	4.5200e-003		41.4715	41.4715	2.3800e-003	5.9400e-003	43.3020
Worker	0.0361	0.0243	0.3944	1.1700e-003	0.1341	7.2000e-004	0.1349	0.0356	6.7000e-004	0.0362		118.1654	118.1654	2.7800e-003	2.6600e-003	119.0262
Total	**0.0395**	**0.1179**	**0.4273**	**1.5600e-003**	**0.1474**	**1.6200e-003**	**0.1490**	**0.0394**	**1.5400e-003**	**0.0409**		**161.3271**	**161.3271**	**5.3200e-003**	**8.8700e-003**	**164.1032**

3.5 Building Construction 1 - 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	0.9381	9.1342	10.7664	0.0180		0.4485	0.4485		0.4229	0.4229		1,727.6434	1,727.6434	0.3847		1,737.2599
Total	**0.9381**	**9.1342**	**10.7664**	**0.0180**		**0.4485**	**0.4485**		**0.4229**	**0.4229**		**1,727.6434**	**1,727.6434**	**0.3847**		**1,737.2599**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction 1 - 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	5.0000e-005	2.9800e-003	1.0200e-003	1.0000e-005	4.4000e-004	2.0000e-005	4.6000e-004	1.2000e-004	2.0000e-005	1.4000e-004		1.5989	1.5989	1.6000e-004	2.6000e-004	1.6793
Vendor	2.0200e-003	0.0701	0.0291	3.6000e-004	0.0128	3.6000e-004	0.0132	3.6800e-003	3.4000e-004	4.0200e-003		39.4899	39.4899	2.3500e-003	5.6700e-003	41.2371
Worker	0.0338	0.0216	0.3665	1.1300e-003	0.1341	6.8000e-004	0.1348	0.0356	6.3000e-004	0.0362		114.4034	114.4034	2.5100e-003	2.4700e-003	115.2028
Total	**0.0359**	**0.0947**	**0.3965**	**1.5000e-003**	**0.1474**	**1.0600e-003**	**0.1484**	**0.0394**	**9.9000e-004**	**0.0404**		**155.4922**	**155.4922**	**5.0200e-003**	**8.4000e-003**	**158.1192**

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	0.9381	9.1342	10.7664	0.0180		0.4485	0.4485		0.4229	0.4229	0.0000	1,727.6434	1,727.6434	0.3847		1,737.2599
Total	**0.9381**	**9.1342**	**10.7664**	**0.0180**		**0.4485**	**0.4485**		**0.4229**	**0.4229**	**0.0000**	**1,727.6434**	**1,727.6434**	**0.3847**		**1,737.2599**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction 1 - 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	5.0000e-005	2.9800e-003	1.0200e-003	1.0000e-005	4.4000e-004	2.0000e-005	4.6000e-004	1.2000e-004	2.0000e-005	1.4000e-004		1.5989	1.5989	1.6000e-004	2.6000e-004	1.6793
Vendor	2.0200e-003	0.0701	0.0291	3.6000e-004	0.0128	3.6000e-004	0.0132	3.6800e-003	3.4000e-004	4.0200e-003		39.4899	39.4899	2.3500e-003	5.6700e-003	41.2371
Worker	0.0338	0.0216	0.3665	1.1300e-003	0.1341	6.8000e-004	0.1348	0.0356	6.3000e-004	0.0362		114.4034	114.4034	2.5100e-003	2.4700e-003	115.2028
Total	**0.0359**	**0.0947**	**0.3965**	**1.5000e-003**	**0.1474**	**1.0600e-003**	**0.1484**	**0.0394**	**9.9000e-004**	**0.0404**		**155.4922**	**155.4922**	**5.0200e-003**	**8.4000e-003**	**158.1192**

3.6 Building Construction 2 - 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	0.2813	3.1842	2.4192	5.0100e-003		0.1390	0.1390		0.1278	0.1278		485.2202	485.2202	0.1569		489.1434
Total	**0.2813**	**3.1842**	**2.4192**	**5.0100e-003**		**0.1390**	**0.1390**		**0.1278**	**0.1278**		**485.2202**	**485.2202**	**0.1569**		**489.1434**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Building Construction 2 - 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	0.0000
Vendor	3.3300e-003	0.0897	0.0319	3.8000e-004	0.0128	8.7000e-004	0.0137	3.6800e-003	8.4000e-004	4.5200e-003		41.4715	41.4715	2.3800e-003	5.9400e-003	43.3020
Worker	0.0120	8.0800e-003	0.1315	3.9000e-004	0.0447	2.4000e-004	0.0450	0.0119	2.2000e-004	0.0121		39.3885	39.3885	9.3000e-004	8.9000e-004	39.6754
Total	**0.0154**	**0.0978**	**0.1633**	**7.7000e-004**	**0.0575**	**1.1100e-003**	**0.0586**	**0.0155**	**1.0600e-003**	**0.0166**		**80.8600**	**80.8600**	**3.3100e-003**	**6.8300e-003**	**82.9774**

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	0.2813	3.1842	2.4192	5.0100e-003		0.1390	0.1390		0.1278	0.1278	0.0000	485.2202	485.2202	0.1569		489.1434
Total	**0.2813**	**3.1842**	**2.4192**	**5.0100e-003**		**0.1390**	**0.1390**		**0.1278**	**0.1278**	**0.0000**	**485.2202**	**485.2202**	**0.1569**		**489.1434**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Building Construction 2 - 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	0.0000
Vendor	3.3300e-003	0.0897	0.0319	3.8000e-004	0.0128	8.7000e-004	0.0137	3.6800e-003	8.4000e-004	4.5200e-003		41.4715	41.4715	2.3800e-003	5.9400e-003	43.3020
Worker	0.0120	8.0800e-003	0.1315	3.9000e-004	0.0447	2.4000e-004	0.0450	0.0119	2.2000e-004	0.0121		39.3885	39.3885	9.3000e-004	8.9000e-004	39.6754
Total	**0.0154**	**0.0978**	**0.1633**	**7.7000e-004**	**0.0575**	**1.1100e-003**	**0.0586**	**0.0155**	**1.0600e-003**	**0.0166**		**80.8600**	**80.8600**	**3.3100e-003**	**6.8300e-003**	**82.9774**

3.6 Building Construction 2 - 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	0.2630	2.9162	2.3856	5.0100e-003		0.1239	0.1239		0.1139	0.1139		485.2859	485.2859	0.1570		489.2096
Total	**0.2630**	**2.9162**	**2.3856**	**5.0100e-003**		**0.1239**	**0.1239**		**0.1139**	**0.1139**		**485.2859**	**485.2859**	**0.1570**		**489.2096**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Building Construction 2 - 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	0.0000
Vendor	2.0200e-003	0.0701	0.0291	3.6000e-004	0.0128	3.6000e-004	0.0132	3.6800e-003	3.4000e-004	4.0200e-003		39.4899	39.4899	2.3500e-003	5.6700e-003	41.2371
Worker	0.0113	7.2100e-003	0.1222	3.8000e-004	0.0447	2.3000e-004	0.0449	0.0119	2.1000e-004	0.0121		38.1345	38.1345	8.4000e-004	8.2000e-004	38.4009
Total	**0.0133**	**0.0773**	**0.1512**	**7.4000e-004**	**0.0575**	**5.9000e-004**	**0.0581**	**0.0155**	**5.5000e-004**	**0.0161**		**77.6244**	**77.6244**	**3.1900e-003**	**6.4900e-003**	**79.6381**

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	0.2630	2.9162	2.3856	5.0100e-003		0.1239	0.1239		0.1139	0.1139	0.0000	485.2859	485.2859	0.1570		489.2096
Total	**0.2630**	**2.9162**	**2.3856**	**5.0100e-003**		**0.1239**	**0.1239**		**0.1139**	**0.1139**	**0.0000**	**485.2859**	**485.2859**	**0.1570**		**489.2096**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Building Construction 2 - 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	0.0000
Vendor	2.0200e-003	0.0701	0.0291	3.6000e-004	0.0128	3.6000e-004	0.0132	3.6800e-003	3.4000e-004	4.0200e-003		39.4899	39.4899	2.3500e-003	5.6700e-003	41.2371
Worker	0.0113	7.2100e-003	0.1222	3.8000e-004	0.0447	2.3000e-004	0.0449	0.0119	2.1000e-004	0.0121		38.1345	38.1345	8.4000e-004	8.2000e-004	38.4009
Total	**0.0133**	**0.0773**	**0.1512**	**7.4000e-004**	**0.0575**	**5.9000e-004**	**0.0581**	**0.0155**	**5.5000e-004**	**0.0161**		**77.6244**	**77.6244**	**3.1900e-003**	**6.4900e-003**	**79.6381**

3.7 Paving 1 - 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	0.4349	4.4000	6.0959	9.1400e-003		0.2213	0.2213		0.2036	0.2036		884.5388	884.5388	0.2861		891.6908
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4349**	**4.4000**	**6.0959**	**9.1400e-003**		**0.2213**	**0.2213**		**0.2036**	**0.2036**		**884.5388**	**884.5388**	**0.2861**		**891.6908**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Paving 1 - 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	1.0400e-003	0.0596	0.0204	2.8000e-004	8.7200e-003	3.8000e-004	9.1000e-003	2.3900e-003	3.7000e-004	2.7500e-003		31.9775	31.9775	3.2300e-003	5.1300e-003	33.5868
Vendor	2.0200e-003	0.0701	0.0291	3.6000e-004	0.0128	3.6000e-004	0.0132	3.6800e-003	3.4000e-004	4.0200e-003		39.4899	39.4899	2.3500e-003	5.6700e-003	41.2371
Worker	0.0225	0.0144	0.2443	7.5000e-004	0.0894	4.6000e-004	0.0899	0.0237	4.2000e-004	0.0241		76.2689	76.2689	1.6800e-003	1.6500e-003	76.8018
Total	**0.0256**	**0.1441**	**0.2938**	**1.3900e-003**	**0.1109**	**1.2000e-003**	**0.1121**	**0.0298**	**1.1300e-003**	**0.0309**		**147.7363**	**147.7363**	**7.2600e-003**	**0.0125**	**151.6258**

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	0.4349	4.4000	6.0959	9.1400e-003		0.2213	0.2213		0.2036	0.2036	0.0000	884.5388	884.5388	0.2861		891.6908
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4349**	**4.4000**	**6.0959**	**9.1400e-003**		**0.2213**	**0.2213**		**0.2036**	**0.2036**	**0.0000**	**884.5388**	**884.5388**	**0.2861**		**891.6908**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Paving 1 - 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	1.0400e-003	0.0596	0.0204	2.8000e-004	8.7200e-003	3.8000e-004	9.1000e-003	2.3900e-003	3.7000e-004	2.7500e-003		31.9775	31.9775	3.2300e-003	5.1300e-003	33.5868
Vendor	2.0200e-003	0.0701	0.0291	3.6000e-004	0.0128	3.6000e-004	0.0132	3.6800e-003	3.4000e-004	4.0200e-003		39.4899	39.4899	2.3500e-003	5.6700e-003	41.2371
Worker	0.0225	0.0144	0.2443	7.5000e-004	0.0894	4.6000e-004	0.0899	0.0237	4.2000e-004	0.0241		76.2689	76.2689	1.6800e-003	1.6500e-003	76.8018
Total	**0.0256**	**0.1441**	**0.2938**	**1.3900e-003**	**0.1109**	**1.2000e-003**	**0.1121**	**0.0298**	**1.1300e-003**	**0.0309**		**147.7363**	**147.7363**	**7.2600e-003**	**0.0125**	**151.6258**

3.8 Grading 2 - 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					
Fugitive Dust					5.3119	0.0000	5.3119	2.5686	0.0000	2.5686			0.0000			0.0000
Off-Road	0.9335	10.1789	5.5516	0.0141		0.4201	0.4201		0.3865	0.3865		1,364.7713	1,364.7713	0.4414		1,375.8062
Total	**0.9335**	**10.1789**	**5.5516**	**0.0141**	**5.3119**	**0.4201**	**5.7320**	**2.5686**	**0.3865**	**2.9550**		**1,364.7713**	**1,364.7713**	**0.4414**		**1,375.8062**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.8 Grading 2 - 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	0.0000
Vendor	2.0200e-003	0.0701	0.0291	3.6000e-004	0.0128	3.6000e-004	0.0132	3.6800e-003	3.4000e-004	4.0200e-003		39.4899	39.4899	2.3500e-003	5.6700e-003	41.2371
Worker	0.0225	0.0144	0.2443	7.5000e-004	0.0894	4.6000e-004	0.0899	0.0237	4.2000e-004	0.0241		76.2689	76.2689	1.6800e-003	1.6500e-003	76.8018
Total	**0.0246**	**0.0845**	**0.2734**	**1.1100e-003**	**0.1022**	**8.2000e-004**	**0.1030**	**0.0274**	**7.6000e-004**	**0.0282**		**115.7588**	**115.7588**	**4.0300e-003**	**7.3200e-003**	**118.0390**

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					2.3904	0.0000	2.3904	1.1559	0.0000	1.1559			0.0000			0.0000
Off-Road	0.9335	10.1789	5.5516	0.0141		0.4201	0.4201		0.3865	0.3865	0.0000	1,364.7713	1,364.7713	0.4414		1,375.8062
Total	**0.9335**	**10.1789**	**5.5516**	**0.0141**	**2.3904**	**0.4201**	**2.8105**	**1.1559**	**0.3865**	**1.5423**	**0.0000**	**1,364.7713**	**1,364.7713**	**0.4414**		**1,375.8062**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.8 Grading 2 - 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	0.0000
Vendor	2.0200e-003	0.0701	0.0291	3.6000e-004	0.0128	3.6000e-004	0.0132	3.6800e-003	3.4000e-004	4.0200e-003		39.4899	39.4899	2.3500e-003	5.6700e-003	41.2371
Worker	0.0225	0.0144	0.2443	7.5000e-004	0.0894	4.6000e-004	0.0899	0.0237	4.2000e-004	0.0241		76.2689	76.2689	1.6800e-003	1.6500e-003	76.8018
Total	**0.0246**	**0.0845**	**0.2734**	**1.1100e-003**	**0.1022**	**8.2000e-004**	**0.1030**	**0.0274**	**7.6000e-004**	**0.0282**		**115.7588**	**115.7588**	**4.0300e-003**	**7.3200e-003**	**118.0390**

3.9 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	3.6107					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	**3.8023**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.9 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	0.0000
Vendor	2.0200e-003	0.0701	0.0291	3.6000e-004	0.0128	3.6000e-004	0.0132	3.6800e-003	3.4000e-004	4.0200e-003		39.4899	39.4899	2.3500e-003	5.6700e-003	41.2371
Worker	5.6300e-003	3.6000e-003	0.0611	1.9000e-004	0.0224	1.1000e-004	0.0225	5.9300e-003	1.0000e-004	6.0300e-003		19.0672	19.0672	4.2000e-004	4.1000e-004	19.2005
Total	**7.6500e-003**	**0.0737**	**0.0901**	**5.5000e-004**	**0.0352**	**4.7000e-004**	**0.0356**	**9.6100e-003**	**4.4000e-004**	**0.0101**		**58.5571**	**58.5571**	**2.7700e-003**	**6.0800e-003**	**60.4376**

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	3.6107					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	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**3.8023**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.9 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	0.0000
Vendor	2.0200e-003	0.0701	0.0291	3.6000e-004	0.0128	3.6000e-004	0.0132	3.6800e-003	3.4000e-004	4.0200e-003		39.4899	39.4899	2.3500e-003	5.6700e-003	41.2371
Worker	5.6300e-003	3.6000e-003	0.0611	1.9000e-004	0.0224	1.1000e-004	0.0225	5.9300e-003	1.0000e-004	6.0300e-003		19.0672	19.0672	4.2000e-004	4.1000e-004	19.2005
Total	**7.6500e-003**	**0.0737**	**0.0901**	**5.5000e-004**	**0.0352**	**4.7000e-004**	**0.0356**	**9.6100e-003**	**4.4000e-004**	**0.0101**		**58.5571**	**58.5571**	**2.7700e-003**	**6.0800e-003**	**60.4376**

3.10 Paving 2 - 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	0.4349	4.4000	6.0959	9.1400e-003		0.2213	0.2213		0.2036	0.2036		884.5388	884.5388	0.2861		891.6908
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4349**	**4.4000**	**6.0959**	**9.1400e-003**		**0.2213**	**0.2213**		**0.2036**	**0.2036**		**884.5388**	**884.5388**	**0.2861**		**891.6908**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.10 Paving 2 - 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	1.0400e-003	0.0596	0.0204	2.8000e-004	8.7200e-003	3.8000e-004	9.1000e-003	2.3900e-003	3.7000e-004	2.7500e-003		31.9775	31.9775	3.2300e-003	5.1300e-003	33.5868
Vendor	2.0200e-003	0.0701	0.0291	3.6000e-004	0.0128	3.6000e-004	0.0132	3.6800e-003	3.4000e-004	4.0200e-003		39.4899	39.4899	2.3500e-003	5.6700e-003	41.2371
Worker	0.0225	0.0144	0.2443	7.5000e-004	0.0894	4.6000e-004	0.0899	0.0237	4.2000e-004	0.0241		76.2689	76.2689	1.6800e-003	1.6500e-003	76.8018
Total	**0.0256**	**0.1441**	**0.2938**	**1.3900e-003**	**0.1109**	**1.2000e-003**	**0.1121**	**0.0298**	**1.1300e-003**	**0.0309**		**147.7363**	**147.7363**	**7.2600e-003**	**0.0125**	**151.6258**

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	0.4349	4.4000	6.0959	9.1400e-003		0.2213	0.2213		0.2036	0.2036	0.0000	884.5388	884.5388	0.2861		891.6908
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4349**	**4.4000**	**6.0959**	**9.1400e-003**		**0.2213**	**0.2213**		**0.2036**	**0.2036**	**0.0000**	**884.5388**	**884.5388**	**0.2861**		**891.6908**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.10 Paving 2 - 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	1.0400e-003	0.0596	0.0204	2.8000e-004	8.7200e-003	3.8000e-004	9.1000e-003	2.3900e-003	3.7000e-004	2.7500e-003		31.9775	31.9775	3.2300e-003	5.1300e-003	33.5868
Vendor	2.0200e-003	0.0701	0.0291	3.6000e-004	0.0128	3.6000e-004	0.0132	3.6800e-003	3.4000e-004	4.0200e-003		39.4899	39.4899	2.3500e-003	5.6700e-003	41.2371
Worker	0.0225	0.0144	0.2443	7.5000e-004	0.0894	4.6000e-004	0.0899	0.0237	4.2000e-004	0.0241		76.2689	76.2689	1.6800e-003	1.6500e-003	76.8018
Total	**0.0256**	**0.1441**	**0.2938**	**1.3900e-003**	**0.1109**	**1.2000e-003**	**0.1121**	**0.0298**	**1.1300e-003**	**0.0309**		**147.7363**	**147.7363**	**7.2600e-003**	**0.0125**	**151.6258**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	7.7500e-003	0.0393	0.1413	6.5000e-004	0.0627	4.8000e-004	0.0631	0.0169	4.5000e-004	0.0173		66.7251	66.7251	1.3800e-003	3.4200e-003	67.7776
Unmitigated	7.7500e-003	0.0393	0.1413	6.5000e-004	0.0627	4.8000e-004	0.0631	0.0169	4.5000e-004	0.0173		66.7251	66.7251	1.3800e-003	3.4200e-003	67.7776

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	4.00	0.00	0.00	17,269	17,269
Other Non-Asphalt Surfaces	1.98	0.00	0.00	3,555	3,555
Total	5.98	0.00	0.00	20,825	20,825

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	16.60	8.40	6.90	100.00	0.00	0.00	100	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	100.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.689126	0.074455	0.236419	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Other Non-Asphalt Surfaces	0.000000	0.000000	0.000000	0.000000	0.487620	0.130440	0.284840	0.097100	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Historical Energy Use: N

5.1 Mitigation Measures 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	1.7000e-004	1.5600e-003	1.3100e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		1.8669	1.8669	4.0000e-005	3.0000e-005	1.8780
NaturalGas Unmitigated	1.7000e-004	1.5600e-003	1.3100e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		1.8669	1.8669	4.0000e-005	3.0000e-005	1.8780

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	15.8686	1.7000e-004	1.5600e-003	1.3100e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		1.8669	1.8669	4.0000e-005	3.0000e-005	1.8780
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		**1.7000e-004**	**1.5600e-003**	**1.3100e-003**	**1.0000e-005**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**		**1.8669**	**1.8669**	**4.0000e-005**	**3.0000e-005**	**1.8780**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

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	0.0158686	1.7000e-004	1.5600e-003	1.3100e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		1.8669	1.8669	4.0000e-005	3.0000e-005	1.8780
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		**1.7000e-004**	**1.5600e-003**	**1.3100e-003**	**1.0000e-005**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**		**1.8669**	**1.8669**	**4.0000e-005**	**3.0000e-005**	**1.8780**

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	7.8500e-003	0.0000	4.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		8.6000e-004	8.6000e-004	0.0000		9.2000e-004
Unmitigated	7.8500e-003	0.0000	4.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		8.6000e-004	8.6000e-004	0.0000		9.2000e-004

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	9.9000e-004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	6.8200e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.0000e-005	0.0000	4.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		8.6000e-004	8.6000e-004	0.0000		9.2000e-004
Total	**7.8500e-003**	**0.0000**	**4.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**8.6000e-004**	**8.6000e-004**	**0.0000**		**9.2000e-004**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	9.9000e-004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	6.8200e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.0000e-005	0.0000	4.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		8.6000e-004	8.6000e-004	0.0000		9.2000e-004
Total	**7.8500e-003**	**0.0000**	**4.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**8.6000e-004**	**8.6000e-004**	**0.0000**		**9.2000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

IRWD Turtle Rock Zone 3 Reservoir Project

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	0.28	1000sqft	0.01	279.00	0
Other Non-Asphalt Surfaces	3.67	1000sqft	0.08	3,670.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See 1.0, Project Characteristics.

