Draft

OSO CREEK WATER RECLAMATION PLANT IMPROVEMENT PROJECT

Initial Study/Mitigated Negative Declaration

Prepared for
Santa Margarita Water District

August 2021

ESA

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ENVIRONMENTAL CHECKLIST

Initial Study Checklist

1. Project Title:	Oso Creek Water Reclamation Plant Improvement Project
2. Lead Agency Name and Address:	Santa Margarita Water District 26111 Antonio Parkway Rancho Santa Margarita, CA 92688
3. Contact Person and Phone Number:	Don Bunts Deputy General Manager (949) 459-6602
4. Project Location:	Orange County (see Section 1.2, below)
5. Project Sponsor's Name and Address:	Same as Lead Agency, above
6. General Plan Designation(s):	Community Facility
7. Zoning:	Community Facility

8. Description of Project:

The Santa Margarita Water District (SMWD) is proposing to rehabilitate and upgrade the Oso Creek Water Reclamation Plant (WRP) with a new technologically advanced WRP that is able to treat 3.3 million gallons per day (MGD), an advanced water treatment facility to treat the captured and returned Oso Barrier urban return water as well as provide replacement administration offices and warehousing space. See Section 1.5, Project Description, below for more project details.

9. Surrounding Land Uses and Setting:

Commercial Community, Recreation/Open Space and Residential. See Section 1.2, Project Location and Setting, below for more information.

10. Other public agencies whose approval is required:

See Section 1.8, Discretionary Approvals Required for the project, below.

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

See Section 3.18, Tribal Cultural Resources, below.

OSO CREEK WATER FILTRATION IMPROVEMENT PROJECT

Initial Study/Mitigated Negative Declaration

1.0 Project Description

1.1 Introduction

The Santa Margarita Water District (SMWD) is proposing to upgrade the Oso Creek Water Reclamation Plant (WRP) with the new technologically advanced WRP as well as provide replacement administration offices, meeting space, warehousing space and parking. The WRP currently needs technological upgrades to comply with current and anticipated future water quality standards. The project will be capable of treating 3.3 million gallons per day (MGD) of wastewater and processing up to 1.0 MGD worth of urban return flows which would be diverted into the SMWD's recycled water system for irrigation, source water for lake fill and ultimately for either indirect or direct potable reuse.

1.2 Project Location and Setting

The project site is located adjacent to Oso Creek, within the City of Mission Viejo (**Figure 1).** The existing WRP is located at 27402 La Paz Road in Mission Viejo. The project site is bounded by a commercial strip mall to the north, open space and residential to the east and south, and Oso Creek and a commercial strip mall to the west. The residential uses are located approximately 300 feet away from the project site. Access to the project site is provided via La Paz Road and Oso Creek Road.

1.3 Project Background

SMWD provides water and wastewater treatment services to approximately 170,000 people within an area of 62,674 acres. The SMWD service area is bounded on the north by El Toro Water District (ETWD), Irvine Ranch Water District (IRWD), and Trabuco Canyon Water District (TCWD), on the east by the Cleveland National Forest, on the south by the City of San Clemente and the United States Marine Corps Camp Pendleton, and on the west by the City of San Juan Capistrano and Moulton Niguel Water District (MNWD). SMWD is responsible for inter-agency coordination and long range planning to meet future water supply and wastewater treatment needs for its service area. Portions of the cities of Mission Viejo, Rancho Santa Margarita, San Clemente and the unincorporated communities of Coto de Caza, Las Flores, Ladera Ranch, Sendero, and Esencia as well as the remaining undeveloped portion of the Rancho Mission Viejo are within SMWD's service boundary (SMWD 2020).

SOURCE: ESRI

Oso Creek Water Reclamation Plant Improvement Project

Figure 1
Regional Location

ESA

The existing Oso Creek WRP is a 3.0 MGD activated sludge process secondary treatment facility followed by filtration and disinfection. Wastewater is treated using microscreening and secondary treatment using a combination of aeration basins and clarification. The tertiary treatment is provided by using dual media filtration and chlorine disinfection both meeting Title 22 requirements for using the effluent for unrestricted reuse. The treated effluent is then pumped from the effluent pump station (La Paz Zone B Pump Station) also located at the Oso Creek WRP. The plant has chlorination facilities, but only effluent intended to be used for irrigation is chlorinated. Waste solids and filter backwash is returned to the Oso Trabuco Interceptor Sewer. Secondary effluent is directed to an onsite tertiary treatment facility for further treatment and pumped to the District's recycled water distribution system included the Upper Oso Reservoir. The Oso Creek WRP provides recycled water primarily to the western portion of the SMWD service area. Recycled water produced at the Oso Creek WRP that exceeds recycled water demands is conveyed to Upper Oso Reservoir for seasonal storage, which is typical during November through May. The Oso Creek WRP does not discharge treated wastewater directly through the Ocean Outfall; treated water is reclaimed. There is no connection from the Oso Creek WRP to the Ocean Outfall. However, when the WRP is off-line, the raw wastewater can be sent to the South Orange County Water Authority's Jay B. Latham Wastewater Treatment Plant (Latham WTP) via the Oso Trunk Sewer for treatment and then discharged through the Ocean Outfall.

1.4 Project Objectives

The primary objectives of the proposed project include the following:

- Improve water quality through the refurbishment and technological upgrade of the water treatment processes; and,
- Develop an increased sustainable local water supply to support local beneficial uses.

1.5 Project Description

The proposed project will consist of demolishing the existing 3.0 MGD Oso Creek WRP, existing office and warehousing buildings and constructing a new technologically advanced WRP that is able to treat 3.3 MGD and a 1.0 MGD Oso Barrier Urban Return Water Treatment Plant (URWTP) advanced water treatment facility. Replacement offices, warehousing space and parking will also be constructed on the site. The Oso Barrier URWTP will process urban runoff to be used for irrigation, lake fill, and potable reuse. The URWTP will include prescreening equipment, ultrafiltration, reverse osmosis and UV disinfection. The backwash water will be discharged to the Oso Trunk Sewer for treatment and ultimate disposal from the Latham WTP.

The proposed Oso Creek WRP will treat wastewater generated within the SMWD service area and produce tertiary water that meets State of California Title 22 recycled water requirements for unrestricted reuse. The wastewater is generally domestic in origin with a very small industrial and/or commercial component. The proposed facilities will include an influent pump station, influent screens, aeration basins, membrane bioreactor tanks (MBRs), disinfection using either chlorination, pasteurization or UV irradiation with chlorine polishing, and effluent pumping. The proposed project will produce water that will be treated to a level that allows for blending into the SMWD's existing recycled water distribution system.

The layout of the proposed treatment facilities including the wastewater feed and effluent transmission pipelines is shown in **Figure 2**. The wastewater flows will be conveyed to the WRP through existing gravity lines and a force main from the southwest. The new effluent pump station will pump WRP treated effluent as well as product water from the Oso Barrier URWTP to higher elevations within the service area for use and/or storage. The treated effluent and other recycled water flows being pumped from the effluent pump station will connect to existing recycled water lines. The backwash water and the solids that are a product of the treatment process will be discharged to the Oso Trunk Sewer for treatment at downstream wastewater treatment facilities.

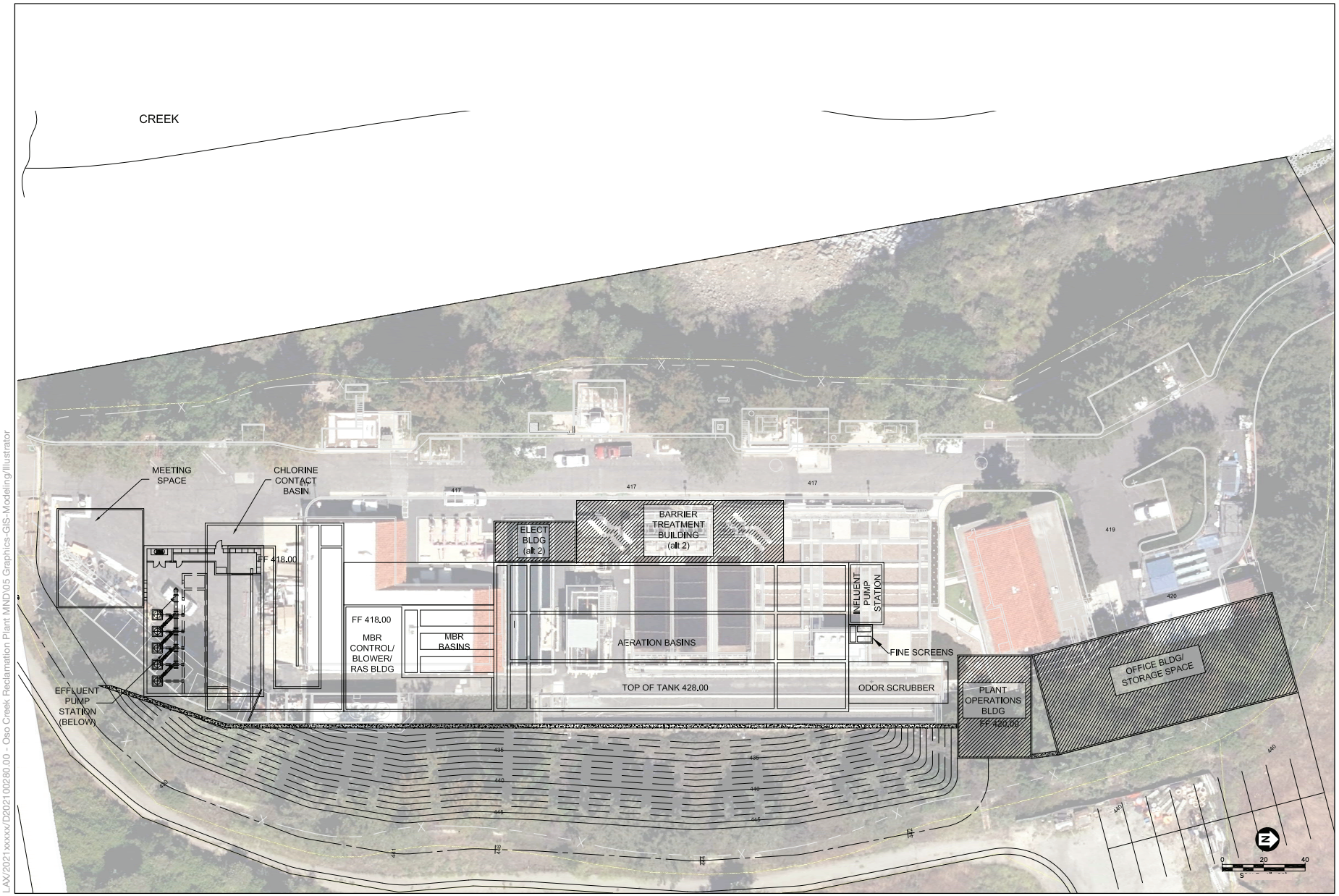
The barrier water is surface runoff that is collected downstream of the Oso Creek WRP through an existing intercept/capture facility. The purpose of this facility is to protect downstream surface and groundwater from contaminants that may be present in the surface runoff from the entire upstream Oso Creek watershed. This flow is currently being captured and conveyed through the 20-inch diameter Oso Barrier transmission main from a location near the Oso Parkway bridge over Oso Creek to the southwest portion of the treatment plant. This water currently is being blended with the Oso Creek WRP effluent for use as irrigation water and is not currently treated beyond filtration and chlorine addition for disinfection. The proposed new treatment system for this water in the new URWTP will consist of prescreening cartridge filters, ultrafiltration membranes followed by reverse osmosis membranes with the permeate then being disinfected using UV irradiation. The brine from the system will be discharged to an existing sewer for treatment and disposal at downstream wastewater treatment facilities. The effluent will be blended with the effluent from the Oso Creek WRP and introduced into the SMWD's recycled water distribution system.

1.6 Construction Characteristics

Prior to proposed demolition activities, utilities related to the existing structure will be capped and hazardous materials remediation will be implemented at the project site to limit exposure to potentially toxic materials during demolition activities. The proposed demolition portion of the project will include installation of protection and fencing, salvaging of construction materials, and removal of construction debris.

Construction of the proposed project will include excavation, grading, treatment plant construction, administration and warehouse building construction, paving and site restoration. Existing underground pipelines will remain in place, unless they would interfere with grading or pipeline refurbishment. Architectural and color elements of the Oso Creek WRP will be designed to blend in with the surrounding landscape and fit in with the visual character of the area.

The maximum depth of ground disturbance for the aeration basins, MBR basins, chlorine contact basins (if used) and effluent pump station is approximately 14 feet. The maximum depth of ground disturbance for the influent pump station is approximately 20 feet. The maximum depth for the replacement offices, warehousing space, Barrier Treatment Building and Electrical Building is approximately 4 feet. These depths of ground disturbance are relatively close to the previously excavated depths for the existing facilities. The project will use the existing piping where feasible and if needed, will include new piping to connect new facilities to the existing system. The project will not include any new pipelines outside of the property site.



LAX/2021xxxxx/D202100280.00 - Oso Creek Reclamation Plant MND\05 Graphics-GIS-Modeling/Illustrator

SOURCE: SMWD, 2021

Oso Creek Water Reclamation Plant Improvement Project

Figure 2
Site Plan

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Construction Staging

Construction staging areas and equipment and vehicle laydown areas would be accommodated within the project site.

Construction would require, but would not be limited to, the following equipment:

- Flatbed truck
- Lifts
- Light pickup truck
- Truck-mounted earth auger
- Heavy-duty trucks (2)
- Dump trucks (2)
- Crawler loader
- Crane
- Air compressor
- Pavement breakers (2)
- Air hoses (2)
- Two-drum roller

1.7 Operation and Maintenance Characteristics

1.7.1 Operations and Maintenance Staffing

Operation of the proposed project will require two to four staff members to operate and monitor the WRP's activities. These staff members' normal work schedule is no more than 10 hours per day, seven days a week, year round. The proposed project will not require additional staff beyond the staff needed to operate the current Oso Creek WRP. The proposed WRP will require periodic maintenance by existing SMWD staff that are currently providing services at the Oso Creek WRP. The WRP will be on a constant maintenance schedule similar to the current conditions.

1.7.2 Chemicals and Hazardous Materials

Operation of the proposed WRP would involve onsite chemical use and storage. Chemicals include: Caustic Soda Liquid, Sodium Bisulfite, Sodium Hypochlorite, Ferric Chloride, Hydrochloric Acid, Citric Acid, and Vitec3000 (antiscalant). Chemicals would be stored in the proposed dedicated chemical storage areas either within or directly adjacent to the treatment building. Each chemical would be stored in aboveground tanks in a dedicated containment area with secondary containment areas to confine accidental spills and prevent exposure to the environment. The containment areas would be sized to accommodate storage tank volumes and sprinkler system operations and/or other potential liquid sources to prevent accidental spills.

1.8 Discretionary Approvals Required for the Project

Implementation of the proposed project would require the following approvals:

- South Coast Air Quality Management District - Permit to Construct and Operate
- State Water Resources Control Board - Construction Stormwater General Permit and SWPPP Approval

2.0 Environmental Factors Potentially Affected

The environmental factors checked below include impacts that are "Less Than Significant with Mitigation Incorporated." There are no environmental factors that have an impact that is identified as a "Potentially Significant Impact" because all potential significant impacts can be reduced to less than significant with the incorporation of mitigation measures.

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

DETERMINATION:

On the basis of this IS:

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

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

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

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

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

Signature	8-12-21 Date
Don Bunts, Deputy General Manager Printed Name	Santa Margarita Water District For

3.0 Environmental Analysis

Sections 3.1 through 3.21 analyze the potential environmental impacts associated with the project. The environmental issue areas that are evaluated are:

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

The environmental analysis in the following sections is patterned after the CEQA Guidelines Appendix G, Environmental Checklist (hereafter referred to as the Initial Study Checklist or IS Checklist), which was revised by the Office of Planning and Research on December 28, 2018, and used by SMWD in its environmental review process. The IS Checklist will identify and briefly explain the environmental effects of the project. For any effects that are determined to be potentially significant, the IS Checklist will identify and evaluate feasible measures that may be incorporated into the project to avoid or mitigate any adverse impacts.

For the evaluation of potential impacts, the questions in the IS Checklist are stated and an answer is provided according to the analysis undertaken as part of the IS. The analysis considers the long-term, direct, and indirect impacts of the development. To each question, there are four possible responses:

- **No Impact.** The project will not have any measurable environmental impact on the environment.
- **Less than Significant Impact.** The project will have the potential for impacting the environment, although this impact will be below established thresholds that are considered to be significant.
- **Less than Significant with Mitigation Incorporated.** The project will have the potential to generate impacts, which may be considered as a significant effect on the environment, although mitigation measures or changes to the development's physical or operational characteristics can reduce these impacts to levels that are less than significant.
- **Potentially Significant Impact.** The project could have impacts, which may be considered significant, and therefore additional analysis is required to identify mitigation measures that could reduce potentially significant impacts to less than significant levels.

The following is a discussion of potential project impacts as identified in the IS/Environmental Checklist. Explanations are provided for each item.

3.1 Aesthetics

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

Environmental Evaluation

Would the project:

a) Have a substantial adverse effect on a scenic vista?

No Impact. Scenic vistas are defined as expansive views of distant landforms and aesthetic features from public vantage points, including areas designated as official scenic vistas along roadway corridors or otherwise designated by local jurisdictions. The project area is within the City of Mission Viejo and according to the City of Mission Viejo Open Space and Conservation Element there are no scenic vistas in the immediate area of the project site. Additionally, the project site does not provide any views of any City-designated scenic vistas. No impact to scenic vistas would occur (Mission Viejo General Plan 2013a).

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. A scenic highway is officially designated as a State Scenic Highway when a local jurisdiction adopts a scenic corridor protection program, applies to the California Department of Transportation (Caltrans) for scenic highway approval, and receives notification from Caltrans that the highway has been designated as an official Scenic Highway. Based on a review of the Caltrans State Scenic Highway System Map Database, the project area is not located along an officially Designated State Scenic Highway (Caltrans 2021). The nearest eligible state scenic highway is State Route (SR) 74, the Ortega Highway which is located approximately 6 miles southeast of the project area. Therefore, the proposed project would not substantially damage scenic resources such as trees, rock outcroppings, or historic buildings within a state scenic highway.

Furthermore, the project area is not officially designated as a scenic vista in the County of Orange Scenic Highway Plan (County of Orange 2005a). The nearest County designated highway is Oso Parkway approximately a mile south of the site (Mission Viejo General Plan 2013a). La Paz Road is identified as a Landscape Corridor in the Orange County Scenic Highway Plan. However, the project site is not visible from La Paz Road due to the topography and mature vegetation. As a result, no impact would occur to scenic highways.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less than Significant Impact. Visual character of a project site and its immediate surroundings is defined by existing land uses and the associated natural or built environment, including vegetation, landforms, and structural features. The project would include the demolition of the existing Oso Creek WRP and office building and the construction of a technologically advanced WRP and office building in the same general footprint. While the project site is not visible from local roadways, the project site would potentially be visible from private vantage points located east of the site (e.g. residential community). Construction activities associated with the proposed WRP and office building would not potentially impact the visual character and quality of the project area, because construction would be short-term and views of the site from the surrounding areas are screened by topography and mature landscaping. Further, the project would not conflict with the zoning as the project is the same use as what is currently zoned (e.g. Community Facility). As a result, impacts would be less than significant.