Land Use - Project-specific information. General Light Industry represents the new RMS building.

Construction Phase - Project-specific schedule.

Off-road Equipment - Architectural Coating: Default CalEEMod equipment.

Off-road Equipment - Building Construction 1: Modified default CalEEMod equipment.

Off-road Equipment - Building Construction 2: Modified default CalEEMod equipment.

Off-road Equipment - Demolition: Default CalEEMod equipment.

Off-road Equipment - Grading 1: Default CalEEMod equipment.

Off-road Equipment - Grading 2: Default CalEEMod equipment.

Off-road Equipment - Paving 1: Modified default CalEEMod equipment.

Off-road Equipment - Paving 2: Modified default CalEEMod equipment.

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - Site Prepation: Modified default CalEEMod equipment.

Trips and VMT - Mix of project-specific values and CalEEMod default values.

Demolition - 47 tons of debris.

Grading - Grading 1: 40 CY export. Default CalEEMod values for grading.

On-road Fugitive Dust - Default CalEEMod values.

Architectural Coating - Default CalEEMod values.

Vehicle Emission Factors - Default CalEEMod values.

Vehicle Emission Factors - Default CalEEMod values.

Vehicle Emission Factors - Default CalEEMod values.

Fleet Mix - General Light Industry used for Employee trips (light-duty automobile and truck mix). Other Non-Asphalt Surface used for Delivery Trips (heavy-duty truck mix).

Road Dust - Default CalEEMod values.

Woodstoves - Default CalEEMod values (no hearths).

Consumer Products - Default CalEEMod values.

Area Coating - Default CalEEMod values.

Landscape Equipment - Default CalEEMod values.

Energy Use - Default CalEEMod values.

Water And Wastewater - Default CalEEMod values.

Solid Waste - Default CalEEMod values.

Operational Off-Road Equipment - No operational offroad equipment.

Stationary Sources - User Defined - No operational stationary sources.

Construction Off-road Equipment Mitigation - Water Exposed Area: 2x daily.

Mobile Land Use Mitigation - No traffic mitigation.

Mobile Commute Mitigation - No traffic mitigation.

Area Mitigation - No area mitigation.

Energy Mitigation - No energy mitigation.

Water Mitigation - No water mitigation.

Waste Mitigation - No solid waste mitigation.

Vehicle Trips - General Light Industry used for Employee trips. Other Non-Asphalt Surface used for Delivery Trips. Weekday trips only.

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	1.00	3.00
tblConstructionPhase	NumDays	100.00	160.00
tblConstructionPhase	NumDays	100.00	30.00
tblConstructionPhase	NumDays	5.00	4.00
tblConstructionPhase	NumDays	5.00	1.00
tblConstructionPhase	NumDays	5.00	4.00
tblFleetMix	HHD	4.8550e-003	0.00
tblFleetMix	HHD	4.8550e-003	0.10
tblFleetMix	LDA	0.54	0.69
tblFleetMix	LDA	0.54	0.00
tblFleetMix	LDT1	0.06	0.07
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT2	0.19	0.24
tblFleetMix	LDT2	0.19	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD1	0.02	0.49
tblFleetMix	LHD2	6.5220e-003	0.00
tblFleetMix	LHD2	6.5220e-003	0.13
tblFleetMix	MCY	0.02	0.00
tblFleetMix	MCY	0.02	0.00
tblFleetMix	MDV	0.13	0.00
tblFleetMix	MDV	0.13	0.00
tblFleetMix	MH	3.9420e-003	0.00
tblFleetMix	MH	3.9420e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	MHD	0.01	0.28
tblFleetMix	OBUS	6.5600e-004	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblFleetMix	OBUS	6.5600e-004	0.00
tblFleetMix	SBUS	7.2300e-004	0.00
tblFleetMix	SBUS	7.2300e-004	0.00
tblFleetMix	UBUS	3.8500e-004	0.00
tblFleetMix	UBUS	3.8500e-004	0.00
tblGrading	MaterialExported	0.00	40.00
tblLandUse	LandUseSquareFeet	280.00	279.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblTripsAndVMT	HaulingTripNumber	5.00	6.00
tblTripsAndVMT	HaulingTripNumber	0.00	6.00
tblTripsAndVMT	HaulingTripNumber	5.00	6.00
tblTripsAndVMT	HaulingTripNumber	0.00	4.00
tblTripsAndVMT	HaulingTripNumber	0.00	2.00
tblTripsAndVMT	HaulingTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	1.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	1.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	5.00	6.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblTripsAndVMT	WorkerTripNumber	2.00	12.00
tblTripsAndVMT	WorkerTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	2.00	4.00
tblVehicleTrips	CC_TTP	28.00	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	0.00	100.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	1.99	0.00
tblVehicleTrips	SU_TR	5.00	0.00
tblVehicleTrips	WD_TR	4.96	14.29
tblVehicleTrips	WD_TR	0.00	0.54

2.0 Emissions Summary

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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					
2022	0.0830	0.7986	0.8721	1.5300e-003	0.0179	0.0408	0.0587	5.8200e-003	0.0384	0.0442	0.0000	134.6666	134.6666	0.0284	7.8000e-004	135.6067
2023	0.0135	0.1148	0.1280	2.4000e-004	7.2700e-003	5.3600e-003	0.0126	3.1000e-003	5.0100e-003	8.1100e-003	0.0000	20.7306	20.7306	4.9700e-003	1.5000e-004	20.9000
Maximum	**0.0830**	**0.7986**	**0.8721**	**1.5300e-003**	**0.0179**	**0.0408**	**0.0587**	**5.8200e-003**	**0.0384**	**0.0442**	**0.0000**	**134.6666**	**134.6666**	**0.0284**	**7.8000e-004**	**135.6067**

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					
2022	0.0830	0.7986	0.8721	1.5300e-003	0.0145	0.0408	0.0553	4.3400e-003	0.0384	0.0427	0.0000	134.6664	134.6664	0.0284	7.8000e-004	135.6066
2023	0.0135	0.1148	0.1280	2.4000e-004	4.3500e-003	5.3600e-003	9.7200e-003	1.6800e-003	5.0100e-003	6.6900e-003	0.0000	20.7306	20.7306	4.9700e-003	1.5000e-004	20.8999
Maximum	**0.0830**	**0.7986**	**0.8721**	**1.5300e-003**	**0.0145**	**0.0408**	**0.0553**	**4.3400e-003**	**0.0384**	**0.0427**	**0.0000**	**134.6664**	**134.6664**	**0.0284**	**7.8000e-004**	**135.6066**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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**	**25.14**	**0.00**	**8.89**	**32.51**	**0.00**	**5.54**	**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	**6-1-2022**	**8-31-2022**	0.3638	0.3638
2	**9-1-2022**	**11-30-2022**	0.3619	0.3619
3	**12-1-2022**	**2-28-2023**	0.2801	0.2801
		Highest	0.3638	0.3638

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	1.4300e-003	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.0000e-004
Energy	3.0000e-005	2.8000e-004	2.4000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.7183	0.7183	4.0000e-005	1.0000e-005	0.7222
Mobile	9.7000e-004	5.4200e-003	0.0176	8.0000e-005	8.0000e-003	6.0000e-005	8.0700e-003	2.1600e-003	6.0000e-005	2.2200e-003	0.0000	7.6851	7.6851	1.6000e-004	4.1000e-004	7.8118
Waste						0.0000	0.0000		0.0000	0.0000	0.0711	0.0000	0.0711	4.2000e-003	0.0000	0.1760
Water						0.0000	0.0000		0.0000	0.0000	0.0205	0.1495	0.1701	2.1200e-003	5.0000e-005	0.2384
Total	**2.4300e-003**	**5.7000e-003**	**0.0179**	**8.0000e-005**	**8.0000e-003**	**8.0000e-005**	**8.0900e-003**	**2.1600e-003**	**8.0000e-005**	**2.2400e-003**	**0.0916**	**8.5530**	**8.6446**	**6.5200e-003**	**4.7000e-004**	**8.9486**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	1.4300e-003	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.0000e-004
Energy	3.0000e-005	2.8000e-004	2.4000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.7183	0.7183	4.0000e-005	1.0000e-005	0.7222
Mobile	9.7000e-004	5.4200e-003	0.0176	8.0000e-005	8.0000e-003	6.0000e-005	8.0700e-003	2.1600e-003	6.0000e-005	2.2200e-003	0.0000	7.6851	7.6851	1.6000e-004	4.1000e-004	7.8118
Waste						0.0000	0.0000		0.0000	0.0000	0.0711	0.0000	0.0711	4.2000e-003	0.0000	0.1760
Water						0.0000	0.0000		0.0000	0.0000	0.0205	0.1495	0.1701	2.1200e-003	5.0000e-005	0.2384
Total	**2.4300e-003**	**5.7000e-003**	**0.0179**	**8.0000e-005**	**8.0000e-003**	**8.0000e-005**	**8.0900e-003**	**2.1600e-003**	**8.0000e-005**	**2.2400e-003**	**0.0916**	**8.5530**	**8.6446**	**6.5200e-003**	**4.7000e-004**	**8.9486**

	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	6/1/2022	6/7/2022	5	5	
2	Site Preparation	Site Preparation	6/6/2022	6/8/2022	5	3	
3	Grading 1	Grading	6/8/2022	6/9/2022	5	2	

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4	Building Construction 1	Building Construction	6/10/2022	1/19/2023	5	160	
5	Building Construction 2	Building Construction	12/9/2022	1/19/2023	5	30	
6	Paving 1	Paving	1/15/2023	1/19/2023	5	4	
7	Grading 2	Grading	1/20/2023	1/23/2023	5	2	
8	Architectural Coating	Architectural Coating	1/20/2023	1/20/2023	5	1	
9	Paving 2	Paving	1/22/2023	1/26/2023	5	4	

Acres of Grading (Site Preparation Phase): 0.75

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0.08

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 419; Non-Residential Outdoor: 140; Striped Parking Area: 220 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Graders	1	4.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading 1	Graders	1	6.00	187	0.41
Grading 1	Rubber Tired Dozers	1	6.00	247	0.40
Grading 1	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction 1	Cranes	1	4.00	231	0.29
Building Construction 1	Forklifts	2	6.00	89	0.20
Building Construction 1	Generator Sets	1	8.00	84	0.74
Building Construction 1	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving 1	Cement and Mortar Mixers	0	6.00	9	0.56
Paving 1	Pavers	1	7.00	130	0.42

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Paving 1	Rollers	1	7.00	80	0.38
Paving 1	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction 2	Cranes	1	4.00	231	0.29
Building Construction 2	Forklifts	1	3.00	89	0.20
Building Construction 2	Skid Steer Loaders	1	6.00	65	0.37
Building Construction 2	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading 2	Graders	1	6.00	187	0.41
Grading 2	Rubber Tired Dozers	1	6.00	247	0.40
Grading 2	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving 2	Cement and Mortar Mixers	0	6.00	9	0.56
Paving 2	Pavers	1	7.00	130	0.42
Paving 2	Rollers	1	7.00	80	0.38
Paving 2	Tractors/Loaders/Backhoes	1	7.00	97	0.37

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	4	10.00	2.00	6.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	6.00	2.00	6.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading 1	3	8.00	2.00	6.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 1	6	12.00	2.00	4.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving 1	3	8.00	2.00	2.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 2	3	4.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading 2	3	8.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	3	8.00	2.00	2.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Water Exposed Area

3.2 Demolition - 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					
Fugitive Dust					5.0000e-004	0.0000	5.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7700e-003	0.0160	0.0187	3.0000e-005		8.4000e-004	8.4000e-004		8.1000e-004	8.1000e-004	0.0000	2.6034	2.6034	4.8000e-004	0.0000	2.6154
Total	**1.7700e-003**	**0.0160**	**0.0187**	**3.0000e-005**	**5.0000e-004**	**8.4000e-004**	**1.3400e-003**	**8.0000e-005**	**8.1000e-004**	**8.9000e-004**	**0.0000**	**2.6034**	**2.6034**	**4.8000e-004**	**0.0000**	**2.6154**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 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	1.0000e-005	4.9000e-004	1.3000e-004	0.0000	5.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.1840	0.1840	2.0000e-005	3.0000e-005	0.1932
Vendor	1.0000e-005	2.4000e-004	8.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0941	0.0941	1.0000e-005	1.0000e-005	0.0982
Worker	8.0000e-005	6.0000e-005	7.8000e-004	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2155	0.2155	1.0000e-005	1.0000e-005	0.2173
Total	**1.0000e-004**	**7.9000e-004**	**9.9000e-004**	**0.0000**	**3.5000e-004**	**0.0000**	**3.7000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.4936**	**0.4936**	**4.0000e-005**	**5.0000e-005**	**0.5087**

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					2.3000e-004	0.0000	2.3000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7700e-003	0.0160	0.0187	3.0000e-005		8.4000e-004	8.4000e-004		8.1000e-004	8.1000e-004	0.0000	2.6034	2.6034	4.8000e-004	0.0000	2.6154
Total	**1.7700e-003**	**0.0160**	**0.0187**	**3.0000e-005**	**2.3000e-004**	**8.4000e-004**	**1.0700e-003**	**3.0000e-005**	**8.1000e-004**	**8.4000e-004**	**0.0000**	**2.6034**	**2.6034**	**4.8000e-004**	**0.0000**	**2.6154**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 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	1.0000e-005	4.9000e-004	1.3000e-004	0.0000	5.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.1840	0.1840	2.0000e-005	3.0000e-005	0.1932
Vendor	1.0000e-005	2.4000e-004	8.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0941	0.0941	1.0000e-005	1.0000e-005	0.0982
Worker	8.0000e-005	6.0000e-005	7.8000e-004	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2155	0.2155	1.0000e-005	1.0000e-005	0.2173
Total	**1.0000e-004**	**7.9000e-004**	**9.9000e-004**	**0.0000**	**3.5000e-004**	**0.0000**	**3.7000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.4936**	**0.4936**	**4.0000e-005**	**5.0000e-005**	**0.5087**

3.3 Site Preparation - 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					
Fugitive Dust					4.0000e-004	0.0000	4.0000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.6000e-004	6.4600e-003	4.6500e-003	1.0000e-005		2.6000e-004	2.6000e-004		2.4000e-004	2.4000e-004	0.0000	0.8462	0.8462	2.7000e-004	0.0000	0.8531
Total	**5.6000e-004**	**6.4600e-003**	**4.6500e-003**	**1.0000e-005**	**4.0000e-004**	**2.6000e-004**	**6.6000e-004**	**4.0000e-005**	**2.4000e-004**	**2.8000e-004**	**0.0000**	**0.8462**	**0.8462**	**2.7000e-004**	**0.0000**	**0.8531**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 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	1.0000e-005	4.9000e-004	1.3000e-004	0.0000	5.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.1840	0.1840	2.0000e-005	3.0000e-005	0.1932
Vendor	0.0000	1.4000e-004	5.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0564	0.0564	0.0000	1.0000e-005	0.0589
Worker	3.0000e-005	2.0000e-005	2.8000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0776	0.0776	0.0000	0.0000	0.0782
Total	**4.0000e-005**	**6.5000e-004**	**4.6000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.3180**	**0.3180**	**2.0000e-005**	**4.0000e-005**	**0.3304**

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					1.8000e-004	0.0000	1.8000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.6000e-004	6.4600e-003	4.6500e-003	1.0000e-005		2.6000e-004	2.6000e-004		2.4000e-004	2.4000e-004	0.0000	0.8462	0.8462	2.7000e-004	0.0000	0.8531
Total	**5.6000e-004**	**6.4600e-003**	**4.6500e-003**	**1.0000e-005**	**1.8000e-004**	**2.6000e-004**	**4.4000e-004**	**2.0000e-005**	**2.4000e-004**	**2.6000e-004**	**0.0000**	**0.8462**	**0.8462**	**2.7000e-004**	**0.0000**	**0.8531**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 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	1.0000e-005	4.9000e-004	1.3000e-004	0.0000	5.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.1840	0.1840	2.0000e-005	3.0000e-005	0.1932
Vendor	0.0000	1.4000e-004	5.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0564	0.0564	0.0000	1.0000e-005	0.0589
Worker	3.0000e-005	2.0000e-005	2.8000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0776	0.0776	0.0000	0.0000	0.0782
Total	**4.0000e-005**	**6.5000e-004**	**4.6000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.3180**	**0.3180**	**2.0000e-005**	**4.0000e-005**	**0.3304**

3.4 Grading 1 - 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					
Fugitive Dust					5.3100e-003	0.0000	5.3100e-003	2.5700e-003	0.0000	2.5700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0800e-003	0.0120	5.9400e-003	1.0000e-005		5.2000e-004	5.2000e-004		4.8000e-004	4.8000e-004	0.0000	1.2381	1.2381	4.0000e-004	0.0000	1.2482
Total	**1.0800e-003**	**0.0120**	**5.9400e-003**	**1.0000e-005**	**5.3100e-003**	**5.2000e-004**	**5.8300e-003**	**2.5700e-003**	**4.8000e-004**	**3.0500e-003**	**0.0000**	**1.2381**	**1.2381**	**4.0000e-004**	**0.0000**	**1.2482**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading 1 - 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	1.0000e-005	4.9000e-004	1.3000e-004	0.0000	5.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.1840	0.1840	2.0000e-005	3.0000e-005	0.1932
Vendor	0.0000	9.0000e-005	3.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0376	0.0376	0.0000	1.0000e-005	0.0393
Worker	2.0000e-005	2.0000e-005	2.5000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0690	0.0690	0.0000	0.0000	0.0695
Total	**3.0000e-005**	**6.0000e-004**	**4.1000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**1.6000e-004**	**3.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.2906**	**0.2906**	**2.0000e-005**	**4.0000e-005**	**0.3021**

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					2.3900e-003	0.0000	2.3900e-003	1.1600e-003	0.0000	1.1600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0800e-003	0.0120	5.9400e-003	1.0000e-005		5.2000e-004	5.2000e-004		4.8000e-004	4.8000e-004	0.0000	1.2381	1.2381	4.0000e-004	0.0000	1.2482
Total	**1.0800e-003**	**0.0120**	**5.9400e-003**	**1.0000e-005**	**2.3900e-003**	**5.2000e-004**	**2.9100e-003**	**1.1600e-003**	**4.8000e-004**	**1.6400e-003**	**0.0000**	**1.2381**	**1.2381**	**4.0000e-004**	**0.0000**	**1.2482**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading 1 - 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	1.0000e-005	4.9000e-004	1.3000e-004	0.0000	5.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.1840	0.1840	2.0000e-005	3.0000e-005	0.1932
Vendor	0.0000	9.0000e-005	3.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0376	0.0376	0.0000	1.0000e-005	0.0393
Worker	2.0000e-005	2.0000e-005	2.5000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0690	0.0690	0.0000	0.0000	0.0695
Total	**3.0000e-005**	**6.0000e-004**	**4.1000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**1.6000e-004**	**3.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.2906**	**0.2906**	**2.0000e-005**	**4.0000e-005**	**0.3021**

3.5 Building Construction 1 - 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	0.0742	0.7266	0.7905	1.3100e-003		0.0379	0.0379		0.0357	0.0357	0.0000	114.3680	114.3680	0.0256	0.0000	115.0081
Total	**0.0742**	**0.7266**	**0.7905**	**1.3100e-003**		**0.0379**	**0.0379**		**0.0357**	**0.0357**	**0.0000**	**114.3680**	**114.3680**	**0.0256**	**0.0000**	**115.0081**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction 1 - 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	1.0000e-005	3.0000e-004	8.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1120	0.1120	1.0000e-005	2.0000e-005	0.1176
Vendor	2.4000e-004	6.8600e-003	2.3600e-003	3.0000e-005	9.2000e-004	6.0000e-005	9.8000e-004	2.7000e-004	6.0000e-005	3.3000e-004	0.0000	2.7468	2.7468	1.6000e-004	3.9000e-004	2.8681
Worker	2.6400e-003	1.9800e-003	0.0274	8.0000e-005	9.6200e-003	5.0000e-005	9.6700e-003	2.5500e-003	5.0000e-005	2.6000e-003	0.0000	7.5515	7.5515	1.9000e-004	1.9000e-004	7.6128
Total	**2.8900e-003**	**9.1400e-003**	**0.0298**	**1.1000e-004**	**0.0106**	**1.1000e-004**	**0.0107**	**2.8300e-003**	**1.1000e-004**	**2.9400e-003**	**0.0000**	**10.4103**	**10.4103**	**3.6000e-004**	**6.0000e-004**	**10.5985**

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	0.0742	0.7266	0.7905	1.3100e-003		0.0379	0.0379		0.0357	0.0357	0.0000	114.3678	114.3678	0.0256	0.0000	115.0079
Total	**0.0742**	**0.7266**	**0.7905**	**1.3100e-003**		**0.0379**	**0.0379**		**0.0357**	**0.0357**	**0.0000**	**114.3678**	**114.3678**	**0.0256**	**0.0000**	**115.0079**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction 1 - 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	1.0000e-005	3.0000e-004	8.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1120	0.1120	1.0000e-005	2.0000e-005	0.1176
Vendor	2.4000e-004	6.8600e-003	2.3600e-003	3.0000e-005	9.2000e-004	6.0000e-005	9.8000e-004	2.7000e-004	6.0000e-005	3.3000e-004	0.0000	2.7468	2.7468	1.6000e-004	3.9000e-004	2.8681
Worker	2.6400e-003	1.9800e-003	0.0274	8.0000e-005	9.6200e-003	5.0000e-005	9.6700e-003	2.5500e-003	5.0000e-005	2.6000e-003	0.0000	7.5515	7.5515	1.9000e-004	1.9000e-004	7.6128
Total	**2.8900e-003**	**9.1400e-003**	**0.0298**	**1.1000e-004**	**0.0106**	**1.1000e-004**	**0.0107**	**2.8300e-003**	**1.1000e-004**	**2.9400e-003**	**0.0000**	**10.4103**	**10.4103**	**3.6000e-004**	**6.0000e-004**	**10.5985**

3.5 Building Construction 1 - 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	6.5700e-003	0.0639	0.0754	1.3000e-004		3.1400e-003	3.1400e-003		2.9600e-003	2.9600e-003	0.0000	10.9710	10.9710	2.4400e-003	0.0000	11.0321
Total	**6.5700e-003**	**0.0639**	**0.0754**	**1.3000e-004**		**3.1400e-003**	**3.1400e-003**		**2.9600e-003**	**2.9600e-003**	**0.0000**	**10.9710**	**10.9710**	**2.4400e-003**	**0.0000**	**11.0321**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction 1 - 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	2.0000e-005	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0102	0.0102	0.0000	0.0000	0.0107
Vendor	1.0000e-005	5.1000e-004	2.1000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	3.0000e-005	0.0000	3.0000e-005	0.0000	0.2509	0.2509	1.0000e-005	4.0000e-005	0.2620
Worker	2.4000e-004	1.7000e-004	2.4400e-003	1.0000e-005	9.2000e-004	0.0000	9.3000e-004	2.4000e-004	0.0000	2.5000e-004	0.0000	0.7011	0.7011	2.0000e-005	2.0000e-005	0.7066
Total	**2.5000e-004**	**7.0000e-004**	**2.6600e-003**	**1.0000e-005**	**1.0100e-003**	**0.0000**	**1.0200e-003**	**2.7000e-004**	**0.0000**	**2.8000e-004**	**0.0000**	**0.9622**	**0.9622**	**3.0000e-005**	**6.0000e-005**	**0.9793**

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	6.5700e-003	0.0639	0.0754	1.3000e-004		3.1400e-003	3.1400e-003		2.9600e-003	2.9600e-003	0.0000	10.9710	10.9710	2.4400e-003	0.0000	11.0321
Total	**6.5700e-003**	**0.0639**	**0.0754**	**1.3000e-004**		**3.1400e-003**	**3.1400e-003**		**2.9600e-003**	**2.9600e-003**	**0.0000**	**10.9710**	**10.9710**	**2.4400e-003**	**0.0000**	**11.0321**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction 1 - 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	2.0000e-005	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0102	0.0102	0.0000	0.0000	0.0107
Vendor	1.0000e-005	5.1000e-004	2.1000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	3.0000e-005	0.0000	3.0000e-005	0.0000	0.2509	0.2509	1.0000e-005	4.0000e-005	0.2620
Worker	2.4000e-004	1.7000e-004	2.4400e-003	1.0000e-005	9.2000e-004	0.0000	9.3000e-004	2.4000e-004	0.0000	2.5000e-004	0.0000	0.7011	0.7011	2.0000e-005	2.0000e-005	0.7066
Total	**2.5000e-004**	**7.0000e-004**	**2.6600e-003**	**1.0000e-005**	**1.0100e-003**	**0.0000**	**1.0200e-003**	**2.7000e-004**	**0.0000**	**2.8000e-004**	**0.0000**	**0.9622**	**0.9622**	**3.0000e-005**	**6.0000e-005**	**0.9793**

3.6 Building Construction 2 - 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	2.2500e-003	0.0255	0.0194	4.0000e-005		1.1100e-003	1.1100e-003		1.0200e-003	1.0200e-003	0.0000	3.5215	3.5215	1.1400e-003	0.0000	3.5500
Total	**2.2500e-003**	**0.0255**	**0.0194**	**4.0000e-005**		**1.1100e-003**	**1.1100e-003**		**1.0200e-003**	**1.0200e-003**	**0.0000**	**3.5215**	**3.5215**	**1.1400e-003**	**0.0000**	**3.5500**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Building Construction 2 - 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	3.0000e-005	7.5000e-004	2.6000e-004	0.0000	1.0000e-004	1.0000e-005	1.1000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3010	0.3010	2.0000e-005	4.0000e-005	0.3143
Worker	1.0000e-004	7.0000e-005	1.0000e-003	0.0000	3.5000e-004	0.0000	3.5000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.2759	0.2759	1.0000e-005	1.0000e-005	0.2781
Total	**1.3000e-004**	**8.2000e-004**	**1.2600e-003**	**0.0000**	**4.5000e-004**	**1.0000e-005**	**4.6000e-004**	**1.2000e-004**	**1.0000e-005**	**1.4000e-004**	**0.0000**	**0.5769**	**0.5769**	**3.0000e-005**	**5.0000e-005**	**0.5924**

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	2.2500e-003	0.0255	0.0194	4.0000e-005		1.1100e-003	1.1100e-003		1.0200e-003	1.0200e-003	0.0000	3.5215	3.5215	1.1400e-003	0.0000	3.5499
Total	**2.2500e-003**	**0.0255**	**0.0194**	**4.0000e-005**		**1.1100e-003**	**1.1100e-003**		**1.0200e-003**	**1.0200e-003**	**0.0000**	**3.5215**	**3.5215**	**1.1400e-003**	**0.0000**	**3.5499**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Building Construction 2 - 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	3.0000e-005	7.5000e-004	2.6000e-004	0.0000	1.0000e-004	1.0000e-005	1.1000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3010	0.3010	2.0000e-005	4.0000e-005	0.3143
Worker	1.0000e-004	7.0000e-005	1.0000e-003	0.0000	3.5000e-004	0.0000	3.5000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.2759	0.2759	1.0000e-005	1.0000e-005	0.2781
Total	**1.3000e-004**	**8.2000e-004**	**1.2600e-003**	**0.0000**	**4.5000e-004**	**1.0000e-005**	**4.6000e-004**	**1.2000e-004**	**1.0000e-005**	**1.4000e-004**	**0.0000**	**0.5769**	**0.5769**	**3.0000e-005**	**5.0000e-005**	**0.5924**

3.6 Building Construction 2 - 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	1.8400e-003	0.0204	0.0167	4.0000e-005		8.7000e-004	8.7000e-004		8.0000e-004	8.0000e-004	0.0000	3.0817	3.0817	1.0000e-003	0.0000	3.1066
Total	**1.8400e-003**	**0.0204**	**0.0167**	**4.0000e-005**		**8.7000e-004**	**8.7000e-004**		**8.0000e-004**	**8.0000e-004**	**0.0000**	**3.0817**	**3.0817**	**1.0000e-003**	**0.0000**	**3.1066**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Building Construction 2 - 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	1.0000e-005	5.1000e-004	2.1000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	3.0000e-005	0.0000	3.0000e-005	0.0000	0.2509	0.2509	1.0000e-005	4.0000e-005	0.2620
Worker	8.0000e-005	6.0000e-005	8.1000e-004	0.0000	3.1000e-004	0.0000	3.1000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2337	0.2337	1.0000e-005	1.0000e-005	0.2355
Total	**9.0000e-005**	**5.7000e-004**	**1.0200e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.4846**	**0.4846**	**2.0000e-005**	**5.0000e-005**	**0.4976**

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	1.8400e-003	0.0204	0.0167	4.0000e-005		8.7000e-004	8.7000e-004		8.0000e-004	8.0000e-004	0.0000	3.0817	3.0817	1.0000e-003	0.0000	3.1066
Total	**1.8400e-003**	**0.0204**	**0.0167**	**4.0000e-005**		**8.7000e-004**	**8.7000e-004**		**8.0000e-004**	**8.0000e-004**	**0.0000**	**3.0817**	**3.0817**	**1.0000e-003**	**0.0000**	**3.1066**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Building Construction 2 - 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	1.0000e-005	5.1000e-004	2.1000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	3.0000e-005	0.0000	3.0000e-005	0.0000	0.2509	0.2509	1.0000e-005	4.0000e-005	0.2620
Worker	8.0000e-005	6.0000e-005	8.1000e-004	0.0000	3.1000e-004	0.0000	3.1000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2337	0.2337	1.0000e-005	1.0000e-005	0.2355
Total	**9.0000e-005**	**5.7000e-004**	**1.0200e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.4846**	**0.4846**	**2.0000e-005**	**5.0000e-005**	**0.4976**

3.7 Paving 1 - 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	8.7000e-004	8.8000e-003	0.0122	2.0000e-005		4.4000e-004	4.4000e-004		4.1000e-004	4.1000e-004	0.0000	1.6049	1.6049	5.2000e-004	0.0000	1.6179
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.7000e-004**	**8.8000e-003**	**0.0122**	**2.0000e-005**		**4.4000e-004**	**4.4000e-004**		**4.1000e-004**	**4.1000e-004**	**0.0000**	**1.6049**	**1.6049**	**5.2000e-004**	**0.0000**	**1.6179**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Paving 1 - 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	1.3000e-004	4.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0580	0.0580	1.0000e-005	1.0000e-005	0.0610
Vendor	0.0000	1.5000e-004	6.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0717	0.0717	0.0000	1.0000e-005	0.0749
Worker	5.0000e-005	3.0000e-005	4.7000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1336	0.1336	0.0000	0.0000	0.1346
Total	**5.0000e-005**	**3.1000e-004**	**5.7000e-004**	**0.0000**	**2.3000e-004**	**0.0000**	**2.3000e-004**	**6.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2633**	**0.2633**	**1.0000e-005**	**2.0000e-005**	**0.2704**

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	8.7000e-004	8.8000e-003	0.0122	2.0000e-005		4.4000e-004	4.4000e-004		4.1000e-004	4.1000e-004	0.0000	1.6049	1.6049	5.2000e-004	0.0000	1.6179
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.7000e-004**	**8.8000e-003**	**0.0122**	**2.0000e-005**		**4.4000e-004**	**4.4000e-004**		**4.1000e-004**	**4.1000e-004**	**0.0000**	**1.6049**	**1.6049**	**5.2000e-004**	**0.0000**	**1.6179**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Paving 1 - 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	1.3000e-004	4.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0580	0.0580	1.0000e-005	1.0000e-005	0.0610
Vendor	0.0000	1.5000e-004	6.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0717	0.0717	0.0000	1.0000e-005	0.0749
Worker	5.0000e-005	3.0000e-005	4.7000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1336	0.1336	0.0000	0.0000	0.1346
Total	**5.0000e-005**	**3.1000e-004**	**5.7000e-004**	**0.0000**	**2.3000e-004**	**0.0000**	**2.3000e-004**	**6.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2633**	**0.2633**	**1.0000e-005**	**2.0000e-005**	**0.2704**

3.8 Grading 2 - 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					
Fugitive Dust					5.3100e-003	0.0000	5.3100e-003	2.5700e-003	0.0000	2.5700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3000e-004	0.0102	5.5500e-003	1.0000e-005		4.2000e-004	4.2000e-004		3.9000e-004	3.9000e-004	0.0000	1.2381	1.2381	4.0000e-004	0.0000	1.2481
Total	**9.3000e-004**	**0.0102**	**5.5500e-003**	**1.0000e-005**	**5.3100e-003**	**4.2000e-004**	**5.7300e-003**	**2.5700e-003**	**3.9000e-004**	**2.9600e-003**	**0.0000**	**1.2381**	**1.2381**	**4.0000e-004**	**0.0000**	**1.2481**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.8 Grading 2 - 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	7.0000e-005	3.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0359	0.0359	0.0000	1.0000e-005	0.0374
Worker	2.0000e-005	2.0000e-005	2.3000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0668	0.0668	0.0000	0.0000	0.0673
Total	**2.0000e-005**	**9.0000e-005**	**2.6000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.1026**	**0.1026**	**0.0000**	**1.0000e-005**	**0.1047**

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					2.3900e-003	0.0000	2.3900e-003	1.1600e-003	0.0000	1.1600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3000e-004	0.0102	5.5500e-003	1.0000e-005		4.2000e-004	4.2000e-004		3.9000e-004	3.9000e-004	0.0000	1.2381	1.2381	4.0000e-004	0.0000	1.2481
Total	**9.3000e-004**	**0.0102**	**5.5500e-003**	**1.0000e-005**	**2.3900e-003**	**4.2000e-004**	**2.8100e-003**	**1.1600e-003**	**3.9000e-004**	**1.5500e-003**	**0.0000**	**1.2381**	**1.2381**	**4.0000e-004**	**0.0000**	**1.2481**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.8 Grading 2 - 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	7.0000e-005	3.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0359	0.0359	0.0000	1.0000e-005	0.0374
Worker	2.0000e-005	2.0000e-005	2.3000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0668	0.0668	0.0000	0.0000	0.0673
Total	**2.0000e-005**	**9.0000e-005**	**2.6000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.1026**	**0.1026**	**0.0000**	**1.0000e-005**	**0.1047**

3.9 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	1.8100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0000e-004	6.5000e-004	9.1000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.1277	0.1277	1.0000e-005	0.0000	0.1279
Total	**1.9100e-003**	**6.5000e-004**	**9.1000e-004**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.1277**	**0.1277**	**1.0000e-005**	**0.0000**	**0.1279**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.9 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	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0179	0.0179	0.0000	0.0000	0.0187
Worker	0.0000	0.0000	3.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	8.3500e-003	8.3500e-003	0.0000	0.0000	8.4100e-003
Total	**0.0000**	**4.0000e-005**	**4.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0263**	**0.0263**	**0.0000**	**0.0000**	**0.0271**

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	1.8100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0000e-004	6.5000e-004	9.1000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.1277	0.1277	1.0000e-005	0.0000	0.1279
Total	**1.9100e-003**	**6.5000e-004**	**9.1000e-004**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.1277**	**0.1277**	**1.0000e-005**	**0.0000**	**0.1279**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.9 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	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0179	0.0179	0.0000	0.0000	0.0187
Worker	0.0000	0.0000	3.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	8.3500e-003	8.3500e-003	0.0000	0.0000	8.4100e-003
Total	**0.0000**	**4.0000e-005**	**4.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0263**	**0.0263**	**0.0000**	**0.0000**	**0.0271**

3.10 Paving 2 - 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	8.7000e-004	8.8000e-003	0.0122	2.0000e-005		4.4000e-004	4.4000e-004		4.1000e-004	4.1000e-004	0.0000	1.6049	1.6049	5.2000e-004	0.0000	1.6179
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.7000e-004**	**8.8000e-003**	**0.0122**	**2.0000e-005**		**4.4000e-004**	**4.4000e-004**		**4.1000e-004**	**4.1000e-004**	**0.0000**	**1.6049**	**1.6049**	**5.2000e-004**	**0.0000**	**1.6179**

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.10 Paving 2 - 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	1.3000e-004	4.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0580	0.0580	1.0000e-005	1.0000e-005	0.0610
Vendor	0.0000	1.5000e-004	6.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0717	0.0717	0.0000	1.0000e-005	0.0749
Worker	5.0000e-005	3.0000e-005	4.7000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1336	0.1336	0.0000	0.0000	0.1346
Total	**5.0000e-005**	**3.1000e-004**	**5.7000e-004**	**0.0000**	**2.3000e-004**	**0.0000**	**2.3000e-004**	**6.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2633**	**0.2633**	**1.0000e-005**	**2.0000e-005**	**0.2704**