The proposed new WRP would include permanent above-ground structures within the project area. As described previously, the WRP will be constructed within the generally same footprint as the existing WRP and would be screened by existing topography and landscape. Once constructed, the new WRP and office building would be of similar size and mass as the current WRP. Therefore, the visual character and quality of the project area would not be degraded, nor would the project conflict with applicable zoning or other regulations governing scenic quality. Impacts would be less than significant.

d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?

Less than Significant Impact. There are two primary sources of light: light emanating from building interiors that pass through windows and light from exterior sources (e.g., street lighting, parking lot lighting, building illumination, security lighting, and landscape lighting). Depending upon the location of the light source and its proximity to adjacent light-sensitive uses, light introduction can be a nuisance, affecting adjacent areas and diminishing the view of the clear night sky. Light spillage is typically defined as unwanted illumination from light fixtures on adjacent properties.

Existing light and glare sources within the project area include exterior lighting, glass and building materials of the existing WRP, adjacent strip mall and residential development to the east. Additionally, local roadways contain cars and streetlights that emit light and glare during the day and night. The presence of construction equipment would not introduce new permanent lighting or glare to the project area. No nighttime lighting would be required for construction; therefore, light and glare impacts due to project construction would not occur. Once constructed, the proposed WRP and office building would not result in any additional impacts to light or glare. The facility would be similar to the current conditions. The aboveground portions of the proposed project facilities would not have highly reflective surfaces, and would not include large areas of glass on structures/buildings; therefore, the proposed project would have less than significant impacts regarding glare.

The proposed treatment facilities would be located within SMWD property within the current WRP's general footprint, which currently contains lighting within the interior and exterior of existing structures. Implementation of the proposed project could result in new exterior nighttime lighting for operational and security purposes within the proposed project. However, the outdoor facility lighting would be similar to the lighting at the current facility and would be confined to the immediate area and would not be directed into adjacent areas or create light beams into the night sky. Onsite security lighting would not spill off of SMWD property and would not be visible by the residential area southeast of the project site due to the existing topography and landscaping. Therefore, impacts would be less than significant.

References

California Department of Transportation (Caltrans), 2021. California State Scenic Highway System Map. Available online at: https://www.arcgis.com/apps/webappviewer/index.html?id=2e921695c43643b1aaf7000dfcc19983, accessed June 2021.

City of Mission Viejo General Plan 2013, Circulation Element Available online at: https://cityofmissionviejo.org/sites/default/files/Circulation%20Element%202013%2C%20Converted%2C%20Final.pdf, accessed June 2021

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County of Orange, 2005a. Scenic Highway Plan. Available online at: https://www.ocgov.com/civicax/filebank/blobdload.aspx?blobid=8588¸accessed October 2020.

County of Orange, 2005b. County of Orange General Plan, Resources Element. Available online at: https://www.ocgov.com/civicax/filebank/blobdload.aspx?blobid=40235, accessed June 2021.

3.2 Agricultural and Forest Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*
2. AGRICULTURAL AND FOREST RESOURCES — In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.				
Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Environmental Evaluation

Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact. Prime Farmland is land which has the best combination of physical and chemical features able to sustain long-term agricultural production. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Prime Farmland must have been used for irrigated agricultural production at some time during the four years prior to the mapping date. Farmland of Statewide Importance is similar to Prime Farmland but with minor shortcomings such as greater slopes or less ability to store soil moisture (CDC 2020a). Unique Farmland consists of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards (CDC 2020b).

The California Department of Conservation (CDC) Farmland Map for Orange County identified the project area as "Urban and Built-up". Urban and Built-up land is occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. Common examples include residential, industrial, commercial, institutional facilities, and water control structures. Further, there is no Prime Farmland, Unique Farmland, or Farmland of Statewide Importance located within the project site (CDC 2020c). The project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use; therefore, no impact would occur.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. A Williamson Act Contract requires private landowners to voluntarily restrict their land to agriculture and compatible open-space uses. The project area does not include land enrolled in a Williamson Act Contract (CDC 2017). The project area is currently zoned as Community Facility and contains the Oso Creek WRP. Therefore, the proposed project would not conflict with any Agricultural zoning designation. No impact would occur.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No Impact. The proposed project would not conflict with existing zoning of forest land or cause rezoning of forest land, timberland, or timberland zoned for Timberland Production. The project area is currently zoned as Community Facility. The project does not involve any changes to current General Plan land use or zoning designations for forest land, or timberland. Additionally, there are no timberland zoned production areas within the project area or immediate surrounding area. Therefore, no impact to forest land or timberland would occur.

d) Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. The project area and surrounding areas contain no forest land. As a result, implementation of the proposed project would result in no impacts related to the loss or conversion of forest land to non-forest use.

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

No Impact. Refer to Section 3.2, *Agricultural and Forest Resources*, Issue 3.2 a) through d) above. The project area includes the existing WRP owned and operated by SMWD. No other adverse impacts to the existing environment would occur from implementation of the proposed project that could result in conversion of farmland to nonagricultural use or forest land to non-forest use. No impact would occur.

References

California Department of Conservation (CDC), 2017. The Williamson Act Status Report, 2016-2017. Available online at: https://www.conservation.ca.gov/dlrp/wa/Documents/stats_reports/2018%20WA%20Status%20Report.pdf, accessed June 2021.

CDC, 2020a. Farmland Mapping and Monitoring Program. Available online at: https://www.conservation.ca.gov/dlrp/fmmp, accessed June 2021.

CDC, 2020b. Important Farmland Categories. Available online at: https://www.conservation.ca.gov/dlrp/fmmp/Pages/Important-Farmland-Categories.aspx, accessed June 2021.

CDC, 2020c. California Important Farmland Finder. Available online at: https://maps.conservation.ca.gov/DLRP/CIFF/, accessed June 2021.

County of Orange, 2015. Orange County General Plan, Land Use Element. Available online at: https://www.ocgov.com/civicax/filebank/blobdload.aspx?blobid=55705, accessed June 2021.

3.3 Air Quality

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
3. AIR QUALITY — Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.				
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Discussion

Would the project:

a) **Conflict with or obstruct implementation of the applicable air quality plan?**

Less than Significant Impact. The project site is located within the South Coast Air Basin (Air Basin). Air quality planning for the Air Basin is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The proposed project would be subject to the SCAQMD's Air Quality Management Plan (AQMP), which contains a comprehensive list of pollution control strategies directed at reducing emissions and achieving ambient air quality standards. These strategies are developed, in part, based on regional population, housing, and employment projections prepared by the Southern California Association of Governments (SCAG).

The 2016 AQMP was prepared to accommodate growth, reduce the high levels of pollutants within the areas under the jurisdiction of SCAQMD, return clean air to the region, and minimize the impact on the economy (SCAQMD, 2016). In accordance with the SCAQMD's CEQA Air Quality Handbook, the following criteria were used to evaluate the project's consistency with the SCAQMD's 2016 AQMP and the City's General Plan Air Quality Element:

- Criterion 1: Will the project result in any of the following:
  - An increase in the frequency or severity of existing air quality violations; or
  - Cause or contribute to new air quality violations; or
  - Delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.
- Criterion 2: Will the project exceed the assumptions utilized in preparing the AQMP?

Projects that are consistent with the assumptions used in the AQMP do not interfere with attainment because the growth is included in the projections utilized in the formulation of the AQMP. Thus, projects, uses, and activities that are consistent with the applicable growth projections and control strategies used in the development of the AQMP would not jeopardize attainment of the air quality levels identified in the AQMP, even if it would individually exceed the SCAQMD's numeric indicators.

Criterion 1

With respect to the first criterion, as discussed under the analysis for Threshold (c) below, localized concentrations of nitrogen dioxide (NO_2) as nitrogen oxides (NO_X), carbon monoxide (CO), respirable particulate matter (PM10), and fine particulate matter (PM2.5) have been analyzed for the project. Sulfur dioxide (SO_2) emissions would be negligible during construction and long-term operations and, therefore, would not have the potential to cause or effect a violation of the SO_2 ambient air quality standard. Since volatile organic compounds (VOCs) are not criteria pollutants, there are no ambient air quality standards or localized significance threshold for VOCs. However, due to the role VOCs play in ozone (O_3) formation, they are classified as precursor pollutants, and only a regional emissions threshold has been established for VOCs and is evaluated in Threshold (b) below.

The project's NO_X, CO, PM10, and PM2.5 emissions during construction and operations were analyzed: (1) to ascertain potential effects on localized concentrations; and (2) to determine if there is a potential for such emissions to cause or effect a violation of the ambient air quality standards for NO_2, CO, PM10, and PM2.5. As discussed in Threshold (c) below, construction and operation of the project would not exceed the SCAQMD-recommended localized significance thresholds at sensitive receptors in proximity to the project site. Because the project would be a replacement of similar size to the existing WRP, implementation of the project would not substantially increase emissions from stationary sources. As discussed in Section 3.17 *Transportation*, the Project is not anticipated to generate any new operational trips per day beyond what occurs currently and impacts with respect to VMT would be less than significant. Therefore, as indicated below in Threshold (c), no intersections would result in a CO hotspot in excess of the ambient air quality standards, and impacts to CO would be less than significant. Therefore, the project would not increase the frequency or severity of an existing CO violation or cause or contribute to new CO violations. Thus, the project would not conflict with Criterion 1.

Criterion 2

Construction

Under this criterion, the SCAQMD recommends that lead agencies demonstrate that a project would not directly obstruct implementation of an applicable air quality plan and that a project be consistent with the assumptions (typically land-use related) upon which the air quality plan is based. The proposed project would generate short-term construction jobs; however, these jobs would not necessarily bring new construction workers or their families into the region since construction workers are typically drawn from an existing regional pool of construction workers who travel among construction sites within the region as individual projects are completed, and are not typically brought from other regions to work on urban infill developments such as the

project. Moreover, these jobs would be temporary in nature lasting the duration of construction, which is anticipated to be approximately 18 months. Thus, the project's construction jobs would not conflict with the long-term employment or population projections upon which the 2016 AQMP is based. Therefore, the project would not conflict with the long-term employment projections upon which the AQMP is based. Control strategies in the current 2016 AQMP, potentially applicable to control temporary emissions from construction activities, include strategies denoted in the 2016 AQMP as MOB-08 and MOB-10,[1] which are intended to reduce emissions from on-road and off-road heavy-duty vehicles and equipment by accelerating the replacement of older, emissions-prone engines with newer engines that meet more stringent emission standards. Additionally, the proposed project would comply with CARB requirements to minimize short-term emissions from on-road and off-road diesel equipment. The proposed project would be required to utilize construction contractors in compliance with State on-road and off-road rules, including CARB's Air Toxics Control Measure (ATCM) that limits heavy-duty diesel motor vehicle idling to no more than 5 minutes at any location (Title 13 CCR, Section 2485), the Truck and Bus regulation that reduces NO_X, PM10, and PM2.5 emissions from existing diesel vehicles operating in California (13 CCR, Section 2025), and the In-Use Off-Road Diesel Fueled Fleets regulation that reduces emissions by the installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission controlled models (13 CCR, Section 2449). Under the In-Use Off-Road Diesel Vehicle Regulation, construction equipment fleet operators are required to replace higher emitting models with lower emitting models based on a phased-in schedule with full compliance by 2023 for large and medium fleets (construction equipment fleet operators with greater than 5,000 total equipment horsepower or with 2,501 to 5,000 horsepower, respectively) and by 2028 for small fleets (construction equipment fleet operators with 2,500 or less total equipment horsepower).

The proposed project would also comply with SCAQMD regulations for controlling fugitive dust pursuant to SCAQMD Rule 403, for example, apply water spray/mists or similar suppressant (e.g., SoilSeal) at least 3 times per day on active areas of disturbance and unpaved roads, and limit truck speed to 15 miles per hour or less on unpaved roads to minimize dust on unpaved roads at the construction site. The proposed project would also comply with SCAQMD regulations to comply with Rule 1113 for controlling VOC emissions.

Compliance with these requirements is consistent with and meets or exceeds the AQMP requirements for control strategies intended to reduce emissions from construction equipment and activities. Because the project would not conflict with the control strategies intended to reduce emissions from construction equipment, the project would not conflict with or obstruct implementation of the AQMP, and impacts would be less than significant.

[1] SCAQMD, 2016 AQMP, March 2017. 2016 AQMP measure MOB-08 applies to on-road mobile sources and is the accelerated retirement of older on-road heavy-duty vehicles to reduce emissions of NO_X and particulate matter. AQMP measure MOB-10 applies to off-road mobile sources and is the extension of the Surplus Off-Road Opt-In for NO_X (SOON) provision for construction/industrial equipment to encourage the accelerated retirement of older off-road heavy-duty equipment to reduce emissions of NO_X.

Operation

The 2016 AQMP was prepared to accommodate growth, reduce the levels of pollutants within the areas under the jurisdiction of the SCAQMD, return clean air to the region, and minimize the impact on the economy. Projects that are considered consistent with the AQMP would not interfere with attainment because this growth is included in the projections used in the formulation of the AQMP. The proposed project represents an infrastructure project that would have no effect on long-term population and employment growth. The proposed project does not include residential development and its implementation is not forecasted to induce any additional growth within SMWD. The project would not require nor generate unanticipated employment growth as it would be a replacement project with no need for additional employees beyond those currently working at the existing facility. Therefore, the proposed project would not conflict with growth projections in the AQMP. As the project would not conflict with the growth projections in the AQMP, impacts would be less than significant.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Less than Significant Impact. A significant impact may occur if a project were to make a cumulatively considerable contribution of a Federal or State criteria pollutant for which the Air Basin is currently in non-attainment. The Air Basin is currently in non-attainment for O_3 (Federal and State standards), PM10 (State standards only), and PM2.5 (federal and State standards).[2] The project would contribute to local and regional air pollutant emissions during construction (short-term or temporary). However, based on the following analysis, construction and operation of the proposed project would result in less than significant impacts relative to the daily significance thresholds for criteria air pollutant emissions established by the SCAQMD for construction and operational phases.

Daily regional construction and operational source project criteria pollutant emissions (VOC, NO_X, CO, SO_2, PM10, and PM2.5) were estimated using the CalEEMod (Version 2020.4.0) software, an emissions inventory software program recommended by SCAQMD. CalEEMod is based on outputs from the OFFROAD model and EMission FACtor (EMFAC) model, which are emissions estimation models developed by CARB and used to calculate emissions from construction activities, heavy-duty off-road equipment, and on-road vehicles. Activities parameters, such as number of pieces of equipment and equipment usage hours were run as CalEEMod defaults and informed by the equipment listed in Section 1.6.

Construction

Construction activities associated with the proposed project would generate temporary and short-term emissions of VOC, NO_X, CO, SO_2, PM10, and PM2.5. Construction related emissions are

[2] The Los Angeles County portion of the Air Basin is designated as nonattainment for the federal lead standard; however, this was due to localized emissions from two lead-acid battery recycling facilities in the City of Vernon and the City of Industry that are no longer operating. For reference see South Coast Air Quality Management District, Board Meeting, Agenda No. 30, Adopt the 2012 Lead State Implementation Plan for Los Angeles County, May 4, 2012. The proposed Project does not include sources of lead emissions.

expected from demolition, site preparation, grading/excavation, building construction, paving, and architectural coating activities. Project construction is expected to commence in October 2021 and would last through March 2023. If project construction commences later than the anticipated start date, air quality impacts would be less than those analyzed herein, because a more energy-efficient and cleaner burning construction equipment fleet mix would be expected in the future, pursuant to State regulations that require construction equipment fleet operators to phase-in less polluting heavy-duty equipment. Therefore, air quality impacts would generally be less than those analyzed herein due to the likelihood of less emissions generated in a day.

The duration of construction activity and associated equipment represents a reasonable approximation of the expected construction fleet as required per CEQA guidelines. Site specific construction fleet may vary due to specific project needs at the time of construction. The duration of construction activity and associated construction equipment was estimated based on CalEEMod defaults and consultation with the project applicant. A detailed summary of construction equipment assumptions by phase is provided in the modeling files in Appendix A.

The estimated unmitigated maximum daily construction emissions are summarized on **Table 3.3-1**. Under the maximum evaluated scenario, emissions resulting from the project construction would not exceed any criteria pollutant threshold established by the SCAQMD. As emissions would be well below the significance thresholds, and the project would comply with applicable air quality control regulations, including SCAQMD Rule 403 for controlling fugitive dust, impacts would be less than significant.

TABLE 3.3-1
UNMITIGATED MAXIMUM REGIONAL CONSTRUCTION EMISSIONS (POUNDS PER DAY) [a]

Source	VOC	NO_X	CO	SO_2	PM10[b]	PM2.5[b]
Demolition - 2021	3	33	24	<1	2	2
Site Preparation - 2021	4	41	23	<1	10	6
Grading - 2021	2	33	22	<1	5	3
Grading - 2022	2	28	21	<1	5	2
Building Construction - 2022	2	17	19	<1	1	1
Building Construction - 2023	2	16	18	<1	1	1
Paving - 2023	1	9	14	<1	1	1
Maximum Daily Emissions	**13**	**41**	**24**	**<1**	**10**	**6**
SCAQMD Numeric Indicators	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Thresholds?	No	No	No	No	No	No

[a] Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in Appendix A.
[b] Emissions include fugitive dust control measures consistent with SCAQMD Rule 403 and Rule 1113.

SOURCE: ESA, 2021.

Operations

The proposed project is a replacement infrastructure project that involves the construction of a new technologically advanced WRP that is able to treat 3.3 MGD, a 1.0 MGD Oso Barrier Urban Return Water Treatment Plant (URWTP) advanced water treatment facility, replacement offices, warehousing space and parking. As such, operation of the project is anticipated to be similar to the existing facility and therefore would not result in a substantial increase in operational emissions. The proposed project would require a similar number of employees and would require periodic maintenance activities which would involve a few trucks or vehicles per month, similar to existing conditions. Mobile emissions from the few vehicles for periodic maintenance would result in minimal emissions well below the SCAQMD operational thresholds. Overall, given the sporadic usage of maintenance vehicles, project operational-source emissions would not exceed applicable SCAQMD regional thresholds of significance. As such, operation of the project would result in a less than significant impact.

The Air Basin is currently in extreme non-attainment for the O_3 and PM2.5 NAAQS and CAAQS and non-attainment for the PM10 CAAQS.[3] A significant impact may occur if a project were to add a cumulatively considerable contribution of a federal or State non-attainment pollutant. Because the Air Basin is currently in nonattainment for O_3, PM10 and PM2.5, related projects could cause ambient concentrations to exceed an air quality standard or contribute to an existing or projected air quality exceedance. Cumulative impacts to air quality are evaluated under two sets of thresholds for CEQA and the SCAQMD. In particular, CEQA Guidelines Sections 15064(h)(3) provides guidance in determining the significance of cumulative impacts. Specifically, Section 15064(h)(3) states in part that:

> *"A lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program which provides specific requirements that will avoid or substantially lessen the cumulative problem (e.g., water quality control plan, air quality plan, integrated waste management plan) within the geographic area in which the project is located. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency…"*

For purposes of the cumulative air quality analysis with respect to CEQA Guidelines Section 15064(h)(3), the project's incremental contribution to cumulative air quality impacts is determined based on compliance with the SCAQMD adopted AQMP. The AQMP includes demographic growth forecasts for various socioeconomic categories (e.g. population, housing, employment), developed by SCAG for their Regional Transportation Plan (RTP). As discussed under Section 3.3(a) above, the project would be consistent with the AQMP.