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	8.7000e-004	8.8000e-003	0.0122	2.0000e-005		4.4000e-004	4.4000e-004		4.1000e-004	4.1000e-004	0.0000	1.6049	1.6049	5.2000e-004	0.0000	1.6179
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.7000e-004**	**8.8000e-003**	**0.0122**	**2.0000e-005**		**4.4000e-004**	**4.4000e-004**		**4.1000e-004**	**4.1000e-004**	**0.0000**	**1.6049**	**1.6049**	**5.2000e-004**	**0.0000**	**1.6179**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.10 Paving 2 - 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	1.3000e-004	4.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0580	0.0580	1.0000e-005	1.0000e-005	0.0610
Vendor	0.0000	1.5000e-004	6.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0717	0.0717	0.0000	1.0000e-005	0.0749
Worker	5.0000e-005	3.0000e-005	4.7000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1336	0.1336	0.0000	0.0000	0.1346
Total	**5.0000e-005**	**3.1000e-004**	**5.7000e-004**	**0.0000**	**2.3000e-004**	**0.0000**	**2.3000e-004**	**6.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2633**	**0.2633**	**1.0000e-005**	**2.0000e-005**	**0.2704**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	9.7000e-004	5.4200e-003	0.0176	8.0000e-005	8.0000e-003	6.0000e-005	8.0700e-003	2.1600e-003	6.0000e-005	2.2200e-003	0.0000	7.6851	7.6851	1.6000e-004	4.1000e-004	7.8118
Unmitigated	9.7000e-004	5.4200e-003	0.0176	8.0000e-005	8.0000e-003	6.0000e-005	8.0700e-003	2.1600e-003	6.0000e-005	2.2200e-003	0.0000	7.6851	7.6851	1.6000e-004	4.1000e-004	7.8118

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	4.00	0.00	0.00	17,269	17,269
Other Non-Asphalt Surfaces	1.98	0.00	0.00	3,555	3,555
Total	5.98	0.00	0.00	20,825	20,825

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	16.60	8.40	6.90	100.00	0.00	0.00	100	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	100.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.689126	0.074455	0.236419	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Other Non-Asphalt Surfaces	0.000000	0.000000	0.000000	0.000000	0.487620	0.130440	0.284840	0.097100	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

IRWD Turtle Rock Zone 3 Reservoir Project - Orange County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Historical Energy Use: N

5.1 Mitigation Measures 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	0.4092	0.4092	3.0000e-005	0.0000	0.4113
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.4092	0.4092	3.0000e-005	0.0000	0.4113
NaturalGas Mitigated	3.0000e-005	2.8000e-004	2.4000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.3091	0.3091	1.0000e-005	1.0000e-005	0.3109
NaturalGas Unmitigated	3.0000e-005	2.8000e-004	2.4000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.3091	0.3091	1.0000e-005	1.0000e-005	0.3109

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	5792.04	3.0000e-005	2.8000e-004	2.4000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.3091	0.3091	1.0000e-005	1.0000e-005	0.3109
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		**3.0000e-005**	**2.8000e-004**	**2.4000e-004**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.3091**	**0.3091**	**1.0000e-005**	**1.0000e-005**	**0.3109**

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	5792.04	3.0000e-005	2.8000e-004	2.4000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.3091	0.3091	1.0000e-005	1.0000e-005	0.3109
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		**3.0000e-005**	**2.8000e-004**	**2.4000e-004**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.3091**	**0.3091**	**1.0000e-005**	**1.0000e-005**	**0.3109**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	2307.33	0.4092	3.0000e-005	0.0000	0.4113
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.4092**	**3.0000e-005**	**0.0000**	**0.4113**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	2307.33	0.4092	3.0000e-005	0.0000	0.4113
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.4092**	**3.0000e-005**	**0.0000**	**0.4113**

6.0 Area Detail

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	1.4300e-003	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.0000e-004
Unmitigated	1.4300e-003	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.0000e-004

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	1.8000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.2500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.0000e-004
Total	**1.4300e-003**	**0.0000**	**5.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.0000e-004**	**1.0000e-004**	**0.0000**	**0.0000**	**1.0000e-004**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	1.8000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.2500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.0000e-004
Total	**1.4300e-003**	**0.0000**	**5.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.0000e-004**	**1.0000e-004**	**0.0000**	**0.0000**	**1.0000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.1701	2.1200e-003	5.0000e-005	0.2384
Unmitigated	0.1701	2.1200e-003	5.0000e-005	0.2384

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0.06475 / 0	0.1701	2.1200e-003	5.0000e-005	0.2384
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.1701**	**2.1200e-003**	**5.0000e-005**	**0.2384**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0.06475 / 0	0.1701	2.1200e-003	5.0000e-005	0.2384
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.1701**	**2.1200e-003**	**5.0000e-005**	**0.2384**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0711	4.2000e-003	0.0000	0.1760
Unmitigated	0.0711	4.2000e-003	0.0000	0.1760

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	0.35	0.0711	4.2000e-003	0.0000	0.1760
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0711**	**4.2000e-003**	**0.0000**	**0.1760**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	0.35	0.0711	4.2000e-003	0.0000	0.1760
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0711**	**4.2000e-003**	**0.0000**	**0.1760**

9.0 Operational Offroad

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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

Appendix B-1

CNDDB, CNPS, and IPac Database Search Results

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Tustin (3311767) OR Laguna Beach (3311757) OR El Toro (3311766) OR Black Star Canyon (3311776) OR San Juan Capistrano (3311756) OR Anaheim (3311778) OR Orange (3311777) OR Newport Beach (3311768))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Abronia villosa var. aurita chaparral sand-verbena	PDNYC010P1	None	None	G5T2?	S2	1B.1
Accipiter cooperii Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC
Aimophila ruficeps canescens southern California rufous-crowned sparrow	ABPBX91091	None	None	G5T3	S3	WL
Allium marvinii Yucaipa onion	PMLIL02330	None	None	G1	S1	1B.2
Ammodramus savannarum grasshopper sparrow	ABPBXA0020	None	None	G5	S3	SSC
Anaxyrus californicus arroyo toad	AAABB01230	Endangered	None	G2G3	S2S3	SSC
Anniella stebbinsi Southern California legless lizard	ARACC01060	None	None	G3	S3	SSC
Antrozous pallidus pallid bat	AMACC10010	None	None	G4	S3	SSC
Aphanisma blitoides aphanisma	PDCHE02010	None	None	G3G4	S2	1B.2
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Arizona elegans occidentalis California glossy snake	ARADB01017	None	None	G5T2	S2	SSC
Asio otus long-eared owl	ABNSB13010	None	None	G5	S3?	SSC
Aspidoscelis hyperythra orange-throated whiptail	ARACJ02060	None	None	G5	S2S3	WL
Aspidoscelis tigris stejnegeri coastal whiptail	ARACJ02143	None	None	G5T5	S3	SSC
Astragalus brauntonii Braunton's milk-vetch	PDFAB0F1G0	Endangered	None	G2	S2	1B.1
Astragalus hornii var. hornii Horn's milk-vetch	PDFAB0F421	None	None	GUT1	S1	1B.1
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Atriplex coulteri Coulter's saltbush	PDCHE040E0	None	None	G3	S1S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Atriplex pacifica south coast saltscale	PDCHE041C0	None	None	G4	S2	1B.2
Atriplex parishii Parish's brittlescale	PDCHE041D0	None	None	G1G2	S1	1B.1
Atriplex serenana var. davidsonii Davidson's saltscale	PDCHE041T1	None	None	G5T1	S1	1B.2
Baccharis malibuensis Malibu baccharis	PDAST0W0W0	None	None	G1	S1	1B.1
Bombus crotchii Crotch bumble bee	IIHYM24480	None	None	G3G4	S1S2	
Branchinecta sandiegonensis San Diego fairy shrimp	ICBRA03060	Endangered	None	G2	S2	
Brodiaea filifolia thread-leaved brodiaea	PMLIL0C050	Threatened	Endangered	G2	S2	1B.1
Buteo regalis ferruginous hawk	ABNKC19120	None	None	G4	S3S4	WL
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
California Walnut Woodland California Walnut Woodland	CTT71210CA	None	None	G2	S2.1	
Calochortus plummerae Plummer's mariposa-lily	PMLIL0D150	None	None	G4	S4	4.2
Calochortus weedii var. intermedius intermediate mariposa-lily	PMLIL0D1J1	None	None	G3G4T2	S3	1B.2
Campylorhynchus brunneicapillus sandiegensis coastal cactus wren	ABPBG02095	None	None	G5T3Q	S3	SSC
Catostomus santaanae Santa Ana sucker	AFCJC02190	Threatened	None	G1	S1	
Centromadia parryi ssp. australis southern tarplant	PDAST4R0P4	None	None	G3T2	S2	1B.1
Chaenactis glabriuscula var. orcuttiana Orcutt's pincushion	PDAST20095	None	None	G5T1T2	S1	1B.1
Chaetodipus fallax fallax northwestern San Diego pocket mouse	AMAFD05031	None	None	G5T3T4	S3S4	SSC
Charadrius nivosus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S2	SSC
Chloropyron maritimum ssp. maritimum salt marsh bird's-beak	PDSCR0J0C2	Endangered	Endangered	G4?T1	S1	1B.2
Choeronycteris mexicana Mexican long-tongued bat	AMACB02010	None	None	G3G4	S1	SSC
Chorizanthe parryi var. fernandina San Fernando Valley spineflower	PDPGN040J1	None	Endangered	G2T1	S1	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Chorizanthe polygonoides var. longispina long-spined spineflower	PDPGN040K1	None	None	G5T3	S3	1B.2
Cicindela hirticollis gravida sandy beach tiger beetle	IICOL02101	None	None	G5T2	S2	
Cicindela latesignata latesignata western beach tiger beetle	IICOL02113	None	None	G2G4T1T2	S1	
Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Coelus globosus globose dune beetle	IICOL4A010	None	None	G1G2	S1S2	
Comarostaphylis diversifolia ssp. diversifolia summer holly	PDERI0B011	None	None	G3T2	S2	1B.2
Coturnicops noveboracensis yellow rail	ABNME01010	None	None	G4	S1S2	SSC
Crotalus ruber red-diamond rattlesnake	ARADE02090	None	None	G4	S3	SSC
Danaus plexippus pop. 1 monarch - California overwintering population	IILEPP2012	Candidate	None	G4T2T3	S2S3	
Dudleya multicaulis many-stemmed dudleya	PDCRA040H0	None	None	G2	S2	1B.2
Dudleya stolonifera Laguna Beach dudleya	PDCRA040P0	Threatened	Threatened	G1	S1	1B.1
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eremophila alpestris actia California horned lark	ABPAT02011	None	None	G5T4Q	S4	WL
Eriastrum densifolium ssp. sanctorum Santa Ana River woollystar	PDPLM03035	Endangered	Endangered	G4T1	S1	1B.1
Eryngium aristulatum var. parishii San Diego button-celery	PDAPI0Z042	Endangered	Endangered	G5T1	S1	1B.1
Eucyclogobius newberryi tidewater goby	AFCQN04010	Endangered	None	G3	S3	
Eumops perotis californicus western mastiff bat	AMACD02011	None	None	G4G5T4	S3S4	SSC
Euphorbia misera cliff spurge	PDEUP0Q1B0	None	None	G5	S2	2B.2
Euphydryas editha quino quino checkerspot butterfly	IILEPK405L	Endangered	None	G5T1T2	S1S2	
Falco peregrinus anatum American peregrine falcon	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Gila orcuttii arroyo chub	AFCJB13120	None	None	G2	S2	SSC
Glyptostoma gabrielense San Gabriel chestnut	IMGASB1010	None	None	G2	S2	
Habroscelimorpha gabbii western tidal-flat tiger beetle	IICOL02080	None	None	G2G4	S1	
Haliaeetus leucocephalus bald eagle	ABNKC10010	Delisted	Endangered	G5	S3	FP
Helianthus nuttallii ssp. parishii Los Angeles sunflower	PDAST4N102	None	None	G5TX	SX	1A
Hesperocyparis forbesii Tecate cypress	PGCUP040C0	None	None	G2	S2	1B.1
Horkelia cuneata var. puberula mesa horkelia	PDROS0W045	None	None	G4T1	S1	1B.1
Icteria virens yellow-breasted chat	ABPBX24010	None	None	G5	S3	SSC
Isocoma menziesii var. decumbens decumbent goldenbush	PDAST57091	None	None	G3G5T2T3	S2	1B.2
Lasiurus cinereus hoary bat	AMACC05030	None	None	G3G4	S4	
Lasthenia glabrata ssp. coulteri Coulter's goldfields	PDAST5L0A1	None	None	G4T2	S2	1B.1
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
Lepechinia cardiophylla heart-leaved pitcher sage	PDLAM0V020	None	None	G3	S2S3	1B.2
Lepidium virginicum var. robinsonii Robinson's pepper-grass	PDBRA1M114	None	None	G5T3	S3	4.3
Monardella hypoleuca ssp. intermedia intermediate monardella	PDLAM180A4	None	None	G4T2?	S2?	1B.3
Myotis yumanensis Yuma myotis	AMACC01020	None	None	G5	S4	
Nama stenocarpa mud nama	PDHYD0A0H0	None	None	G4G5	S1S2	2B.2
Nasturtium gambelii Gambel's water cress	PDBRA270V0	Endangered	Threatened	G1	S1	1B.1
Navarretia prostrata prostrate vernal pool navarretia	PDPLM0C0Q0	None	None	G2	S2	1B.2
Nemacaulis denudata var. denudata coast woolly-heads	PDPGN0G011	None	None	G3G4T2	S2	1B.2
Neotoma lepida intermedia San Diego desert woodrat	AMAFF08041	None	None	G5T3T4	S3S4	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Nolina cismontana chaparral nolina	PMAGA080E0	None	None	G3	S3	1B.2
Nyctinomops macrotis big free-tailed bat	AMACD04020	None	None	G5	S3	SSC
Oncorhynchus mykiss irideus pop. 10 steelhead - southern California DPS	AFCHA0209J	Endangered	None	G5T1Q	S1	
Onychomys torridus ramona southern grasshopper mouse	AMAFF06022	None	None	G5T3	S3	SSC
Orcuttia californica California Orcutt grass	PMPOA4G010	Endangered	Endangered	G1	S1	1B.1
Pandion haliaetus osprey	ABNKC01010	None	None	G5	S4	WL
Panoquina errans wandering (=saltmarsh) skipper	IILEP84030	None	None	G4G5	S2	
Passerculus sandwichensis beldingi Belding's savannah sparrow	ABPBX99015	None	Endangered	G5T3	S3	
Penstemon californicus California beardtongue	PDSCR1L110	None	None	G3	S2	1B.2
Pentachaeta aurea ssp. allenii Allen's pentachaeta	PDAST6X021	None	None	G4T1	S1	1B.1
Perognathus longimembris pacificus Pacific pocket mouse	AMAFD01042	Endangered	None	G5T1	S1	SSC
Phrynosoma blainvillii coast horned lizard	ARACF12100	None	None	G3G4	S3S4	SSC
Polioptila californica californica coastal California gnatcatcher	ABPBJ08081	Threatened	None	G4G5T3Q	S2	SSC
Pseudognaphalium leucocephalum white rabbit-tobacco	PDAST440C0	None	None	G4	S2	2B.2
Quercus dumosa Nuttall's scrub oak	PDFAG050D0	None	None	G3	S3	1B.1
Rallus obsoletus levipes light-footed Ridgway's rail	ABNME05014	Endangered	Endangered	G3T1T2	S1	FP
Rhinichthys osculus ssp. 8 Santa Ana speckled dace	AFCJB3705K	None	None	G5T1	S1	SSC
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Riversidian Alluvial Fan Sage Scrub Riversidian Alluvial Fan Sage Scrub	CTT32720CA	None	None	G1	S1.1	
Salvadora hexalepis virgultea coast patch-nosed snake	ARADB30033	None	None	G5T4	S2S3	SSC
Senecio aphanactis chaparral ragwort	PDAST8H060	None	None	G3	S2	2B.2

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Setophaga petechia yellow warbler	ABPBX03010	None	None	G5	S3S4	SSC
Sidalcea neomexicana salt spring checkerbloom	PDMAL110J0	None	None	G4	S2	2B.2
Sorex ornatus salicornicus southern California saltmarsh shrew	AMABA01104	None	None	G5T1?	S1	SSC
Southern California Arroyo Chub/Santa Ana Sucker Stream Southern California Arroyo Chub/Santa Ana Sucker Stream	CARE2330CA	None	None	GNR	SNR	
Southern Coast Live Oak Riparian Forest Southern Coast Live Oak Riparian Forest	CTT61310CA	None	None	G4	S4	
Southern Coastal Salt Marsh Southern Coastal Salt Marsh	CTT52120CA	None	None	G2	S2.1	
Southern Cottonwood Willow Riparian Forest Southern Cottonwood Willow Riparian Forest	CTT61330CA	None	None	G3	S3.2	
Southern Dune Scrub Southern Dune Scrub	CTT21330CA	None	None	G1	S1.1	
Southern Foredunes Southern Foredunes	CTT21230CA	None	None	G2	S2.1	
Southern Interior Cypress Forest Southern Interior Cypress Forest	CTT83230CA	None	None	G2	S2.1	
Southern Riparian Scrub Southern Riparian Scrub	CTT63300CA	None	None	G3	S3.2	
Southern Sycamore Alder Riparian Woodland Southern Sycamore Alder Riparian Woodland	CTT62400CA	None	None	G4	S4	
Southern Willow Scrub Southern Willow Scrub	CTT63320CA	None	None	G3	S2.1	
Spea hammondii western spadefoot	AAABF02020	None	None	G2G3	S3	SSC
Sternula antillarum browni California least tern	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2	FP
Streptocephalus woottoni Riverside fairy shrimp	ICBRA07010	Endangered	None	G1G2	S1S2	
Suaeda esteroa estuary seablite	PDCHE0P0D0	None	None	G3	S2	1B.2
Symphyotrichum defoliatum San Bernardino aster	PDASTE80C0	None	None	G2	S2	1B.2
Taricha torosa Coast Range newt	AAAAF02032	None	None	G4	S4	SSC
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thamnophis hammondii two-striped gartersnake	ARADB36160	None	None	G4	S3S4	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Tryonia imitator	IMGASJ7040	None	None	G2	S2	
mimic tryonia (=California brackishwater snail)						
Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	
Valley Needlegrass Grassland						
Verbesina dissita	PDAST9R050	Threatened	Threatened	G1G2	S1	1B.1
big-leaved crownbeard						
Vireo bellii pusillus	ABPBW01114	Endangered	Endangered	G5T2	S2	
least Bell's vireo						

Record Count: 128

Search Results

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Search Criteria: Quad is one of **[3311757:3311767:3311766:3311776:3311756:3311778:3311777:3311768:]**

Scientific Name | Common Name | Family | Lifeform | Blooming Period | Fed List | State List | Global Rank | State Rank | CA Rare Plant Rank | General Habitats | Micro Habitats | Lowest Elevation (m) | Highest Elevation (m) | Lowest Elevation (ft) | Highest Elevation (ft) | CA Endemic | Date Added | Photo

Search:

Scientific Name	Common Name	Family	Lifeform	Blooming Period	Fed List	State List	Global Rank	State Rank	CA Rare Plant Rank	Photo
Abronia maritima	red sand-verbena	Nyctaginaceae	perennial herb	Feb-Nov	None	None	G4	S3?	4.2	
Abronia villosa var. *aurita*	chaparral sand-verbena	Nyctaginaceae	annual herb	(Jan)Mar-Sep	None	None	G5T2?	S2	1B.1	No Photo Available
Allium marvinii	Yucaipa onion	Alliaceae	perennial bulbiferous herb	Apr-May	None	None	G1	S1	1B.2	No Photo Available
Aphanisma blitoides	aphanisma	Chenopodiaceae	annual herb	Feb-Jun	None	None	G3G4	S2	1B.2	No Photo Available
Astragalus brauntonii	Braunton's milk-vetch	Fabaceae	perennial herb	Jan-Aug	FE	None	G2	S2	1B.1	No Photo Available
Astragalus hornii var. *hornii*	Horn's milk-vetch	Fabaceae	annual herb	May-Oct	None	None	GUT1	S1	1B.1	No Photo Available
Atriplex coulteri	Coulter's saltbush	Chenopodiaceae	perennial herb	Mar-Oct	None	None	G3	S1S2	1B.2	No Photo Available
Atriplex pacifica	south coast saltscale	Chenopodiaceae	annual herb	Mar-Oct	None	None	G4	S2	1B.2	No Photo Available
Atriplex parishii	Parish's brittlescale	Chenopodiaceae	annual herb	Jun-Oct	None	None	G1G2	S1	1B.1	No Photo Available
Atriplex serenana var. *davidsonii*	Davidson's saltscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G5T1	S1	1B.2	No Photo Available
Baccharis malibuensis	Malibu baccharis	Asteraceae	perennial deciduous shrub	Aug	None	None	G1	S1	1B.1	No Photo Available
Brodiaea filifolia	thread-leaved brodiaea	Themidaceae	perennial bulbiferous herb	Mar-Jun	FT	CE	G2	S2	1B.1	No Photo Available
Calandrinia breweri	Brewer's calandrinia	Montiaceae	annual herb	(Jan)Mar-Jun	None	None	G4	S4	4.2	No Photo Available
Calochortus catalinae	Catalina mariposa lily	Liliaceae	perennial bulbiferous herb	(Feb)Mar-Jun	None	None	G3G4	S3S4	4.2	No Photo Available
Calochortus plummerae	Plummer's mariposa-lily	Liliaceae	perennial bulbiferous herb	May-Jul	None	None	G4	S4	4.2	No Photo Available
Calochortus weedii var. *intermedius*	intermediate mariposa-lily	Liliaceae	perennial bulbiferous herb	May-Jul	None	None	G3G4T2	S3	1B.2	No Photo Available
Camissoniopsis lewisii	Lewis' evening-primrose	Onagraceae	annual herb	Mar-May(Jun)	None	None	G4	S4	3	No Photo Available

Centromadia parryi ssp. *australis*	southern tarplant	Asteraceae	annual herb	May-Nov	None	None	G3T2	S2	1B.1	No Photo Available
Chaenactis glabriuscula var. *orcuttiana*	Orcutt's pincushion	Asteraceae	annual herb	Jan-Aug	None	None	G5T1T2	S1	1B.1	No Photo Available
Chloropyron maritimum ssp. *maritimum*	salt marsh bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	May-Oct(Nov)	FE	CE	G4?T1	S1	1B.2	No Photo Available
Chorizanthe parryi var. *fernandina*	San Fernando Valley spineflower	Polygonaceae	annual herb	Apr-Jul	None	CE	G2T1	S1	1B.1	No Photo Available
Chorizanthe polygonoides var. *longispina*	long-spined spineflower	Polygonaceae	annual herb	Apr-Jul	None	None	G5T3	S3	1B.2	No Photo Available
Cistanthe maritima	seaside cistanthe	Montiaceae	annual herb	(Feb)Mar-Jun(Aug)	None	None	G3G4	S3	4.2	No Photo Available
Comarostaphylis diversifolia ssp. *diversifolia*	summer holly	Ericaceae	perennial evergreen shrub	Apr-Jun	None	None	G3T2	S2	1B.2	No Photo Available
Convolvulus simulans	small-flowered morning-glory	Convolvulaceae	annual herb	Mar-Jul	None	None	G4	S4	4.2	No Photo Available
Deinandra paniculata	paniculate tarplant	Asteraceae	annual herb	(Mar)Apr-Nov	None	None	G4	S4	4.2	No Photo Available
Dichondra occidentalis	western dichondra	Convolvulaceae	perennial rhizomatous herb	(Jan)Mar-Jul	None	None	G3G4	S3S4	4.2	No Photo Available
Diplacus clevelandii	Cleveland's bush monkeyflower	Phrymaceae	perennial rhizomatous herb	Apr-Jul	None	None	G4	S4	4.2	 © 2020 W. Juergen Schrenk
Dudleya multicaulis	many-stemmed dudleya	Crassulaceae	perennial herb	Apr-Jul	None	None	G2	S2	1B.2	No Photo Available
Dudleya stolonifera	Laguna Beach dudleya	Crassulaceae	perennial stoloniferous herb	May-Jul	FT	CT	G1	S1	1B.1	No Photo Available
Eleocharis parvula	small spikerush	Cyperaceae	perennial herb	(Apr)Jun-Aug(Sep)	None	None	G5	S3	4.3	No Photo Available
Eriastrum densifolium ssp. *sanctorum*	Santa Ana River woollystar	Polemoniaceae	perennial herb	Apr-Sep	FE	CE	G4T1	S1	1B.1	No Photo Available
Eryngium aristulatum var. *parishii*	San Diego button-celery	Apiaceae	annual/perennial herb	Apr-Jun	FE	CE	G5T1	S1	1B.1	No Photo Available
Euphorbia misera	cliff spurge	Euphorbiaceae	perennial shrub	(Oct)Dec-Aug	None	None	G5	S2	2B.2	No Photo Available
Harpagonella palmeri	Palmer's grapplinghook	Boraginaceae	annual herb	Mar-May	None	None	G4	S3	4.2	No Photo Available
Helianthus nuttallii ssp. *parishii*	Los Angeles sunflower	Asteraceae	perennial rhizomatous herb	Aug-Oct	None	None	G5TX	SX	1A	No Photo Available
Hesperocyparis forbesii	Tecate cypress	Cupressaceae	perennial evergreen tree		None	None	G2	S2	1B.1	No Photo Available
Hesperocyparis goveniana	Gowen cypress	Cupressaceae	perennial evergreen tree		FT	None	G1	S1	1B.2	No Photo Available
Hordeum intercedens	vernal barley	Poaceae	annual herb	Mar-Jun	None	None	G3G4	S3S4	3.2	No Photo Available
Horkelia cuneata var. *puberula*	mesa horkelia	Rosaceae	perennial herb	Feb-Jul(Sep)	None	None	G4T1	S1	1B.1	No Photo Available
Isocoma menziesii var. *decumbens*	decumbent goldenbush	Asteraceae	perennial shrub	Apr-Nov	None	None	G3G5T2T3	S2	1B.2	No Photo Available
Juglans californica	Southern California black walnut	Juglandaceae	perennial deciduous tree	Mar-Aug	None	None	G4	S4	4.2	No Photo Available
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	Juncaceae	perennial rhizomatous herb	(Mar)May-Jun	None	None	G5T5	S4	4.2	No Photo Available
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	Asteraceae	annual herb	Feb-Jun	None	None	G4T2	S2	1B.1	No Photo Available
Lepechinia cardiophylla	heart-leaved pitcher sage	Lamiaceae	perennial shrub	Apr-Jul	None	None	G3	S2S3	1B.2	No Photo Available

Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	Brassicaceae	annual herb	Jan-Jul	None	None	G5T3	S3	4.3	No Photo Available
Lilium humboldtii ssp. *ocellatum*	ocellated Humboldt lily	Liliaceae	perennial bulbiferous herb	Mar-Jul(Aug)	None	None	G4T4?	S4?	4.2	No Photo Available
Lycium californicum	California box-thorn	Solanaceae	perennial shrub	Mar-Aug(Dec)	None	None	G4	S4	4.2	No Photo Available
Malacothrix saxatilis var. *saxatilis*	cliff malacothrix	Asteraceae	perennial rhizomatous herb	Mar-Sep	None	None	G5T4	S4	4.2	No Photo Available
Monardella hypoleuca ssp. *intermedia*	intermediate monardella	Lamiaceae	perennial rhizomatous herb	Apr-Sep	None	None	G4T2?	S2?	1B.3	No Photo Available
Nama stenocarpa	mud nama	Namaceae	annual/perennial herb	Jan-Jul	None	None	G4G5	S1S2	2B.2	No Photo Available
Nasturtium gambelii	Gambel's water cress	Brassicaceae	perennial rhizomatous herb	Apr-Oct	FE	CT	G1	S1	1B.1	No Photo Available
Navarretia prostrata	prostrate vernal pool navarretia	Polemoniaceae	annual herb	Apr-Jul	None	None	G2	S2	1B.2	No Photo Available
Nemacaulis denudata var. *denudata*	coast woolly-heads	Polygonaceae	annual herb	Apr-Sep	None	None	G3G4T2	S2	1B.2	No Photo Available
Nolina cismontana	chaparral nolina	Ruscaceae	perennial evergreen shrub	(Mar)May-Jul	None	None	G3	S3	1B.2	No Photo Available
Orcuttia californica	California Orcutt grass	Poaceae	annual herb	Apr-Aug	FE	CE	G1	S1	1B.1	No Photo Available
Penstemon californicus	California beardtongue	Plantaginaceae	perennial herb	May-Jun(Aug)	None	None	G3	S2	1B.2	 Justin M. Wood 2009
Pentachaeta aurea ssp. *allenii*	Allen's pentachaeta	Asteraceae	annual herb	Mar-Jun	None	None	G4T1	S1	1B.1	©2008 Bob Allen
Phacelia hubbyi	Hubby's phacelia	Hydrophyllaceae	annual herb	Apr-Jul	None	None	G4	S4	4.2	No Photo Available
Phacelia ramosissima var. *austrolitoralis*	south coast branching phacelia	Hydrophyllaceae	perennial herb	Mar-Aug	None	None	G5?T3Q	S3	3.2	No Photo Available
Polygala cornuta var. *fishiae*	Fish's milkwort	Polygalaceae	perennial deciduous shrub	May-Aug	None	None	G5T4	S4	4.3	No Photo Available
Pseudognaphalium leucocephalum	white rabbit-tobacco	Asteraceae	perennial herb	(Jul)Aug-Nov(Dec)	None	None	G4	S2	2B.2	No Photo Available
Quercus dumosa	Nuttall's scrub oak	Fagaceae	perennial evergreen shrub	Feb-Apr(May-Aug)	None	None	G3	S3	1B.1	No Photo Available
Romneya coulteri	Coulter's matilija poppy	Papaveraceae	perennial rhizomatous herb	Mar-Jul(Aug)	None	None	G4	S4	4.2	No Photo Available
Senecio aphanactis	chaparral ragwort	Asteraceae	annual herb	Jan-Apr(May)	None	None	G3	S2	2B.2	No Photo Available
Sidalcea neomexicana	salt spring checkerbloom	Malvaceae	perennial herb	Mar-Jun	None	None	G4	S2	2B.2	No Photo Available
Suaeda esteroa	estuary seablite	Chenopodiaceae	perennial herb	(Jan-May)Jul-Oct	None	None	G3	S2	1B.2	No Photo Available
Suaeda taxifolia	woolly seablite	Chenopodiaceae	perennial evergreen shrub	Jan-Dec	None	None	G4	S4	4.2	No Photo Available
Symphyotrichum defoliatum	San Bernardino aster	Asteraceae	perennial rhizomatous herb	Jul-Nov	None	None	G2	S2	1B.2	No Photo Available
Verbesina dissita	big-leaved crownbeard	Asteraceae	perennial herb	(Mar)Apr-Jul	FT	CT	G1G2	S1	1B.1	No Photo Available
Viguiera laciniata	San Diego County viguiera	Asteraceae	perennial shrub	Feb-Jun(Aug)	None	None	G4	S4	4.3	No Photo Available

Showing 1 to 71 of 71 entries

Suggested Citation:
California Native Plant Society, Rare Plant Program. 2021. Inventory of Rare and Endangered Plants of California (online edition, v9-01 1.0). Website https://www.rareplants.cnps.org [accessed 13 October 2021].

CONTACT US

Send questions and comments to rareplants@cnps.org.

Developed by
Rincon Consultants, Inc.

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CONTRIBUTORS

- The Calflora Database
- The California Lichen Society
- California Natural Diversity Database
- The Jepson Flora Project
- The Consortium of California Herbaria
- CalPhotos

- Log in

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Orange County, California

Local office

Carlsbad Fish And Wildlife Office

(760) 431-9440
(760) 431-5901

2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385

http://www.fws.gov/carlsbad/

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS

Pacific Pocket Mouse Perognathus longimembris pacificus — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/8080

Birds

NAME	STATUS

California Least Tern Sterna antillarum browni — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/8104

Coastal California Gnatcatcher Polioptila californica californica — Threatened
Wherever found
There is **final** critical habitat for this species. Your location overlaps the critical habitat.
https://ecos.fws.gov/ecp/species/8178

Least Bell's Vireo Vireo bellii pusillus — Endangered
Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/5945

Light-footed Clapper Rail Rallus longirostris levipes — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6035

Southwestern Willow Flycatcher Empidonax traillii extimus — Endangered
Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/6749

Western Snowy Plover Charadrius nivosus nivosus — Threatened
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/8035

Insects

NAME	STATUS

Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
Coastal California Gnatcatcher Polioptila californica californica https://ecos.fws.gov/ecp/species/8178#crithab	Final

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird

species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Allen's Hummingbird Selasphorus sasin This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637	Breeds Feb 1 to Jul 15
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Black Skimmer Rynchops niger This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5234	Breeds May 20 to Sep 15
Black Swift Cypseloides niger This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8878	Breeds Jun 15 to Sep 10
Black Tern Chlidonias niger This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3093	Breeds May 15 to Aug 20

California Thrasher Toxostoma redivivum This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Jul 31
Clark's Grebe Aechmophorus clarkii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31
Common Yellowthroat Geothlypis trichas sinuosa This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Gull-billed Tern Gelochelidon nilotica This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9501	Breeds May 1 to Jul 31
Lawrence's Goldfinch Carduelis lawrencei This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9464	Breeds Mar 20 to Sep 20
Marbled Godwit Limosa fedoa This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481	Breeds elsewhere
Nuttall's Woodpecker Picoides nuttallii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9410	Breeds Apr 1 to Jul 20
Oak Titmouse Baeolophus inornatus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9656	Breeds Mar 15 to Jul 15

Olive-sided Flycatcher Contopus cooperi This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Short-billed Dowitcher Limnodromus griseus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere
Tricolored Blackbird Agelaius tricolor This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3910	Breeds Mar 15 to Aug 10
Willet Tringa semipalmata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wrentit Chamaea fasciata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 10

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any

week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

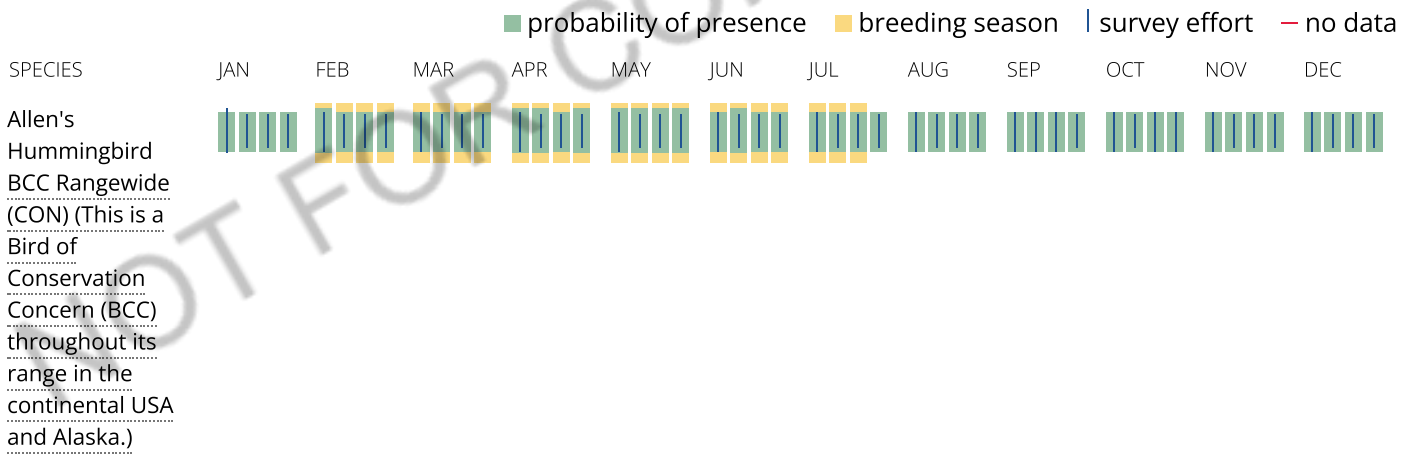
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

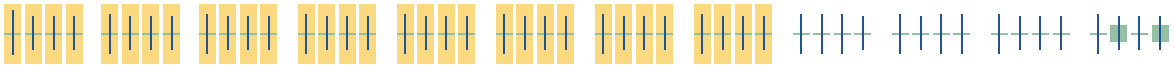
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



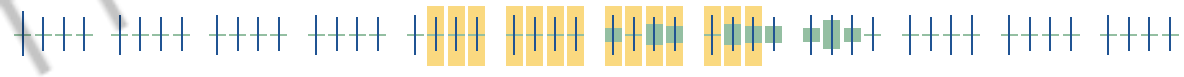
Bald Eagle Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



Black Skimmer BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

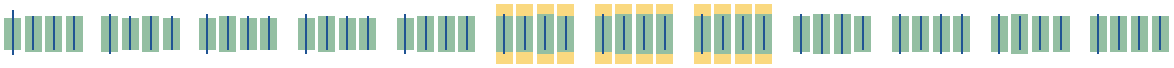
Black Swift BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Black Tern BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



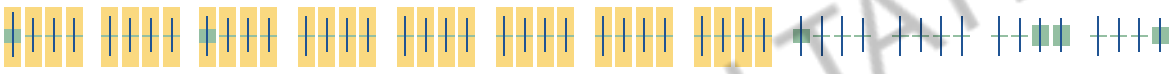
California Thrasher BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Clark's Grebe BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



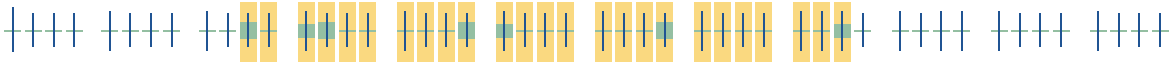
Common Yellowthroat BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Golden Eagle Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



Gull-billed Tern BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

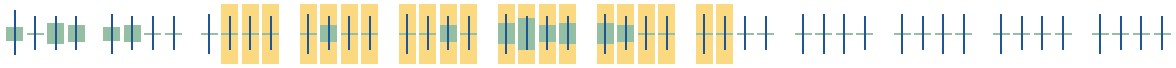
Lawrence's Goldfinch BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Marbled Godwit BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

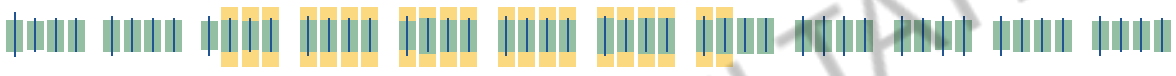
SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Nuttall's Woodpecker BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)												
Oak Titmouse BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)												
Olive-sided Flycatcher BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)												
Short-billed Dowitcher BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)												

Tricolored Blackbird BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Willet BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Wrentit BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Appendix B-2

Plant and Wildlife Potential to Occur Tables

Plant Species Potential to Occur

Scientific Name	Common Name	Status (Federal/State/CRPR/ NCCP-HCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Abronia villosa var. *aurita*	chaparral sand-verbena	None/None/1B.1/None	Chaparral, Coastal scrub, Desert dunes; sandy/annual herb/(Jan)Mar–Sep/246–5,245	Not expected to occur on site. No suitable sandy chaparral or scrub habitat is present. Not expected to occur within the biological study area. No suitable sandy chaparral or scrub habitat is present.
Allium marvinii	Yucaipa onion	None/None/1B.2/None	Chaparral (clay, openings)/perennial bulbiferous herb/Apr–May/2,490–3,490	Not expected to occur on site. The project site is outside of the species' known elevation range and there is no suitable habitat present. Not expected to occur within the biological study area. The biological study area is outside of the species' known elevation range and there is no suitable habitat present.
Aphanisma blitoides	aphanisma	None/None/1B.2/None	Coastal bluff scrub, Coastal dunes, Coastal scrub; sandy or gravelly/annual herb/Feb–June/3–1,000	Not expected to occur on site. No suitable sandy chaparral or scrub habitat is present. Not expected to occur within the biological study area. No suitable sandy chaparral or scrub habitat is present.
Astragalus brauntonii	Braunton's milk-vetch	FE/None/1B.1/None	Chaparral, Coastal scrub, Valley and foothill grassland; recent burns or disturbed areas, usually sandstone with carbonate layers/perennial herb/Jan–Aug/13–2,095	Not expected to occur on site. No suitable habitat is present. Low potential to occur within the biological study area. Marginally suitable coastal scrub habitat present.
Astragalus hornii var. *hornii*	Horn's milk-vetch	None/None/1B.1/None	Meadows and seeps, Playas; lake margins, alkaline/annual herb/May–Oct/197–2,785	Not expected to occur on site. No suitable meadow or seep habitat is present.