[3] The Los Angeles County portion of the SCAB is also non-attainment for the lead NAAQS; however, this was due to lead emissions from a battery recycling facility that is no longer in operation. The project would not result in lead emissions to the environment; therefore, lead impacts from the project would not occur.

As the proposed project is not part of an ongoing regulatory program, the SCAQMD also recommends that project-specific air quality impacts be used to determine the potential cumulative impacts to regional air quality. By applying SCAQMD's cumulative air quality impact methodology, even though implementation of the project would result in an addition of criteria pollutants, in conjunction with related projects in the region, cumulatively significant impacts would not occur. Therefore, the emissions of non-attainment pollutants and precursors generated by the project would be less than significant and would not result in a cumulatively considerable air quality impact.

c) **Expose sensitive receptors to substantial pollutant concentrations?**

Less than Significant Impact. Certain population groups are especially sensitive to air pollution and should be given special consideration when evaluating potential air quality impacts. These population groups include children, the elderly, persons with pre-existing respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. As defined in the SCAQMD CEQA Air Quality Handbook, a sensitive receptor to air quality is defined as any of the following land use categories: (1) long-term health care facilities; (2) rehabilitation centers; (3) convalescent centers; (4) retirement homes; (5) residences; (6) schools; (7) parks and playgrounds; (8) child care centers; and (9) athletic fields. Sensitive receptors within a quarter-mile radius of the project boundary include residences to the east and south of the project site. The residential uses are located approximately 300 feet away from the project site.

The localized air quality analysis was conducted using the methodology described in the SCAQMD *Localized Significance Threshold Methodology* (SCAQMD, June 2003, revised July 2008), which relies on on-site mass emission rate screening tables and project-specific dispersion modeling typically for sites greater than five acres, as appropriate (SCAQMD, 2008). The localized significance thresholds are applicable to NO_X, CO, PM10, and PM2.5. For NO_X and CO, the thresholds are based on the ambient air quality standards. For PM10 and PM2.5, the thresholds are based on requirements in SCAQMD Rule 403 (Fugitive Dust) for construction and Rule 1303 (New Source Review Requirements) for operations. The SCAQMD has established screening criteria that can be used to determine the maximum allowable daily emissions that would satisfy the localized significance thresholds and therefore not cause or contribute to an exceedance of the applicable ambient air quality standards without project-specific dispersion modeling. The screening criteria depend on: (1) the area in which the project is located, (2) the size of the project area, and (3) the distance between the project area and the nearest sensitive receptor.

SCAQMD's Methodology clearly states that "off-site mobile emissions from the project should not be included in the emissions compared to LSTs." Therefore, for purposes of the LST analysis, only emissions included in the CalEEMod "on-site" emissions outputs were considered. The closest existing sensitive receptors to the project are located approximately 300 feet or 90 meters from the project site. The localized significance threshold (LST) used for the localized significance impact analysis were calculated by linearly extrapolating a three-acre site in the Saddleback Valley Area with sensitive receptors located 90 meters away from the project site.

Construction

Table 3.3-2 identifies the localized impacts at the nearest receptor location in the vicinity of the project area. The localized emissions during construction activity would not exceed SCAQMD's localized significance thresholds. As emissions would be well below the significance thresholds, and the project would comply with applicable air quality control regulations, including SCAQMD Rule 403 for controlling fugitive dust, impacts would be less than significant.

Operations

According to SCAQMD LST methodology, LSTs would apply to the operational phase of a proposed project if the project includes stationary sources or attracts mobile sources that may queue and idle at the site (e.g., warehouse or transfer facilities). With regard to on-site sources of emissions, the proposed project would use similar stationary equipment (e.g. pumps and generators) to the existing facility and therefore not cause a substantial increase to existing stationary source emissions. The number of employees working at the WRP would be similar to the existing facility and a minimal number of delivery trucks would be required. Overall, given the small scale and sporadic usage of maintenance vehicles, localized project operational-source emissions would not exceed applicable SCAQMD localized thresholds of significance and operational impacts would be less than significant.

TABLE 3.3-2
UNMITIGATED MAXIMUM LOCALIZED CONSTRUCTION EMISSIONS (POUNDS PER DAY) [a]

Source	NO_X	CO	PM10 [b]	PM2.5 [b]
3.2 Demolition - 2021	31	22	1.9	1.5
3.3 Site Preparation - 2021	40	21	9.7	5.8
3.4 Grading - 2021	25	16	3.9	2.4
3.4 Grading - 2022	21	15	3.7	2.2
3.5 Building Construction - 2022	16	16	0.8	0.8
3.5 Building Construction - 2023	14	16	0.7	0.7
3.6 Paving - 2023	9	12	0.4	0.4
3.7 Architectural Coating - 2023	1	2	0.1	0.1
Maximum Localized (On-Site) Emissions	40.5	21.6	9.7	5.8
SCAQMD Screening Numeric Indicator [c]	157	1,945	34	11
Exceed Screening Numeric Indicator?	No	No	No	No

[a] Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in Appendix A.
[b] Emissions include fugitive dust control measures consistent with SCAQMD Rule 403.
[c] The SCAQMD LSTs are based on Source Receptor Area 19 (Saddleback Valley Area) and extrapolated for a 3-acre site with sensitive receptors located approximately 300 feet (or 90 meters) away from the project site.

SOURCE: ESA, 2021.

Carbon Monoxide Hotspot

A carbon monoxide (CO) hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. Projects may worsen air quality if they increase the percentage of vehicles in cold start modes by two percent or more; significantly increase traffic volumes (by five percent or more) over existing volumes.

CO decreased dramatically in the Air Basin with the introduction of the automobile catalytic converter in 1975. No exceedances of CO have been recorded at monitoring stations in the Air Basin in recent years and the Air Basin is currently designated as a CO attainment area for both the CAAQS and NAAQS. As discussed below, it is not expected that CO levels at project-impacted intersections would rise to such a degree as to cause an exceedance of these standards.

Construction

Project construction would result in limited worker, vendor, and haul vehicle trips, which would all be short-term and temporary. Therefore, the project would not result in CO hotspots.

Operation

The proposed project is a replacement infrastructure project that involves the construction of a new technologically advanced WRP that is able to treat 3.3 MGD, a 1.0 MGD Oso Barrier Urban Return Water Treatment Plant (URWTP) advanced water treatment facility, replacement offices, warehousing space and parking. Operation of the proposed project would be similar to current operations and generate minimal emissions due to the occasional maintenance of the project and similar stationary source equipment (e.g. pumps and generators). Additionally, it would not accommodate or result in added trips from motor vehicles. Therefore, project operations related to CO hotspots would be less than significant.

Toxic Air Contaminants

Concentrations of toxic air contaminants (TACs) are also used as indicators of ambient air quality conditions. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

Construction

Construction activities associated with the project would result in temporary and short-term emissions of diesel particulate matter, which the State has identified as a TAC. During construction, the exhaust of off-road heavy-duty diesel equipment would emit diesel particulate matter during general construction activities, such as site preparation excavation, and asphalt paving.

Diesel particulate matter poses a carcinogenic health risk that is generally measured using an exposure period of 30 years for sensitive residential receptors, according to the California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA) *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA Guidance), which was updated in 2015 with new exposure parameters including age sensitivity factors (OEHHA 2015). Sensitive receptors are located approximately 300 feet from the project site.

A health risk analysis was conducted in accordance with OEHHA and SCAQMD methodology to determine the potential impacts of construction related diesel particulate matter emissions on the nearby sensitive receptors. Modeling assigns risk to all sensitive receptors within 1,000 feet of the

project site. Project health risk results at the maximum receptor are shown in **Table 3.3-3**. As shown, the unmitigated emissions do not exceed regulatory thresholds of 10 in one million for cancer risk and 1.0 for hazard index. The risk shown in Table 3.3-3 is the maximum risk for the construction of the project at the most impacted receptor. The risk at all other receptors would be lower than at the receptor reported in Table 3.3-3. Therefore, as the maximum health risk and hazard index from the construction of the project is below regulatory thresholds, the impacts from TAC emissions associated with construction activities are less than significant.

TABLE 3.3-3
UNMITIGATED HEALTH RISK

Source	Cancer Risk	Hazard Index
Project Maximum Receptor	**1.56**	**0.004**
Threshold:	**10**	**1**
Exceed Threshold?	No	No

SOURCE: ESA 2021

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less than Significant Impacts. Potential activities that may emit odors during construction activities include the application of asphalt and the combustion of diesel fuel in on- and off-road equipment. SCAQMD Rule 1113 would limit the amount of VOCs in architectural coatings and solvents. In addition, the project would comply with the applicable provisions of the CARB Air Toxics Control Measure regarding idling limitations for diesel trucks. Further, construction odor emissions would be temporary, short-term, and intermittent in nature and would cease upon completion of construction. Through adherence with mandatory compliance with SCAQMD Rules, no construction activities or materials are expected to create objectionable odors affecting a substantial number of people. In addition, as discussed above in Thresholds (b) and (c), construction and operational emissions would not exceed the SCAQMD regional or localized significance thresholds for attainment, maintenance, or unclassifiable criteria air pollutants (i.e., CO and SO_2).

In regards to operations, since the proposed project is a publicly owned treatment works operation (POTW), it would be required to comply with SCAQMD Rule 1179. Additionally, the odor scrubber would reduce operational emissions. Through adherence with mandatory compliance under Rule 1179 and the odor scrubber, operational activities are not expected to create objectionable odors affecting a substantial number of people. Therefore, the proposed project would result in less than significant impacts with regards to odors and other emissions.

References

California Environmental Protection Agency, Office of Health Hazard Assessment, 2015. Air Toxics Hot Spots Program, Guidance Manual for Preparation of Health Risk Assessments. February 2015.

South Coast Air Quality Management District (SCAQMD), 1993. CEQA Air Quality Handbook. November 1993.

South Coast Air Quality Management District (SCAQMD), 2008. Final Localized Significance Threshold Methodology. June 2003, Revised July 2008.

South Coast Air Quality Management District (SCAQMD), 2017. Final 2016 Air Quality Management Plan. March 2017.

3.4 Biological Resources

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

Discussion

A records review and biological resources survey was completed for the proposed project to determine the presence or potential presence of special-status species within the proposed project survey area. The results are documented in the Biological Resources Memorandum (Appendix B). The biological survey of the proposed project survey area was conducted on April 27, 2021

Environmental Evaluation

Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less than Significant Impact with Mitigation Incorporated.

Special Status Plant Species: There are no special-status plants and no native plant communities within the maximum work area limits of the proposed project. Various special-status plants have

been historically recorded in the region (though none were reported to occur in habitats found in the Biological Study Area (BSA) any closer than 2 or 3 miles), and five special-status plant species were considered to have a low to moderate potential to occur within natural areas in the BSA. However, none of the plant species considered have a potential to occur in areas affected by the proposed project. The area within the work area limits is already completely developed or landscaped, except a very small patch of entirely ruderal (weedy) vegetation on the east side of the existing facility where a parking lot is proposed to be placed. The weedy patch area is either on very compacted soils or is too densely vegetated by exotic mustard for any of the special status plants considered to occur.

Therefore, no impact related to a substantial adverse effect on any plant species identified as candidate, sensitive, or special-status in local or regional plans, policies, or regulations by CDFW or USFWS would occur as a result of the Proposed Project. No mitigation for special status plants is needed.

Special Status Wildlife Species: The study area does not occur in or near any designated Critical Habitat for any federally-listed species. Furthermore, the proposed project occurs within the footprint of the existing Oso Creek WRP (and within a very small patch of adjacent ruderal habitat) and will not directly impact any potentially suitable habitat for special status wildlife. However, the proposed project will be implemented in an area that lies between Coastal Sage Scrub (CSS) habitat, adjacent to the east side of the project site, and willow riparian scrub habitat, in Oso Creek adjacent to the west side of the project site. The federally-listed Threatened coastal California gnatcatcher has not been observed or reported, but has a low to moderate potential to occur in CSS habitat on the east side of the project site. The State and federally-listed Endangered least Bell's vireo also has a low to moderate potential to occur in the riparian habitat in Oso Creek to the west of the project site. Although the proposed project will not result in a direct loss of any potentially suitable habitat for special status species, if any breeding pairs of gnatcatcher or vireo happen to nest in the project vicinity, project-related demolition or construction could indirectly affect nesting activity and adversely affect individual birds, if present. Such adverse effects would be potentially significant since these species are protected under both Federal Endangered Species Act (FESA) and California Endangered Species Act (CESA).

In addition, the same demolition and construction activities that could affect either of the two listed species, if present, could also adversely affect other birds during the nesting season. However, Mitigation Measure BIO-1 is provided to avoid or minimize potential impacts on nesting birds by providing pre-construction surveys of suitable habitat 7 day prior to construction activities. Therefore, impacts to nesting birds would be less than significant with the implementation of Mitigation Measure BIO-1.

Mitigation Measure

> **Mitigation Measure BIO-1**: Impacts to nesting birds would be avoided by conducting all construction activities outside of the bird nesting season (i.e., from September 1 to February 14 for most birds, from July 1 to January 14 for raptors). However, if construction activities must occur during the nesting season, the following measures shall apply during the time frames indicated:

A. Prior to work during the bird nesting season (February 15 to August 31 for most birds, January 15 to June 31 for raptors), a qualified biologist shall conduct a pre-construction survey of all suitable habitat for the presence of nesting birds no more than 7 days prior to construction activities. The results of the pre-construction survey shall be valid for 7 days; if vegetation removal activities do not commence within 7 days following the survey or if activities cease for more than 7 consecutive days, a new pre-construction nesting bird survey shall be conducted before construction resumes.

B. If any active nests are found during a pre-construction nesting bird survey, a buffer of up to 300 feet for most bird species and 500 feet for raptors, or as determined appropriate by the qualified biologist (based on species-specific tolerances and site-specific conditions), shall be delineated, flagged, and avoided until the nesting cycle is complete (i.e., the qualified biologist determines that the young have fledged or the nest has failed). The qualified biologist may also recommend other measures to minimize disturbances to active nests that may include but are not limited to limiting the duration of certain activities, placing sound barriers (e.g., noise blankets on temporary chain-link fencing), or visual barriers (e.g., straw bales), and/or providing full-time monitoring by a qualified biologist.

C. As a provisional additional mitigation element, in case surveys identify California gnatcatcher or least Bell's vireo in habitat within 500 feet of the limits of construction, such occurrence shall be documented and both USFWS and CDFW shall be notified. Although it is considered somewhat unlikely that either of these species may nest in the vicinity (due to low habitat quality, proximity to urban land use, and relative isolation from larger natural areas), if an active coastal California gnatcatcher or least Bell's vireo nest is encountered, a minimum buffer of 500 feet shall be delineated, flagged, and avoided by construction activity until the nesting cycle is complete (i.e., the qualified biologist determines that the young have fledged or the nest has failed). A qualified biologist may recommend other measures as noted in Item B, above. However, USFWS and CDFW will be consulted prior to any reduction of avoidance buffers or implementation of other measures.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less than Significant Impact with Mitigation. No riparian habitat or sensitive natural communities occur on the project site. Southern willow scrub habitat occurs within Oso Creek just west of the project site and within the BSA. Sensitive CSS habitat occurs on the east side of the project site and also within the BSA. The proposed project will not directly impact any riparian or coastal sage scrub vegetation in these adjacent areas because all planned demolition and construction activities will be contained within the existing limits of the WRP facility except for a very small area proposed to provide additional parking that would displace only ruderal vegetation. Therefore, no impact would occur on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS.

During construction the proposed project could indirectly impact wildlife associated with these habitat areas. Such potential impacts and relevant mitigation requirements are discussed under Item A, above, and Item D, below.

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact. No wetlands or "waters" subject to state or federal regulatory jurisdiction, such as waters of the United States, pursuant to Clean Water Act (CWA) Section 404, or streams or lakes, pursuant to California Fish and Game Code Section 1600 et al., occur on the project site. The project site does not contain any resources that would be regulated under the CWA or California Fish and Game Code Section 1600 et al., and there are no potential offsite impacts that would require application of regulations under the CWA or California Fish and Game Code Section 1600. Therefore, no impact would occur with respect to a substantial adverse effect on state or federally protected wetlands (including but not limited to marsh, vernal pool coastal) through direct removal, filling, hydrological interruption, or other means for on-site resources.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less than Significant Impact with Mitigation. Oso Creek, just to the west of the project site, is likely to function as a route for local, urban-adapted wildlife species to move through this part of the City of Mission Viejo, but is not a regionally important or vital wildlife movement corridor. Furthermore, the proposed project would not directly affect this feature, nor would the proposed upgrades of the existing WRP change any conditions that are already present in the vicinity of Oso Creek. The proposed project would occur within the limits of the existing WRP facility and would involve demolition of much of the existing facility and construction of a more efficient and technologically superior WRP. During demolition and construction activities, work would be substantially limited to daytime working hours. Since most of local wildlife movement occurs between dusk and dawn, the work would not usually be expected to affect local wildlife movement. However, if nighttime work occurs and requires bright lighting or if construction noise or lighting is much louder or brighter than under typical conditions experienced during normal plant operations, excessive noise or light could indirectly affect wildlife movement in the immediate vicinity by causing animals to avoid the immediate area. It is not likely such adverse conditions would cause potentially significant impacts as the movement pathway itself is not considered an important or significant resource. Nevertheless, implementation of Mitigation Measure BIO-1 will minimize noise and Mitigation Measure BIO-2 will avoid excessive nighttime lighting effects in Oso Creek and assure that the potential impacts are less than significant with mitigation.

No known or expected native wildlife nursery sites occur in the project vicinity and no such resources would be affected by the proposed project. Therefore, the proposed project would have no impact that would impede the use of native wildlife nursery sites.

However, the project site and study area exhibits riparian scrub, coastal sage scrub, ornamental landscaping with a number of non-native trees, which may be used by various species of nesting birds. Some bird species also nest on existing structures or in construction material and equipment. As discussed above with regard to legal protection for nesting birds, even common native and migratory species and their nests and eggs are protected from unnecessary destruction during breeding.

The California Fish and Game Code (Section 3503) protects the active nests and eggs of all native bird species, except certain game birds, and the federal Migratory Bird Treaty Act (16 USC 703–711) makes it unlawful to take or kill individuals of most native and migratory bird species found in the United States. Therefore, Mitigation Measure BIO-1 would direct compliance with state and federal laws that protect nesting birds by conducting preconstruction surveys and requiring implementation of avoidance measures. Impacts would be less than significant with implementation mitigation with regard to potential adverse effects on nesting birds.