Plant Species Potential to Occur

Scientific Name	Common Name	Status (Federal/State/CRPR/ NCCP-HCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
				Not expected to occur within the biological study area. No suitable meadow or seep habitat is present.
Atriplex coulteri	Coulter's saltbush	None/None/1B.2/None	Coastal bluff scrub, Coastal dunes, Coastal scrub, Valley and foothill grassland; alkaline or clay/perennial herb/Mar–Oct/10–1,505	Not expected to occur on site. No suitable habitat is present. Low potential to occur within the biological study area. Marginally suitable coastal scrub habitat is present; however, the nearest CNNDB occurrence for the species is recorded 2.6 miles southeast of the biological study area.
Atriplex pacifica	South Coast saltscale	None/None/1B.2/None	Coastal bluff scrub, Coastal dunes, Coastal scrub, Playas/annual herb/Mar–Oct/0–460	Not expected to occur on site. No suitable habitat is present. Low potential to occur within the biological study area. Marginally suitable coastal scrub habitat is present; however, the nearest CNNDB occurrence for the species is recorded 3.8 miles northwest of the biological study area.
Atriplex parishii	Parish's brittlescale	None/None/1B.1/None	Chenopod scrub, Playas, Vernal pools; alkaline/annual herb/June–Oct/82–6,230	Not expected to occur on site. No suitable chenopod scrub, playa, or vernal pool habitat is present. Not expected to occur within the biological study area. No suitable chenopod scrub, playa, or vernal pool habitat is present.
Atriplex serenana var. *davidsonii*	Davidson's saltscale	None/None/1B.2/None	Coastal bluff scrub, Coastal scrub; alkaline/annual herb/Apr–Oct/33–655	Not expected to occur on site. No suitable habitat is present. Low potential to occur within the biological study area. Marginally

Plant Species Potential to Occur

Scientific Name	Common Name	Status (Federal/State/CRPR/ NCCP-HCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
				suitable coastal scrub vegetation present.
Baccharis malibuensis	Malibu baccharis	None/None/1B.1/None	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland/perennial deciduous shrub/Aug/492–1,000	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. Marginally suitable coastal scrub habitat is present. However, this conspicuous perennial shrub would have been detected if present during the survey conducted in 2021.
Brodiaea filifolia	thread-leaved brodiaea	FT/SE/1B.1/None	Chaparral (openings), Cismontane woodland, Coastal scrub, Playas, Valley and foothill grassland, Vernal pools; often clay/perennial bulbiferous herb/Mar–June/82–3,670	Not expected to occur on site. No suitable playa or vernal pool habitat is present. Not expected to occur within the biological study area. No suitable playa or vernal pool habitat is present.
Calochortus catalinae	Catalina mariposa lily	None/None/4.2/Covered	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland/perennial bulbiferous herb/(Feb)Mar–June/49–2,295	Not expected to occur on site. No suitable habitat is present. Moderate potential to occur within the biological study area. Suitable coastal scrub habitat is present.
Calochortus weedii var. *intermedius*	intermediate mariposa lily	None/None/1B.2/ Covered	Chaparral, Coastal scrub, Valley and foothill grassland; rocky, calcareous/perennial bulbiferous herb/May–July/344–2,805	Not expected to occur on site. No suitable habitat is present. Moderate potential to occur within the biological study area. Suitable coastal scrub habitat is present.
Centromadia parryi ssp. *australis*	southern tarplant	None/None/1B.1/None	Marshes and swamps (margins), Valley and foothill grassland (vernally mesic), Vernal pools/annual herb/May–Nov/0–1,570	Not expected to occur on site. No suitable marsh or vernal pool habitat is present. Not expected to occur within the

Plant Species Potential to Occur

Scientific Name	Common Name	Status (Federal/State/CRPR/ NCCP-HCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
				biological study area. No suitable marsh or vernal pool habitat is present.
Chaenactis glabriuscula var. *orcuttiana*	Orcutt's pincushion	None/None/1B.1/None	Coastal bluff scrub (sandy), Coastal dunes/annual herb/Jan–Aug/0–330	Not expected to occur on site. No suitable bluff or dune habitat is present. Not expected to occur within the biological study area. No suitable bluff or dune habitat is present.
Chloropyron maritimum ssp. maritimum	salt marsh bird's-beak	FE/SE/1B.2/None	Coastal dunes, Marshes and swamps (coastal salt)/annual herb (hemiparasitic)/May–Oct(Nov)/0–100	Not expected to occur on site. The project site is outside of the species' known elevation range and there is no suitable habitat present. Not expected to occur within the biological study area. The biological study area is outside of the species' known elevation range and there is no suitable habitat present.
Chorizanthe parryi var. *fernandina*	San Fernando Valley spineflower	FC/SE/1B.1/None	Coastal scrub (sandy), Valley and foothill grassland/annual herb/Apr–July/492–4,000	Not expected to occur on site. No suitable sandy coastal scrub habitat is present. Not expected to occur within the biological study area. No suitable sandy coastal scrub habitat is present.
Chorizanthe polygonoides var. *longispina*	long-spined spineflower	None/None/1B.2/None	Chaparral, Coastal scrub, Meadows and seeps, Valley and foothill grassland, Vernal pools; often clay/annual herb/Apr–July/98–5,015	Not expected to occur on site. No suitable habitat is present. Low potential to occur within the biological study area. Marginally suitable coastal scrub habitat is present, but lacks clay soils.

Plant Species Potential to Occur

Scientific Name	Common Name	Status (Federal/State/CRPR/ NCCP-HCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Comarostaphylis diversifolia ssp. *diversifolia*	summer holly	None/None/1B.2/None	Chaparral, Cismontane woodland/perennial evergreen shrub/Apr–June/98–2,590	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. No suitable chaparral or woodland habitat is present. Additionally, this conspicuous perennial shrub would have been detected if present during the survey conducted in 2021.
Dichondra occidentalis	western dichondra	None/None/4.2/Covered	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland/perennial rhizomatous herb/(Jan)Mar–July/164–1,640	Not expected to occur on site. No suitable habitat is present. Low potential to occur within the biological study area. Marginally suitable coastal scrub habitat is present.
Dudleya multicaulis	many-stemmed dudleya	None/None/1B.2/None	Chaparral, Coastal scrub, Valley and foothill grassland; often clay/perennial herb/Apr–July/49–2,590	Not expected to occur on site. No suitable habitat is present. Moderate potential to occur within the biological study area. Suitable coastal scrub habitat is present.
Dudleya stolonifera	Laguna Beach dudleya	FT/ST/1B.1/Covered	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland; rocky/perennial stoloniferous herb/May–July/33–855	Not expected to occur on site. No suitable habitat is present. Moderate potential to occur within the biological study area. Suitable coastal scrub habitat is present.
Eriastrum densifolium ssp. *sanctorum*	Santa Ana River woollystar	FE/SE/1B.1/None	Chaparral, Coastal scrub (alluvial fan); sandy or gravelly/perennial herb/Apr–Sep/299–2,000	Not expected to occur on site. No suitable alluvial scrub habitat is present. Not expected to occur within the biological study area. No suitable alluvial scrub habitat is present.

Plant Species Potential to Occur

Scientific Name	Common Name	Status (Federal/State/CRPR/ NCCP-HCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Eryngium aristulatum var. parishii	San Diego button-celery	FE/SE/1B.1/None	Coastal scrub, Valley and foothill grassland, Vernal pools; mesic/annual / perennial herb/Apr–June/66–2,030	Not expected to occur on site. No suitable vernal pool habitat is present. Not expected to occur within the biological study area. No suitable vernal pool habitat is present.
Euphorbia misera	cliff spurge	None/None/2B.2/ Covered	Coastal bluff scrub, Coastal scrub, Mojavean desert scrub; rocky/perennial shrub/Dec–Aug(Oct)/33–1,640	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. Marginally suitable coastal scrub habitat is present. However, this conspicuous perennial shrub would have been detected if present during the survey conducted in 2021.
Harpagonella palmeri	Palmer's grapplinghook	None/None/4.2/Covered	Chaparral, Coastal scrub, Valley and foothill grassland; Clay; open grassy areas within shrubland/annual herb/Mar–May/66–3,130	Not expected to occur on site. No suitable habitat is present. Low potential to occur within the biological study area. Marginally suitable coastal scrub habitat is present, but lacks clay soils.
Helianthus nuttallii ssp. *parishii*	Los Angeles sunflower	None/None/1A/None	Marshes and swamps (coastal salt and freshwater)/perennial rhizomatous herb/Aug–Oct/33–5,000	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. No suitable marsh or swamp habitat is present.
Hesperocyparis forbesii	Tecate cypress	None/None/1B.1/ Covered	Closed-cone coniferous forest, Chaparral; clay, gabbroic or metavolcanic/perennial evergreen tree/N.A./262–4,920	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. No suitable chaparral or forest habitat is present. Additionally, this conspicuous

Plant Species Potential to Occur

Scientific Name	Common Name	Status (Federal/State/CRPR/ NCCP-HCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
				perennial shrub would have been detected if present during the survey conducted in 2021.
Hesperocyparis goveniana	Gowen cypress	FT/None/1B.2/None	Closed-cone coniferous forest, Chaparral (maritime)/perennial evergreen tree/N.A./98–985	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. No suitable chaparral or forest habitat is present. Additionally, this conspicuous perennial shrub would have been detected if present during the survey conducted in 2021.
Horkelia cuneata var. *puberula*	mesa horkelia	None/None/1B.1/None	Chaparral (maritime), Cismontane woodland, Coastal scrub; sandy or gravelly/perennial herb/Feb–July(Sep)/230–2,655	Not expected to occur on site. No suitable habitat is present. Low potential to occur within the biological study area. Marginally suitable coastal scrub habitat is present, but lacks sandy or gravelly soils.
Isocoma menziesii var. *decumbens*	decumbent goldenbush	None/None/1B.2/None	Chaparral, Coastal scrub (sandy, often in disturbed areas)/perennial shrub/Apr–Nov/33–445	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. Marginally suitable coastal scrub habitat is present. However, this conspicuous perennial shrub would have been detected if present during the survey conducted in 2021.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	None/None/1B.1/None	Marshes and swamps (coastal salt), Playas, Vernal pools/annual herb/Feb–June/3–4,000	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the

Plant Species Potential to Occur

Scientific Name	Common Name	Status (Federal/State/CRPR/ NCCP-HCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
				biological study area. No suitable marsh or swamp habitat is present.
Lepechinia cardiophylla	heart-leaved pitcher sage	None/None/1B.2/ Covered	Closed-cone coniferous forest, Chaparral, Cismontane woodland/perennial shrub/Apr–July/1,705–4,490	Not expected to occur on site. The project site is outside of the species' known elevation range and there is no suitable habitat present. Not expected to occur within the biological study area. The biological study area is outside of the species' known elevation range and there is no suitable habitat present.
Monardella hypoleuca ssp. *intermedia*	intermediate monardella	None/None/1B.3/None	Chaparral, Cismontane woodland, Lower montane coniferous forest (sometimes); Usually understory/perennial rhizomatous herb/Apr–Sep/1,310–4,100	Not expected to occur on site. The project site is outside of the species' known elevation range and there is no suitable habitat present. Not expected to occur within the biological study area. The biological study area is outside of the species' known elevation range and there is no suitable habitat present.
Nama stenocarpa	mud nama	None/None/2B.2/None	Marshes and swamps (lake margins, riverbanks)/annual / perennial herb/Jan–July/16–1,640	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. No suitable marsh or swamp habitat is present.
Nasturtium gambelii	Gambel's water cress	FE/ST/1B.1/None	Marshes and swamps (freshwater or brackish)/perennial rhizomatous herb/Apr–Oct/16–1,080	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. No suitable marsh or swamp habitat is present.
Navarretia prostrata	prostrate vernal pool navarretia	None/None/1B.2/None	Coastal scrub, Meadows and seeps, Valley and foothill grassland (alkaline),	Not expected to occur on site. No suitable vernal pool habitat is

Plant Species Potential to Occur

Scientific Name	Common Name	Status (Federal/State/CRPR/ NCCP-HCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
			Vernal pools; Mesic/annual herb/Apr–July/10–3,965	present. Not expected to occur within the biological study area. No suitable vernal pool habitat is present.
Nemacaulis denudata var. *denudata*	coast woolly-heads	None/None/1B.2/None	Coastal dunes/annual herb/Apr–Sep/0–330	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. No suitable coastal dune habitat is present.
Nolina cismontana	chaparral nolina	None/None/1B.2/None	Chaparral, Coastal scrub; sandstone or gabbro/perennial evergreen shrub/(Mar)May–July/459–4,180	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. Marginally suitable coastal scrub habitat is present. However, this conspicuous perennial shrub would have been detected if present during the survey conducted in 2021.
Orcuttia californica	California Orcutt grass	FE/SE/1B.1/None	Vernal pools/annual herb/Apr–Aug/49–2,165	Not expected to occur on site. No suitable vernal pool habitat is present. Not expected to occur within the biological study area. No suitable vernal pool habitat is present.
Penstemon californicus	California beardtongue	None/None/1B.2/None	Chaparral, Lower montane coniferous forest, Pinyon and juniper woodland; sandy/perennial herb/May–June(Aug)/3,835–7,545	Not expected to occur on site. The project site is outside of the species' known elevation range and there is no suitable habitat present. Not expected to occur within the biological study area. The biological study area is outside of the species'

Plant Species Potential to Occur

Scientific Name	Common Name	Status (Federal/State/CRPR/ NCCP-HCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
				known elevation range and there is no suitable habitat present.
Pentachaeta aurea ssp. *allenii*	Allen's pentachaeta	None/None/1B.1/None	Coastal scrub (openings), Valley and foothill grassland/annual herb/Mar–June/246–1,705	Not expected to occur on site. No suitable habitat is present. Moderate potential to occur within the biological study area. Suitable coastal scrub habitat is present.
Phacelia ramosissima var. *austrolitoralis*	south coast branching phacelia	None/None/3.2/None	Chaparral, Coastal dunes, Coastal scrub, Marshes and swamps (coastal salt); sandy, sometimes rocky/perennial herb/Mar–Aug/16–985	Not expected to occur on site. No suitable habitat is present. Low potential to occur within the biological study area. Marginally suitable coastal scrub habitat is present.
Pseudognaphalium leucocephalum	white rabbit-tobacco	None/None/2B.2/None	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland; sandy, gravelly/perennial herb/(July)Aug–Nov(Dec)/0–6,885	Not expected to occur on site. No suitable habitat is present. Low potential to occur within the biological study area. Marginally suitable coastal scrub habitat is present.
Quercus dumosa	Nuttall's scrub oak	None/None/1B.1/ Covered	Closed-cone coniferous forest, Chaparral, Coastal scrub; sandy, clay loam/perennial evergreen shrub/Feb–Apr(May–Aug)/49–1,310	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. Marginally suitable coastal scrub habitat is present. However, this conspicuous perennial shrub would have been detected if present during the survey conducted in 2021.
Romneya coulteri	Coulter's matilija poppy	None/None/4.2/ Covered	Chaparral, Coastal scrub; Often in burns/perennial rhizomatous herb/Mar–July(Aug)/66–3,935	Not expected to occur on site. No suitable habitat is present. Low potential to occur within the biological study area. Marginally

Plant Species Potential to Occur

Scientific Name	Common Name	Status (Federal/State/CRPR/ NCCP-HCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
				suitable coastal scrub habitat is present.
Senecio aphanactis	chaparral ragwort	None/None/2B.2/None	Chaparral, Cismontane woodland, Coastal scrub; sometimes alkaline/annual herb/Jan–Apr(May)/49–2,620	Not expected to occur on site. No suitable habitat is present. Low potential to occur within the biological study area. Marginally suitable coastal scrub habitat is present.
Sidalcea neomexicana	salt spring checkerbloom	None/None/2B.2/None	Chaparral, Coastal scrub, Lower montane coniferous forest, Mojavean desert scrub, Playas; alkaline, mesic/perennial herb/Mar–June/49–5,015	Not expected to occur on site. No suitable vernal pool habitat is present. Not expected to occur within the biological study area. No suitable habitat is present.
Suaeda esteroa	estuary seablite	None/None/1B.2/None	Marshes and swamps (coastal salt)/perennial herb/(May)July–Oct(Jan)/0–15	Not expected to occur on site. The project site is outside of the species' known elevation range and there is no suitable habitat present. Not expected to occur within the biological study area. The biological study area is outside of the species' known elevation range and there is no suitable habitat present.
Symphyotrichum defoliatum	San Bernardino aster	None/None/1B.2/None	Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Meadows and seeps, Marshes and swamps, Valley and foothill grassland (vernally mesic); near ditches, streams, springs/perennial rhizomatous herb/July–Nov(Dec)/7–6,690	Not expected to occur on site. No suitable habitat is present. Low potential to occur within the biological study area. Marginally suitable coastal scrub habitat is present.

Plant Species Potential to Occur

Scientific Name	Common Name	Status (Federal/State/CRPR/ NCCP-HCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Verbesina dissita	big-leaved crownbeard	FT/ST/1B.1/None	Chaparral (maritime), Coastal scrub/perennial herb/(Mar)Apr–July/148–675	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. No suitable habitat is present and the species is only known from a few areas in Laguna Beach.

Status Legend
Federal
FE: Federally listed as endangered
FT: Federally listed as threatened
FC: Federal Candidate for listing
State
SE: State listed as endangered
ST: State listed as threatened
California Rare Plant Rank (CRPR)
1A: Plants presumed extirpated in California and either rare or extinct elsewhere
1B: Plants rare, threatened, or endangered in California and elsewhere
2B: Plants rare, threatened, or endangered in California but more common elsewhere
3: Review List: Plants about which more information is needed
4: Watch List: Plants of limited distribution
.1 Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 Moderately threatened in California (20–80% occurrences threatened / moderate degree and immediacy of threat)
.3 Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Orange County Central and Coastal Subregion Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) Covered Species

Wildlife Species Potential to Occur

Scientific Name	Common Name	Status (Federal/State/ NCCP-HCP)	Habitat	Potential to Occur
Amphibians				
Anaxyrus californicus	arroyo toad	FE/SSC/Covered	Semi-arid areas near washes, sandy riverbanks, riparian areas, palm oasis, Joshua tree, mixed chaparral and sagebrush; stream channels for breeding (typically third order); adjacent stream terraces and uplands for foraging and wintering	Not expected to occur on site. No suitable stream or wash habitat is present. Not expected to occur within the biological study area. No suitable stream or wash habitat is present.
Spea hammondii	western spadefoot	None/SSC/ Covered	Primarily grassland and vernal pools, but also in ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrub, valley–foothill woodlands, pastures, and other agriculture	Not expected to occur on site. No suitable ephemeral aquatic habitat is present. Not expected to occur within the biological study area. No suitable ephemeral aquatic habitat is present.
Taricha torosa (Monterey Co. south only)	California newt	None/SSC/None	Wet forests, oak forests, chaparral, and rolling grassland	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. No suitable habitat is present.
Reptiles				
Actinemys marmorata	northwestern pond turtle	None/SSC/ Covered	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter	Not expected to occur on site. No suitable stream habitat is present. Not expected to occur within the biological study area. No suitable stream habitat is present.
Anniella stebbinsi	southern California legless lizard	None/SSC/None	Coastal dunes, stabilized dunes, beaches, dry washes, valley–foothill, chaparral, and scrubs; pine, oak, and riparian woodlands; associated with sparse vegetation and moist sandy or loose, loamy soils	Not expected to occur on site. No suitable sandy habitat is present. Not expected to occur within the biological study area. No suitable sandy habitat is present.