Mitigation Measure

Mitigation Measure BIO-2: During construction, all equipment maintenance, lighting, and staging shall be located in designated areas. All nighttime lighting and security lighting shall be shielded and/or directed downward and away from natural areas outside the project site.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Less than Significant Impact with Mitigation Incorporated. Trees within the project site that are not on property owned by the City of Mission Viejo or within a public right-of-way are not subject to the City's Tree Protection Ordinance. However, several trees occur within the BSA, including small coast live oak (Quercus agrifolia) saplings and several larger blue elderberry specimens, in open space owned by the City of Mission Viejo on the east side of the project site where that open space abuts the project site. The blue elderberry trees are situated along the eastern access road within the limits of the proposed project and one or more overhangs the road and several branches may extend into the project site. To the extent that construction may involve work on this access road and because construction traffic is expected to use it, the proposed project may incur some potential damage to, involving cutting back branches and/or possible destruction or removal of one or more trees on City-owned property directly adjacent to the project site. If such damage may not be avoided, the SMWD may be required to apply for a tree removal permit from the City of Mission Viejo in accordance with Ordinance No. 99-202, § 1, 12-6-99 Sec. 14.30.040. Compliance with the City tree protection ordinance would entirely avoid any conflict with this local ordinance. Mitigation Measure BIO-3 establishes the requirement to conduct a tree survey on City property immediately adjacent to the project site prior to construction to determine which trees, if any, may be damaged during demolition or construction and also requires the SMWD to apply for a permit from the City prior to damage or removal that may result due to project implementation. Therefore, the proposed project would have a less than significant impact with mitigation requiring compliance with the City Ordinance

that involves conducting a trees survey and filing an application for a tree removal permit (or waiver) from the City prior to construction.

Mitigation Measure

Mitigation Measure BIO-3: If required by the City, SMWD shall conduct a tree survey on City property immediately adjacent to the Project Site prior to construction to determine which trees, if any, may be damaged during demolition or construction. The results of the survey, identifying the species, location, size, condition, and potential need for branch cutting, root damage, or complete removal shall be provided to the City forester with an application for a tree removal permit, in accordance with Ordinance No. 99-202, § 1, 12-6-99 Sec. 14.30.040.

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

No Impact. The proposed project is not within the boundaries of, or within an area covered under an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. The project site is within an existing developed area of the City of Mission Viejo and will not directly impact any habitat subject to any conservation planning instruments. Therefore, implementation of the proposed project will have no impact with respect to established conservation plans in the region.

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3.5 Cultural Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*
5. CULTURAL RESOURCES — Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

Environmental Evaluation

Would the Project:

a) **Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?**

Less than Significant Impact with Mitigation Incorporated. An Archaeological Resources Assessment was conducted for the proposed project in July 2021 (ESA, 2020). The assessment included a California Historical Resources Information System – South Central Coastal Information Center (SCCIC) records search conducted on May 24, 2021, Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search conducted on May 3, 2021, tribal outreach, a pedestrian survey conducted on June 16 and 21, 2021, and a subsurface archaeological sensitivity assessment.

The SCCIC records search results indicate that approximately less than 10 percent of the 1-mile records search radius has been included in previous cultural resources assessments. The records search results also indicate that eight cultural resources have been previously recorded within a 1-mile radius of the project site, including seven prehistoric archaeological resources (CA-ORA-461, -462, -463, -464, -465, -470, and -598) and one historic architectural resource (P-30-177523). None of these resources are located within the project site; however, one prehistoric archaeological resource (CA-LAN-465) is located within close proximity.

The NAHC SLF search returned positive results (Green, 2021). The letter did not provide details on the resources identified within the project site, but suggested contacting the Juaneño Band of Mission Indians Acjachemen Nation – Belardes. On June 11, 2021, ESA contacted the Juaneño Band of Mission Indians Acjachemen Nation – Belardes (Tribe) via email at the direction of the District to inquire if the Tribe had any additional information regarding the positive SLF search results, or if the Tribe had knowledge of any cultural resources that may be located within the project site. The email included a project description and maps depicting the project location. On July 2, 2021, ESA followed up via phone and left a voicemail with project information. On July 12, 2021, the Tribe replied via email and recommended that a monitor from the Tribe be retained

during all ground disturbing activities due to the positive SLF results and the numerous prehistoric resources found in the vicinity of the project site.

No cultural resources were encountered within the project site during the pedestrian surveys. The surveys were conducted along landscaped areas, planters, a slope, and an undeveloped area, which appears to be currently used as a laydown yard. The undeveloped area is located to the east of the slope and at a much higher elevation and can be accessed via a paved road. Ground surface visibility was approximately 0 to 5 percent due to vegetation (ornamental bushes/shrubs, mustard grasses, pine, sycamore and manzanita trees), leaf litter, and gravels, which obscured the ground.

The subsurface archaeological sensitivity assessment concluded that there is a moderate to high potential for encountering subsurface archaeological resources within the project site based on the following factors: (1) the project site is underlain by Young Quaternary (Qy) deposits dating from the late Pleistocene to the late Holocene to (11,700 years ago to present), which is contemporaneous with the period for which there is widely accepted evidence for human occupation of Southern California; (2) the project site is located immediately adjacent to Oso Creek, which could have provided a fresh water source to prehistoric inhabitants and could have been capable of supporting seasonal or long-term occupation of the area; (3) that the majority of the project site is topographically flat, which is conducive to longer term occupation; (4) seven prehistoric archaeological sites, located on ridges or knolls, have been recorded within a 1-mile radius of the project site and the SLF search yielded positive results, indicating that Native Americans once inhabited or were active in the area; and (5), past disturbances associated with construction of the existing onsite uses may have disturbed cultural deposits, if they existed, in some areas.

While no known historical resources were identified within the project site, there is a potential for ground disturbance to encounter archaeological resources that could qualify as historical resources as defined in §15064.5. Impacts to such resources could constitute a substantial adverse change in the significant of a historical resource. With implementation of **Mitigation Measures CUL-1 through CUL-4**, which require retention of a qualified archaeologist, construction worker cultural resources sensitivity training, archaeological and tribal monitoring, procedures to follow in the event of the discovery of archaeological resources, treatment of discoveries, and final reporting, impacts to archaeological resources potentially qualifying as historical resources would be less than significant.

Mitigation Measures

Mitigation Measure CUL-1: The District shall retain an archaeologist who meets the Secretary of the Interior's Professional Qualifications Standards for Archaeology (Qualified Archaeologist) to carry out all mitigation related to archaeological resources. Prior to start of ground-disturbing activities, the Qualified Archaeologist or their designee shall conduct cultural resources sensitivity training for all construction personnel. Construction personnel shall be informed of the types of archaeological resources that may be encountered, the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources or human remains, and safety precautions to be taken when working with archaeological monitors. The District shall ensure that

construction personnel are made available for and attend the training and retain documentation demonstrating attendance.

Mitigation Measure CUL-2: Prior to the start of ground disturbance, the District shall retain an archaeological monitor and a tribal monitor. The archaeological monitor shall be familiar with the types of archaeological resources that could be encountered and will work under the direct supervision of the Qualified Archaeologist. The tribal monitor shall be from a tribe that is culturally and geographically affiliated with the project site, as indicated on the Native American Heritage Commission contact list for this project. Monitoring shall be conducted during ground disturbing activities within native undisturbed soils, such as clearing/grubbing, grading, trenching, or any other construction excavation activity associated with the proposed project. Monitoring may be reduced to part-time inspections or ceased entirely if determined appropriate by the Qualified Archaeologist, based on field observations. In the event that archaeological resources are unearthed during ground-disturbing activities, the archaeological and tribal monitors shall be empowered to halt or redirect ground-disturbing activities away from the vicinity of the discovery until it has been evaluated. The archaeological monitor shall keep daily logs detailing the types of activities and soils observed, and any discoveries.

Mitigation Measure CUL-3: In the event of the unanticipated discovery of archaeological materials, the District shall immediately cease all work activities in the area (within approximately 100 feet) of the discovery until it can be evaluated by the Qualified Archaeologist. Construction shall not resume until the Qualified Archaeologist has conferred with the District on the significance of the resource. If it is determined that the discovered archaeological resource constitutes a historical resource or unique archaeological resource pursuant to CEQA, avoidance and preservation in place shall be the preferred manner of mitigation. Preservation in place maintains the important relationship between artifacts and their archaeological context and also serves to avoid conflict with traditional and religious values of groups who may ascribe meaning to the resource. Preservation in place may be accomplished by, but is not limited to, avoidance, incorporating the resource into open space, capping, or deeding the site into a permanent conservation easement. In the event that preservation in place is determined to be infeasible and data recovery through excavation is the only feasible mitigation available, an Archaeological Resources Treatment Plan shall be prepared and implemented by the Qualified Archaeologist that provides for the adequate recovery of the scientifically consequential information contained in the archaeological resource. The District shall consult with appropriate Native American tribal representatives in determining treatment for prehistoric or Native American resources to ensure cultural values ascribed to the resources, beyond those that are scientifically important, are considered. The treatment plan shall include provisions for the final disposition of the recovered resources, which may include onsite reburial, curation at a public, non-profit institution, or donation to a local Native American Tribe, school, or historical society.

Mitigation Measure CUL-4: At the conclusion of archaeological monitoring, the Qualified Archaeologist shall prepare a final monitoring report. The report shall include a summary of monitoring results, description of resources unearthed, if any, significance evaluation and treatment of the resources, and the results of the artifact processing, analysis, and research. Appropriate California Department of Parks and Recreation 523 Forms shall be appended to the report, as necessary. The report shall be submitted to the District to signify the satisfactory completion of the Project and required mitigation

measures. The Qualified Archaeologist shall submit the final report to the South Central Coastal Information Center within 30 days of its acceptance by the District.

b) **Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?**

Less than Significant Impact with Mitigation Incorporated. As noted under impact a), the SCCIC records search and pedestrian survey did not identify archaeological resources within the project site. However, one resource (CA-LAN-465) is located within close proximity to the project site and the NAHC SLF search yielded positive results. Additionally, the archaeological sensitivity assessment concluded that the project site appears to contain a moderate to high potential for yielding buried prehistoric archaeological resources. Should archaeological resources be encountered during ground disturbance, impacts to such resources could constitute a substantial adverse change in the significant of an archaeological resource. With implementation of Mitigation Measures CUL-1 through CUL-4, which require retention of a qualified archaeologist, construction worker cultural resources sensitivity training, archaeological and tribal monitoring, procedures to follow in the event of the discovery of archaeological resources, treatment of discoveries, and final reporting, impacts to archaeological resources would be less than significant.