Wildlife Species Potential to Occur

Scientific Name	Common Name	Status (Federal/State/ NCCP-HCP)	Habitat	Potential to Occur
Arizona elegans occidentalis	California glossy snake	None/SSC/ Covered	Arid scrub, rocky washes, grasslands, chaparral, open areas with loose soil	Not expected to occur on site. No suitable scrub, wash, or grassland habitat is present. Not expected to occur within the biological study area. No suitable scrub, wash, or grassland habitat is present.
Aspidoscelis hyperythra	orange-throated whiptail	None/WL/Covered	Low-elevation coastal scrub, chaparral, and valley–foothill hardwood	Not expected to occur on site. No suitable habitat is present. Moderate potential to occur within the biological study area. Suitable coastal scrub habitat is present.
Aspidoscelis tigris stejnegeri	San Diegan tiger whiptail	None/SSC/None	Hot and dry areas with sparse foliage, including chaparral, woodland, and riparian areas.	Not expected to occur on site. No suitable chaparral, woodland, or riparian habitat is present. Not expected to occur within the biological study area. No suitable chaparral, woodland, or riparian habitat is present.
Crotalus ruber	red diamondback rattlesnake	None/SSC/ Covered	Coastal scrub, chaparral, oak and pine woodlands, rocky grasslands, cultivated areas, and desert flats	Not expected to occur on site. No suitable habitat is present. Moderate potential to occur within the biological study area. Suitable coastal scrub habitat is present.
Phrynosoma blainvillii	Blainville's horned lizard	None/SSC/ Covered	Open areas of sandy soil in valleys, foothills, and semi-arid mountains including coastal scrub, chaparral, valley–foothill hardwood, conifer, riparian, pine–cypress, juniper, and annual grassland habitats	Not expected to occur on site. No suitable habitat is present. Moderate potential to occur within the biological study area. Suitable coastal scrub habitat is present.
Salvadora hexalepis virgultea	coast patch-nosed snake	None/SSC/ Covered	Brushy or shrubby vegetation; requires small mammal burrows for refuge and overwintering sites	Not expected to occur on site. No suitable habitat is present. Moderate potential to occur within the biological study area. Suitable coastal scrub habitat is present.

Wildlife Species Potential to Occur

Scientific Name	Common Name	Status (Federal/State/ NCCP-HCP)	Habitat	Potential to Occur
Thamnophis hammondii	two-striped gartersnake	None/SSC/None	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools	Not expected to occur on site. No suitable stream habitat is present. Not expected to occur within the biological study area. No suitable stream habitat is present.
Birds				
Accipiter cooperii (nesting)	Cooper's hawk	None/WL/Covered	Nests and forages in dense stands of live oak, riparian woodlands, or other woodland habitats often near water	Not expected to occur on site. No suitable woodland habitat near water is present. Not expected to occur within the biological study area. No suitable woodland habitat near water is present.
Agelaius tricolor (nesting colony)	tricolored blackbird	None/SSC, ST/Covered	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberry; forages in grasslands, woodland, and agriculture	Not expected to occur on site. No suitable agricultural or aquatic habitat is present. Not expected to occur within the biological study area. No suitable agricultural or aquatic habitat is present.
Ammodramus savannarum (nesting)	grasshopper sparrow	BCC/SSC/Covered	Nests and forages in moderately open grassland with tall forbs or scattered shrubs used for perches	Not expected to occur on site. No suitable grassland habitat is present. Not expected to occur within the biological study area. No suitable grassland habitat is present.
Asio otus (nesting)	long-eared owl	None/SSC/ Covered	Nests in riparian habitat, live oak thickets, other dense stands of trees, edges of coniferous forest; forages in nearby open habitats	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. No suitable riparian or forest habitat is present.
Athene cunicularia (burrow sites & some wintering sites)	burrowing owl	None/SSC/ Covered	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	Not expected to occur on site. No suitable habitat is present. Low potential to occur within the biological study area. Marginally suitable coastal scrub habitat present.
Buteo swainsoni (nesting)	Swainson's hawk	None/ST/None	Nests in open woodland and savanna, riparian, and in isolated	Not expected to occur on site. No suitable habitat is present.

Wildlife Species Potential to Occur

Scientific Name	Common Name	Status (Federal/State/ NCCP-HCP)	Habitat	Potential to Occur
			large trees; forages in nearby grasslands and agricultural areas such as wheat and alfalfa fields and pasture	Not expected to occur within the biological study area. No suitable woodland or savannah habitat near grasslands or agriculture are present.
*Campylorhynchus brunneicapillus sandiegensis (*San Diego & Orange Counties only*)*	coastal cactus wren	None/SSC/ Covered	Southern cactus scrub patches	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. No suitable cactus scrub habitat is present.
*Charadrius alexandrinus nivosus (*nesting*)*	western snowy plover	FT/SSC/None	On coasts nests on sandy marine and estuarine shores; in the interior nests on sandy, barren or sparsely vegetated flats near saline or alkaline lakes, reservoirs, and ponds	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. No suitable coastal habitat is present.
*Coccyzus americanus occidentalis (*nesting*)*	western yellow-billed cuckoo	FT/SE/None	Nests in dense, wide riparian woodlands and forest with well-developed understories	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. No suitable riparian habitat is present.
Coturnicops noveboracensis	yellow rail	None/SSC/None	Nesting requires wet marsh/sedge meadows or coastal marshes with wet soil and shallow, standing water	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. No suitable meadow or marsh habitat is present.
*Elanus leucurus (*nesting*)*	white-tailed kite	None/FP/Covered	Nests in woodland, riparian, and individual trees near open lands; forages opportunistically in grassland, meadows, scrubs, agriculture, emergent wetland, savanna, and disturbed lands	Not expected to occur on site. No suitable woodland habitat near potential foraging habitat is present. Not expected to occur within the biological study area. No suitable woodland habitat near potential foraging habitat is present.

Wildlife Species Potential to Occur

Scientific Name	Common Name	Status (Federal/State/ NCCP-HCP)	Habitat	Potential to Occur
Falco peregrinus anatum (nesting)	American peregrine falcon	FPD/FP, SCD/None	Nests on cliffs, buildings, and bridges; forages in wetlands, riparian, meadows, croplands, especially where waterfowl are present	Not expected to occur on site. No suitable nesting habitat is present. Not expected to occur within the biological study area. No suitable nesting habitat near potential foraging habitat is present.
Haliaeetus leucocephalus (nesting & wintering)	bald eagle	FPD/FP, SE/None	Nests in forested areas adjacent to large bodies of water, including seacoasts, rivers, swamps, large lakes; winters near large bodies of water in lowlands and mountains	Not expected to occur on site. No suitable nesting habitat is present. Not expected to occur within the biological study area. No suitable nesting habitat near potential foraging habitat is present.
Icteria virens (nesting)	yellow-breasted chat	None/SSC/ Covered	Nests and forages in dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. No suitable riparian habitat is present.
Laterallus jamaicensis coturniculus	California black rail	None/FP, ST/None	Tidal marshes, shallow freshwater margins, wet meadows, and flooded grassy vegetation; suitable habitats are often supplied by canal leakage in Sierra Nevada foothill populations	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. No suitable marsh habitat is present.
Passerculus sandwichensis beldingi	Belding's savannah sparrow	None/SE/None	Nests and forages in coastal saltmarsh dominated by pickleweed (Salicornia spp.)	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. No suitable marsh habitat is present.
Polioptila californica californica	coastal California gnatcatcher	FT, BCC/SSC/Covered	Nests and forages in various sage scrub communities, often dominated by California sagebrush and buckwheat; generally avoids nesting in areas with a slope of greater than 40%; majority of nesting at less than 1,000 feet above mean sea level	Not expected to occur on site. No suitable habitat is present. High potential to occur within the biological study area. Suitable coastal scrub habitat is present.

Wildlife Species Potential to Occur

Scientific Name	Common Name	Status (Federal/State/ NCCP-HCP)	Habitat	Potential to Occur
Rallus obsoletus levipes	Ridgway's rail	FE/FP, SE/None	Coastal wetlands, brackish areas, coastal saline emergent wetlands	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. No suitable marsh habitat is present.
Riparia riparia (nesting)	bank swallow	None/ST/None	Nests in riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with sandy soils; open country and water during migration	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. No suitable riparian, lacustrine, or coastal habitat is present.
Setophaga petechia (nesting)	yellow warbler	None/SSC/ Covered	Nests and forages in riparian and oak woodlands, montane chaparral, open ponderosa pine, and mixed-conifer habitats	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. No suitable riparian habitat is present.
Sternula antillarum browni (nesting colony)	California least tern	FE/FP, SE/None	Forages in shallow estuaries and lagoons; nests on sandy beaches or exposed tidal flats	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. No suitable estuary or lagoon habitat is present.
Vireo bellii pusillus (*nesting*)	least Bell's vireo	FE/SE/Covered	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. No suitable riparian habitat is present.
Fishes				
Catostomus santaanae	Santa Ana sucker	FT/None/None	Small, shallow, cool, clear streams less than 7 meters (23 feet) in width and a few centimeters to more than a meter (1.5 inches to more than 3 feet) in depth; substrates are	Not expected to occur on site. No suitable aquatic habitat is present. Not expected to occur within the biological study area. No suitable aquatic habitat is present.

Wildlife Species Potential to Occur

Scientific Name	Common Name	Status (Federal/State/ NCCP-HCP)	Habitat	Potential to Occur
			generally coarse gravel, rubble, and boulder	
Eucyclogobius newberryi	tidewater goby	FE/None/None	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County, to the mouth of the Smith River	Not expected to occur on site. No suitable aquatic habitat is present. Not expected to occur within the biological study area. No suitable aquatic habitat is present.
Gila orcuttii	arroyo chub	None/SSC/ Covered	Warm, fluctuating streams with slow-moving or backwater sections of warm to cool streams at depths >40 centimeters (16 inches); substrates of sand or mud	Not expected to occur on site. No suitable aquatic habitat is present. Not expected to occur within the biological study area. No suitable aquatic habitat is present.
Oncorhynchus mykiss irideus pop. 10	southern steelhead - southern California DPS	FE/None/None	Clean, clear, cool, well-oxygenated streams; needs relatively deep pools in migration and gravelly substrate to spawn	Not expected to occur on site. No suitable aquatic habitat is present. Not expected to occur within the biological study area. No suitable aquatic habitat is present.
Rhinichthys osculus ssp. 8	Santa Ana speckled dace	None/SSC/None	Headwaters of the Santa Ana and San Gabriel Rivers; may be extirpated from the Los Angeles River system	Not expected to occur on site. No suitable aquatic habitat is present. Not expected to occur within the biological study area. No suitable aquatic habitat is present.
Mammals				
Antrozous pallidus	pallid bat	None/SSC/None	Grasslands, shrublands, woodlands, forests; most common in open, dry habitats with rocky outcrops for roosting, but also roosts in man-made structures and trees	Not expected to occur on site. No suitable habitat is present. Low potential to occur within the biological study area. Marginally suitable coastal scrub habitat is present; however, no suitable rocky outcrops, cliffs, or crevices present.
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	None/SSC/None	Coastal scrub, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub,	Not expected to occur on site. No suitable habitat is present. Moderate potential to occur within the biological

Wildlife Species Potential to Occur

Scientific Name	Common Name	Status (Federal/State/ NCCP-HCP)	Habitat	Potential to Occur
			pinyon–juniper, and annual grassland	study area. Suitable coastal scrub habitat is present.
Choeronycteris mexicana	Mexican long-tongued bat	None/SSC/None	Desert and montane riparian, desert succulent scrub, desert scrub, and pinyon–juniper woodland; roosts in caves, mines, and buildings	Not expected to occur on site. No suitable riparian, succulent scrub, or desert habitat is present. Not expected to occur within the biological study area. No suitable riparian, succulent scrub, or desert habitat is present.
Eumops perotis californicus	western mastiff bat	None/SSC/None	Chaparral, coastal and desert scrub, coniferous and deciduous forest and woodland; roosts in crevices in rocky canyons and cliffs where the canyon or cliff is vertical or nearly vertical, trees, and tunnels	Not expected to occur on site. No suitable habitat is present. Low potential to occur within the biological study area. Marginally suitable coastal scrub habitat is present; however, no suitable rocky canyons or cliffs present.
Neotoma lepida intermedia	San Diego desert woodrat	None/SSC/None	Coastal scrub, desert scrub, chaparral, cacti, rocky areas	Not expected to occur on site. No suitable habitat is present. Low potential to occur within the biological study area. Marginally suitable coastal scrub habitat is present; however, no suitable rocky outcrops present and no CNNDB occurrences for the species are recorded within 5 miles of the biological study area.
Nyctinomops macrotis	big free-tailed bat	None/SSC/None	Rocky areas; roosts in caves, holes in trees, buildings, and crevices on cliffs and rocky outcrops; forages over water	Not expected to occur on site. No suitable foraging or roosting habitat is present. Not expected to occur within the biological study area. No suitable foraging or roosting habitat is present.
Onychomys torridus ramona	southern grasshopper mouse	None/SSC/None	Grassland and sparse coastal scrub	Not expected to occur on site. No suitable habitat is present. Low potential to occur within the biological study area. Marginally suitable coastal scrub habitat is present; however, no CNNDB occurrences for the

Wildlife Species Potential to Occur

Scientific Name	Common Name	Status (Federal/State/ NCCP-HCP)	Habitat	Potential to Occur
				species are recorded within 5 miles of the biological study area.
Perognathus longimembris pacificus	Pacific pocket mouse	FE/SSC/None	Fine-grained sandy substrates in open coastal strand, coastal dunes, and river alluvium	Not expected to occur on site. No suitable open coastal strand, coastal dunes, or river alluvium habitat is present. Not expected to occur within the biological study area. No suitable open coastal strand, coastal dunes, or river alluvium habitat is present.
Sorex ornatus salicornicus	southern California saltmarsh shrew	None/SSC/None	Saltmarsh, saltgrass, dense willow, bulrush	Not expected to occur on site. No suitable marsh habitat is present. Not expected to occur within the biological study area. No suitable marsh habitat is present.
Taxidea taxus	American badger	None/SSC/None	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils	Not expected to occur on site. No suitable habitat is present. Low potential to occur within the biological study area. Marginally suitable coastal scrub habitat is present; however, no CNNDB occurrences for the species are recorded within 5 miles of the biological study area.
Invertebrates				
Branchinecta sandiegonensis	San Diego fairy shrimp	FE/None/Covered	Vernal pools, non-vegetated ephemeral pools	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. No suitable vernal pool habitat is present.
Danaus plexippus pop. 1	monarch	FC/None/None	Wind-protected tree groves with nectar sources and nearby water sources	Low potential to occur on site. Eucalyptus trees are present; however, the project site is not a known overwintering site. The closest CNDDB occurrence is 4.5 miles to the southwest within Emerald Bay. Not expected to occur within the biological study area. No suitable habitat is present.

Wildlife Species Potential to Occur

Scientific Name	Common Name	Status (Federal/State/ NCCP-HCP)	Habitat	Potential to Occur
Euphydryas editha quino	quino checkerspot butterfly	FE/None/None	Annual forblands, grassland, open coastal scrub and chaparral; often soils with cryptogamic crusts and fine-textured clay; host plants include Plantago erecta, Antirrhinum coulterianum, and Plantago patagonica (Silverado Occurrence Complex)	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. Marginally suitable coastal scrub habitat is present; however, no host plants were detected within the biological study area.
Streptocephalus woottoni	Riverside fairy shrimp	FE/None/Covered	Vernal pools, non-vegetated ephemeral pools	Not expected to occur on site. No suitable habitat is present. Not expected to occur within the biological study area. No suitable vernal pool habitat is present.

Status Abbreviations
Federal
FE: Federally listed as endangered
FT: Federally listed as threatened
FC: Federal candidate species (former Category 1 candidates)
FPD: Federally proposed for delisting
BCC: U.S. Fish and Wildlife Service Bird of Conservation Concern
State
SSC: California Species of Special Concern
FP: California Fully Protected Species
WL: California Watch List Species
SE: State listed as endangered
ST: State listed as threatened
SCD: State candidate for delisting
County
Orange County Central and Coastal Subregion Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) Covered Species

Appendix C

Noise Data Sheets and Modeling Results

FIELD NOISE MEASUREMENT DATA

DUDEK

PROJECT: IRWD Turtle Rock | PROJECT #: 13167.02
SITE ID: ST 1
SITE ADDRESS:
OBSERVER(S): David Ortega
START DATE: 10/28/2021 | END DATE: 10/28/2021
START TIME: 9:44 AM | END TIME: 9:59 AM

METEOROLOGICAL CONDITIONS

TEMP: 90 F | HUMIDITY: 28 % R H | WIND: CALM / LIGHT / MODERATE
WINDSPD: ____ MPH | DIR: N NE E SE S SW W NW | VARIABLE / STEADY / GUSTY
SKY: (SUNNY) / (CLEAR) / OVRCAST / PRTLY CLDY / FOG / RAIN

ACOUSTIC MEASUREMENTS

MEAS. INSTRUMENT: Piccolo II | TYPE: 1 (2) | SERIAL #: 1200
CALIBRATOR: Rion NC-74 | SERIAL #: 34678576
CALIBRATION CHECK: PRE-MEASUREMENT 94 dBA SPL | POST-MEASUREMENT 94 dBA SPL | WINDSCRN: YES

SETTINGS: (A-WTD) / (SLOW) / FAST / FRONTAL / RANDOM / ANSI / OTHER:

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
1-17	9:44AM	9:59 AM	45	60.5	38.5	40.2	41.5	43.5	

COMMENTS

Measurement taken on sidewalk near residence (address 1 ~~Harvest~~ NOVA), BIRDS, DISTANT AIRCRAFT, DISTANT TRAFFIC PRIMARY NOISE. Some equipment (compressor?) audible from IRWD Facility. Leq seems steady ~41 dBA w/ occ flyovers

SOURCE INFO AND TRAFFIC COUNTS

PRIMARY NOISE SOURCE: TRAFFIC / (AIRCRAFT) / RAIL / INDUSTRIAL / OTHER: BIRDS
ROADWAY TYPE: | DIST. TO RDWY C/L OR EOP*: 5 Feet
TRAFFIC COUNT DURATION ____ MIN | SPEED

COUNT 1 (OR RDWY 1)

DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB
AUTOS				
MED TRKS				
HVY TRKS				
BUSES				
MOTRCLS				

IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE

COUNT 2 (OR RDWY 2)

____ MIN | SPEED

NB/EB	SB/WB	NB/EB	SB/WB

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
POSTED SPEED LIMIT SIGNS SAY:

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / (BIRDS) / DIST. INDUSTRIAL
DIST. KIDS PLAYING / DIST. CONVRSTNS / YELLING / DIST. TRAFFIC (LIST RDWYS BELOW) / DISTD GARDENERS/LANDSCAPING NOISE
OTHER: From Staff: Equipment currently on is ~~Electrical~~ / ~~Gas~~ Engine
At night, the electrical engine kicks on (which is quieter)

DESCRIPTION / SKETCH

TERRAIN: (HARD) / SOFT / MIXED / FLAT / OTHER:
PHOTOS: YES
OTHER COMMENTS / SKETCH

FIELD NOISE MEASUREMENT DATA

DUDEK

PROJECT: IRWD Turtle Rock — PROJECT #: 13167.02
SITE ID: ST2
SITE ADDRESS:
OBSERVER(S): DAVID ORTEGA
START DATE: 10/28/2021 — END DATE: 10/28/2021
START TIME: ~~10:12~~ 10:12 AM — END TIME: 10:27 AM

METEOROLOGICAL CONDITIONS
TEMP: 90 F — HUMIDITY: 28 % R.H. — WIND: CALM / LIGHT / MODERATE
WINDSPD: — MPH — DIR: N NE E SE S SW W NW — VARIABLE / STEADY / GUSTY
SKY: (SUNNY) / (CLEAR) — OVRCAST / PRTLY CLDY / FOG / RAIN

ACOUSTIC MEASUREMENTS
MEAS. INSTRUMENT: Piccolo II — TYPE 1 (2) — SERIAL #: 1200
CALIBRATOR: Rion - NC-74 — SERIAL #: 34678576
CALIBRATION CHECK — PRE-MEASUREMENT: 94 dBA SPL — POST-MEASUREMENT: 94 dBA SPL — WINDSCRN: YES

SETTINGS: (A-WTD) (SLOW) FAST FRONTAL RANDOM ANSI OTHER:

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
18-34	10:12 AM	10:27 AM	41.3	49.6	37.6	39.7	40.4	42.1	

COMMENTS
Measurement taken on sidewalk near residence (address 3 NOVA Mattaret)
Birds, Distant aircraft/landscaping primary noise

SOURCE INFO AND TRAFFIC COUNTS
PRIMARY NOISE SOURCE — TRAFFIC (AIRCRAFT) RAIL INDUSTRIAL OTHER: BIRDS
ROADWAY TYPE: — DIST. TO RDWY C/L OR EOP:
TRAFFIC COUNT DURATION ____ MIN — SPEED ____

COUNT 1 (OR RDWY 1)

DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB
AUTOS				
MED TRKS				
HVY TRKS				
BUSES				
MOTRCLS				

IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE ____

COUNT 2 (OR RDWY 2) ____ MIN — SPEED

NB/EB	SB/WB	NB/EB	SB/WB

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
POSTED SPEED LIMIT SIGNS SAY:

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS (BIRDS) / DIST. INDUSTRIAL
DIST. KIDS PLAYING / DIST. CONVRSTNS / YELLING / DIST. TRAFFIC (LIST RDWYS BELOW) / DISTD GARDENERS/LANDSCAPING NOISE
OTHER: Sirens audible at 10:15 AM, distant. IRWD Facility operating one ~~Electrical~~ gas engine. At night, electrical engine turns on.

DESCRIPTION / SKETCH
TERRAIN: (HARD) SOFT MIXED FLAT OTHER:
PHOTOS: YES
OTHER COMMENTS / SKETCH

FIELD NOISE MEASUREMENT DATA

DUDEK

PROJECT: IRWD Turtle Rock | PROJECT #: 13167.02
SITE ID: ST3
SITE ADDRESS:
START DATE: 10/28/2021 | END DATE: 10/28/2021
START TIME: 10:33 AM | END TIME: 10:48 AM | OBSERVER(S): DAVID ORTEGA

METEOROLOGICAL CONDITIONS
TEMP: 90 F | HUMIDITY: 28 % R.H. | WIND: CALM LIGHT MODERATE
WINDSPD: MPH | DIR: N NE E SE S SW W NW | VARIABLE STEADY GUSTY
SKY: (SUNNY) CLEAR | OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS
MEAS. INSTRUMENT: Piccolo II | TYPE: 1 (2) | SERIAL #: 1200
CALIBRATOR: Rion NC-74 | SERIAL #: 34678576
CALIBRATION CHECK: PRE-MEASUREMENT 94 dBA SPL | POST-MEASUREMENT 94 dBA SPL | WINDSCRN: YES

SETTINGS: (A-WTD) (SLOW) FAST FRONTAL RANDOM ANSI OTHER:

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
SS-S1	10:33AM	10:48AM	45.8	62.4	40.7	41.5	42.5	46.6	

COMMENTS: Measurement taken on slope near residence wall (~10 ft from wall)

SOURCE INFO AND TRAFFIC COUNTS
PRIMARY NOISE SOURCE: TRAFFIC (AIRCRAFT) RAIL INDUSTRIAL OTHER: BIRDS
ROADWAY TYPE: LOCAL | DIST. TO RDWY C/L OR EOP:
TRAFFIC COUNT DURATION ___ MIN SPEED ___

COUNT 1 (OR RDWY 1)

DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB
AUTOS				
MED TRKS				
HVY TRKS				
BUSES				
MOTRCLS				

IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE

COUNT 2 (OR RDWY 2) ___ MIN SPEED

NB/EB	SB/WB	NB/EB	SB/WB

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
POSTED SPEED LIMIT SIGNS SAY:

OTHER NOISE SOURCES (BACKGROUND): (DIST. AIRCRAFT) RUSTLING LEAVES DIST. BARKING DOGS (BIRDS) DIST. INDUSTRIAL
DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING DIST. TRAFFIC (LIST RDWYS BELOW) DIST'D GARDENERS/LANDSCAPING NOISE
OTHER: Gas engine in IRWD Facility audible from Minaret

DESCRIPTION / SKETCH
TERRAIN: HARD SOFT (MIXED) FLAT OTHER:
PHOTOS: YES
OTHER COMMENTS / SKETCH

According to IRWD Staff, gas engine is normally running throughout the day and at night, the electrical engine turns on, which is quieter

N

To User: bordered cells are inputs, unbordered cells have formulae

noise level limit for construction phase, per FTA guidance = n/a
allowable hours over which Leq is to be averaged (example: 8 for FTA guidance) = 8

Construction Phase	Equipment	Total Equipment Qty	AUF % (from FHWA RCNM)	Reference Lmax @ 50 ft. from FHWA RCNM	Client Equipment Description, Data Source and/or Notes	Source to NSR Distance (ft.)	Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq
Demolition	Dozer	1	40	82		90	76.9	8	480	73
	Concrete Saw	1	20	90		110	83.2	8	480	76
	Backhoe	1	40	78		130	69.7	8	480	66
	Front End Loader	1	40	79		130	70.7	8	480	67
							Total for Demolition Phase:			**78.4**
Site Preparation	Grader	1	40	85		90	79.9	8	480	76
	Backhoe	1	40	78		120	70.4	8	480	66
							Total for Site Preparation Phase:			**76.4**
Grading 1	Grader	1	40	85		90	79.9	8	480	76
	Dozer	1	40	82		110	75.2	8	480	71
	Backhoe	1	40	78		130	69.7	8	480	66
							Total for Grading 1 Phase:			**77.5**
Building construction 1	Crane	1	16	81		150	71.5	8	480	63
	Man Lift	2	20	75		140	66.1	8	480	62
	Generator	1	50	72		120	64.4	8	480	61
	Tractor	1	40	84		130	75.7	8	480	72
							Total for Building construction 1 Phase:			**73.0**
Building construction 2	Man Lift	1	20	75		90	69.9	8	480	63
	Crane	1	16	81		120	73.4	8	480	65
	Front End Loader	1	40	79		130	70.7	8	480	67
							Total for Building construction 2 Phase:			**70.1**
Paving 1	Paver	1	50	77		110	70.2	8	480	67
	Roller	1	20	80		100	74.0	8	480	67
	Front End Loader	1	40	79		140	70.1	8	480	66

To User: bordered cells are inputs, unbordered cells have formulae

noise level limit for construction phase, per FTA guidance = n/a
allowable hours over which Leq is to be averaged (example: 8 for FTA guidance) = 8

Construction Phase	Equipment	Total Equipment Qty	AUF % (from FHWA RCNM)	Reference Lmax @ 50 ft. from FHWA RCNM	Client Equipment Description, Data Source and/or Notes	Source to NSR Distance (ft.)	Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq
Demolition	Dozer	1	40	82		110	75.2	8	480	71
	Concrete Saw	1	20	90		130	81.7	8	480	75
	Backhoe	1	40	78		150	68.5	8	480	64
	Front End Loader	1	40	79		150	69.5	8	480	65
							Total for Demolition Phase:			**76.9**
Site Preparation	Grader	1	40	85		110	78.2	8	480	74
	Backhoe	1	40	78		140	69.1	8	480	65
							Total for Site Preparation Phase:			**74.7**
Grading 1	Grader	1	40	85		110	78.2	8	480	74
	Dozer	1	40	82		130	73.7	8	480	70
	Backhoe	1	40	78		150	68.5	8	480	64
						20	Total for Grading 1 Phase:			**75.8**
Building construction 1	Crane	1	16	81		170	70.4	8	480	62
	Man Lift	2	20	75		160	64.9	8	480	61
	Generator	1	50	72		140	63.1	8	480	60
	Tractor	1	40	84		150	74.5	8	480	70
							Total for Building construction 1 Phase:			**71.8**
Building construction 2	Man Lift	1	20	75		110	68.2	8	480	61
	Crane	1	16	81		140	72.1	8	480	64
	Front End Loader	1	40	79		150	69.5	8	480	65
							Total for Building construction 2 Phase:			**68.7**
Paving 1	Paver	1	50	77		130	68.7	8	480	66
	Roller	1	20	80		120	72.4	8	480	65
	Front End Loader	1	40	79		160	68.9	8	480	65
							Total for Paving 1 Phase:			**70.1**
Grading 2	Grader	1	40	85		110	78.2	9	540	75
	Dozer	1	40	82		130	73.7	10	600	71
	Backhoe	1	40	78		150	68.5	11	660	66
							Total for Grading 2 Phase:			**76.5**
Architectural coating	Compressor (air)	1	40	78		130	69.7	12	720	67
							Total for Architectural coating Phase:			**67.5**
Paving 2	Paver	1	50	77		110	70.2	13	780	69
	Roller	1	20	80		140	71.1	14	840	66
	Front End Loader	1	40	79		150	69.5	15	900	68
							Total for Paving 2 Phase:			**72.9**

Sidewall Propeller Fans

Belt and Direct Drive

Exhaust, Supply and Reversible

GREENHECK®

Building Value in Air.

October 2015

S1-Direct Drive - Level 1

GREENAECK
Building Value in Air.

Model Number	Motor HP	Fan RPM	Max BHP	Sones @ Free Air	CFM/Static Pressure in Inches WG											
					0.00	0.05	0.10	0.125	0.15	0.20	0.25	0.30	0.375	0.50	0.625	0.75
SE1/SS1 Performance Limits																
S1-8-424-G	1/80	1350	28W	3.2	300	263	190									
S1-8-426-D		1550	39 W	3.7	310	282	232	190	140							
S1-8-428-P	1/40	1650	53 W	3.9	329	303	266	237	214	149						
S1-8-440-E	1/100	1050	50 W	1.5	311	224	127	101								
S1-8-440-G	1/40	1350	55 W	3.5	400	354	257	189	174	138						
S1-8-440-D	1/25	1550	75 W	4.9	459	420	351	308	256	198	167	115				
S1-10-424-D	1/50	1550	45 W	4.6	575	526	462	407								
S1-10-426-P	1/30	1650	55 W	4.8	590	551	502	468	429							
S1-10-428-P	1/20		78 W	5.2	606	574	537	511	484	407	273	249	214			
S1-10-440-E	1/40	1050	105 W	3.2	626	533	361									
S1-10-440-G	1/20	1350	135 W	4.9	805	739	656	616	565							
S1-10-440-D	1/12	1550	170 W	5.9	924	869	801	763	777	641						
S1-12-426-D	1/10	1550	105 W	6.6	1113	1055	976	930	878	749	609	428				
S1-12-436-G		1350	120 W	7.5	1269	1203	1101	1048	974	780	359					
S1-12-432-E	1/20	1050	125 W	4.3	982	878	745	678	623	464	383					
S1-12-432-G	1/12	1350	170 W	6.0	1262	1185	1098	1038	987	886	798	721	540			
S1-12-432-D	1/8	1550	190 W	7.5	1449	1383	1309	1271	1225	1129	1042	953	861	615	478	
S1-12-432-C8		860	0.03	4.0	804	664	512	438	349	249						
S1-12-432-B6	1/6	1160	0.07	4.8	1084	991	872	816	755	660	503	431				
S1-12-432-A4	1/4	1750	0.27	8.7	1636	1577	1515	1481	1447	1365	1282	1207	1085	947	706	585
S1-14-440-C8	1/8	860	0.07	5.9	1189	1055	919	711	649	551	408					
S1-14-440-B6	1/6	1160	0.15	7.3	1604	1493	1406	1350	1297	1207	908	837	720			
S1-14-432-A4	1/4	1750	0.29	12.9	2404	2351	2299	2273	2245	2189	2134	2052	1912	1636		
S1-14-436-A3	1/3		0.39	14.8	2734	2674	2615	2585	2553	2487	2422	2340	2192	1829	1220	
S1-16-436-C8	1/8	860	0.12	5.0	2003	1876	1732	1621	1433	1037	849	705				
S1-16-426-B6	1/6	1160	0.15	7.5	2108	2027	1942	1894	1846	1725	1588					
S1-16-428-B6			0.19	7.6	2235	2148	2058	2012	1964	1840	1710	1534	1126			
S1-16-436-B4	1/4		0.29	9.5	2702	2609	2512	2461	2410	2281	2067	1761	1359	1049		
S1-16-421-A3	1/3	1750	0.38	13.5	2552	2506	2461	2438	2415	2367	2309	2252	2143	1916		
S1-16-428-A5	1/2		0.63	15.3	3372	3315	3257	3228	3199	3140	3078	3016	2908	2700	2468	1861
S1-16-436-A7	3/4		0.89	16.6	4076	4015	3954	3923	3892	3828	3760	3693	3591	3349	2902	2298
S1-18-434-C8	1/8	860	0.15	8.7	2661	2464	2202	2032	1874	1346						
S1-18-436-C6	1/6		0.19	9.2	2778	2595	2319	2102	1963	1385	1108	912				
S1-18-424-B6		1160	0.20	6.7	2800	2690	2568	2501	2427	2257	2025	1828				
S1-18-429-B4	1/4		0.30	7.2	3238	3120	2987	2908	2828	2668	2434	2145	1510	1183		
S1-18-436-B3	1/3		0.45	12.6	3747	3621	3466	3370	3267	3034	2732	2548	1727	1363		
S1-18-424-A5	1/2	1750	0.67	15.7	4224	4151	4079	4043	4006	3925	3835	3745	3592	3252		
S1-18-429-A7	3/4		0.88	17.4	4885	4807	4729	4690	4651	4565	4460	4354	4196	3926	3460	2984
S1-20-428-C6	1/6	860	0.19	10.8	3133	3001	2823	2727	2641	2390						
S1-20-436-C4	1/4		0.29	11.7	3888	3717	3523	3420	3285	2918	2237	2091	1873			
S1-20-424-B4		1160	0.30	13.8	3655	3561	3467	3419	3364	3255	3095	2924	2661			
S1-20-428-B3	1/3		0.45	14.3	4227	4128	4030	3974	3901	3755	3621	3493	3175			
S1-20-436-B5	1/2		0.70	14.4	5245	5118	4991	4926	4849	4697	4525	4321	3863	2920	2650	
S1-20-420-A7	3/4	1750	0.87	24	4682	4617	4552	4519	4486	4421	4362	4303	4215	4036	3810	
S1-20-428-A10	1		1.19	25	6377	6311	6246	6214	6181	6116	6050	5965	5820	5580	5368	5087
S1-20-432-A15	1½		1.73	26	7115	7038	6962	6924	6886	6809	6733	6653	6518	6292	6016	5688
S1-24-432-C4	1/4	860	0.34	9.1	5000	4767	4540	4409	4233	3789						
S1-24-436-C3	1/3		0.41	10.0	5457	5232	5002									
S1-24-437-C5	1/2	1160	0.58	11.6	6136	5953	5764	5631	5497	5150	4720	4341				
S1-24-428-B5			0.61	14.1	5908	5794	5680	5623	5566	5382	5175	4898				
S1-24-432-B7	3/4		0.83	14.7	6745	6572	6399	6313	6229	6064	5830	5569	5007			

Performance certified is for Models S1 for installation type A: free inlet, free outlet. Power rating (Bhp) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The sound ratings shown are loudness values in fan sones at 5 ft (1.5 m) in a hemispherical free field calculated per AMCA Standard 301. Values are for installation type A: free inlet hemispherical sone levels.

Sound Conversion Chart

dBA = 33.2 * LOG10(Sones) + 28

dB (SPL)	Source (with distance)
194	Theoretical limit for a sound wave at 1 atmosphere environmental pressure; pressure waves with a greater intensity behave as shock waves.
180	Krakatoa volcano explosion at 1 mile in air [1]
160	M1 Garand being fired at 1 meter (3 ft)
150	Jet engine at 30 m (100 ft)
140	Low Caliber Rifle being fired at 1m (3 ft); the engine of a Formula One car at 1 meter (3 ft)
130	Threshold of pain; civil defense siren at 100 ft (30 m)
120	Train horn at 1 m (3 ft). Perforation of eardrums.
110	Football stadium during kickoff at 50 yard line; chainsaw at 1 m (3 ft)
100	Jackhammer at 2 m (7 ft); inside disco
90	Loud factory, heavy truck at 1 m (3 ft)
80	Vacuum cleaner at 1 m (3 ft), curbside of busy street, PLVI of City
70	Busy traffic at 5 m (16 ft)
60	Office or restaurant inside
50	Quiet restaurant inside
40	Residential area at night
30	Theatre, no talking
20	Whispering
10	Human breathing at 3 m (10 ft)
0	Threshold of human hearing (with healthy ears); sound of a mosquito flying 3 m (10 ft) away

Sones	dB	Sones	dB	Sones	dB	Sones	dB	Sones	dB	Sones	dB
1.00	28.00	13.00	64.98	25.00	74.41	37.00	80.06	49.00	84.11	61.00	87.27
2.00	37.99	14.00	66.05	26.00	74.98	38.00	80.45	50.00	84.41	62.00	87.51
3.00	43.84	15.00	67.05	27.00	75.52	39.00	80.82	51.00	84.69	63.00	87.74
4.00	47.99	16.00	67.98	28.00	76.05	40.00	81.19	52.00	84.97	64.00	87.97
5.00	51.21	17.00	68.85	29.00	76.55	41.00	81.54	53.00	85.25	65.00	88.19
6.00	53.83	18.00	69.68	30.00	77.04	42.00	81.89	54.00	85.52	66.00	88.41
7.00	56.06	19.00	70.45	31.00	77.51	43.00	82.23	55.00	85.78	67.00	88.63
8.00	57.98	20.00	71.19	32.00	77.97	44.00	82.56	56.00	86.04	68.00	88.84
9.00	59.68	21.00	71.90	33.00	78.41	45.00	82.89	57.00	86.30	69.00	89.05
10.00	61.20	22.00	72.57	34.00	78.85	46.00	83.20	58.00	86.55	70.00	89.26
11.00	62.57	23.00	73.21	35.00	79.26	47.00	83.51	59.00	86.79	71.00	89.46
12.00	63.83	24.00	73.82	36.00	79.67	48.00	83.82	60.00	87.03	72.00	89.66

dB data shown above is at a distance of 5 feet.

Using the formula for noise attenuation with distance for a point source, with a corresponding 6 dB decrease per doubling of distance, the noise level at a distance of 90 feet from a noise source of 11 sones would be 38 dBA.