Mitigation Measures

Implement Mitigation Measures CUL-1 through CUL-4.

c) **Disturb any human remains, including those interred outside of dedicated cemeteries?**

Less than Significant Impact with Mitigation Incorporated. The SCCIC records search results did not identify recorded human remains sites within the project site and no surface human remains were noted on the pedestrian surveys. Should ground disturbance encounter human remains, disturbance of those remains could result in a significant impact. With implementation of **Mitigation Measure CUL-5**, which requires following state laws in the event of a discovery, impacts to human remains would be less than significant.

Mitigation Measure

Mitigation Measure CUL-5: If human remains are encountered, the District shall halt work in the vicinity (within 100 feet) of the discovery and contact the Orange County Coroner in accordance with Public Resources Code Section 5097.98 and Health and Safety Code Section 7050.5, which requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission (NAHC). The NAHC shall then identify the person(s) thought to be the Most Likely Descendent (MLD). The MLD may, with the permission of the landowner, or his or her authorized representative, inspect the site of the discovery of the Native American remains and may recommend to the owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human

remains and any associated grave goods. The MLD shall complete their inspection and make their recommendation within 48 hours of being granted access by the landowner to inspect the discovery. The recommendation may include the scientific removal and nondestructive analysis of human remains and items associated with Native American burials. Upon the discovery of the Native American remains, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred, as prescribed in this mitigation measure, with the MLD regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. The landowner shall discuss and confer with the MLD on all reasonable options regarding their preferences for treatment.

If the NAHC is unable to identify an MLD, or the MLD identified fails to make a recommendation, or the landowner rejects the recommendation of the MLD and the mediation provided for in Subdivision (k) of Section 5097.94, if invoked, fails to provide measures acceptable to the landowner, the landowner or his or her authorized representative shall inter the human remains and items associated with Native American human remains with appropriate dignity on the facility property in a location not subject to further and future subsurface disturbance.

References

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3.6 Energy

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less-Than-Significant Impact	No Impact
6. ENERGY — Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

Environmental Evaluation

Would the project:

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Construction

Less than Significant Impact. Construction of the project would result in energy demand primarily from off-road equipment and on-road vehicle fuel consumption (diesel and gasoline) and secondarily from electricity for conveying water used for dust suppression and for a temporary on-site construction office/trailer. The analysis below includes the proposed project's energy requirements and energy use efficiencies by energy type for each stage of the project.

The estimated fuel usage for off-road equipment is based on the number and type of equipment that would be used during construction activities, hour usage estimates, the total duration of construction activities, and hourly equipment fuel consumption factors from the CARB OFFROAD model, which was used in the proposed project's air quality analysis. On-road vehicles would include trucks to haul material to and from the project site, vendor trucks to deliver supplies necessary for project construction, water trucks for dust control, and fuel used for employee commute trips. The estimated fuel usage for on-road vehicles is based on the number of trucks and employee commute trips that would occur during construction activities and per mile fuel consumption factors from the CARB on-road vehicle emissions factor (EMFAC) model, which was used in the project's air quality analysis. Electricity used for a portable construction office was calculated using energy intensity factors from CalEEMod and electricity from water conveyance for dust control was calculated using assumptions for gallons used per acre per day and CalEEMod water conveyance intensity factors applied to calculate total construction electricity consumption. Construction activities typically do not involve the consumption of natural gas. **Table 3.6-1** summarizes the project's total and yearly energy consumption from construction activities.

TABLE 3.6-1
SUMMARY OF ENERGY CONSUMPTION DURING PROJECT CONSTRUCTION

Fuel Type	Quantity
Gasoline	**gallons**
On-Road Construction Equipment	1,190
Off-Road Construction Equipment	-
Total Gasoline	**1,190**
Diesel	**gallons**
On-Road Construction Equipment	4,755
Off-Road Construction Equipment	48,780
Total Diesel	**53,535**
Electricity	**MWh**
Construction Office	19.1
Water Conveyance for Dust Control	1.6
Total Electricity	**20.7**
Annualized Gasoline Use (gal)	**809**
Annualized Diesel Use (gal)	**36,388**
Annualized Electricity (MWh)	**14.1**

gal = gallons
MWh = megawatt-hours
SOURCE: ESA 2021

As shown in Table 3.6-1, annual average construction electricity usage would be approximately 14.1 megawatt-hours (MWh) and would be within the supply and infrastructure capabilities of San Diego Gas and Electric (SDGE), the electricity provider for the project site, which had a net energy load of 14,899 gigawatt-hours (GWh) in 2020 (SDGE 2020).1 The electricity demand at any given time would vary throughout the construction period based on the construction activities being performed, and would cease upon completion of construction. Electricity use from construction would be short-term, limited to working hours, and used for necessary construction-related activities. When not in use, electric equipment would be powered off so as to avoid unnecessary energy consumption. Furthermore, the electricity used for off-road light construction equipment would have the co-benefit of reducing construction-related air pollutant and GHG emissions from more traditional construction-related energy in the form of diesel fuel. Therefore, impacts from construction electrical demand would be less than significant and would not result in the wasteful, inefficient, and unnecessary consumption of energy

The energy use summary provided above in Table 3.6-1 represents the amount of energy that could potentially be consumed during project construction based on a conservative set of assumptions, provided in **Appendix C** of this Draft IS/MND. As shown, on- and off-road vehicles would consume an estimated annual average of 809 gallons of gasoline and approximately 36,388 gallons of diesel fuel throughout the project's construction. For comparison

purposes, the fuel usage during project construction would represent approximately 0.0001 percent of the 2019 annual on-road gasoline-related energy consumption and 0.03 percent of the 2019 annual diesel fuel-related energy consumption in Orange County. Detailed calculations are shown in Appendix C of this Draft IS/MND.

The proposed project's construction contractors would comply with applicable CARB regulations governing the accelerated retrofitting, repowering, or replacement of heavy-duty diesel on- and off-road equipment. CARB adopted an Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling time in order to reduce public exposure to diesel particulate matter and other toxic air contaminants. CARB approved the Truck and Bus regulation to reduce NO_X, PM10, and PM2.5 emissions from existing diesel vehicles operating in California. In addition to limiting exhaust from idling trucks, CARB recently promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower to reduce emissions by requiring the installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models.

While intended to reduce construction criteria pollutant emissions, compliance with the CARB anti-idling and emissions regulations would also result in efficient use of construction-related energy and the minimization or elimination of wasteful and unnecessary consumption of energy. According to the CARB staff report that was prepared at the time the anti-idling ATCM was being proposed for adoption in late 2004/early 2005, the regulation was estimated to reduce non-essential idling and associated emissions of diesel particulate matter and NO_X emissions by 64 and 78 percent respectively in analysis year 2009.

These reductions in emissions are directly attributable to overall reduced idling times and fuel combustion as a result of compliance with the regulation. Project compliance with CARB regulations would result in energy savings of approximately 267 gallons of diesel fuel, assuming a fuel reduction equivalent to the percent reduction of diesel particulate matter or NO_X as estimated by CARB for 2009 (the lesser value, i.e., 64 percent, is used as a conservative assumption). Heavy-duty engines continue to become more efficient and reduction amounts may lessen in the future due to this. Although the energy savings cannot be accurately quantified, the project would still reduce consumption of diesel fuel under the anti-idling measure. Thus, construction of the proposed project would use energy necessary to implement the proposed project but would not result in the wasteful, inefficient, and unnecessary use of energy and impacts would be less than significant.

Operations

Less than Significant Impact. Operational energy consumption would be minimal as the proposed project is an infrastructure project that involves the construction of a technology advanced WRP. The project would require periodic maintenance activities which would involve a few trucks or vehicles per month, similar to existing conditions for the operations of the Oso Creek WRP. The project would not result in net new electricity or natural gas energy consumption. Fuel consumption from the few vehicles for periodic maintenance would result in minimal energy use. Thus, operation of the proposed project would use energy necessary to

provide maintenance for the project but would not result in the wasteful, inefficient, and unnecessary use of energy and impacts would be less than significant.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less than Significant Impact. The District as lead agency for the project would utilize construction contractors who would demonstrate compliance with applicable regulations. Construction equipment would comply with federal, State, and regional requirements where applicable. With respect to truck fleet operators, the United States Environmental Protection Agency (USEPA) and National Highway Traffic Safety Administration (NHSTA) have adopted fuel efficiency standards for medium- and heavy-duty trucks. The Phase 1 heavy-duty truck standards apply to combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles for model years 2014 through 2018 and result in a reduction in fuel consumption from 6 to 23 percent over the 2010 baseline, depending on the vehicle type.[4] USEPA and NHTSA also adopted the Phase 2 heavy-duty truck standards, which cover model years 2021 through 2027 and require the phase-in of a 5 to 25 percent reduction in fuel consumption over the 2017 baseline depending on the compliance year and vehicle type.[5] The energy modeling for trucks does not take into account specific fuel reductions from these regulations, since they would apply to fleets as they incorporate newer trucks meeting the regulatory standards; however, these regulations would have an overall beneficial effect on reducing fuel consumption from trucks over time as older trucks are replaced with newer models that meet the standards.

In addition, construction equipment and trucks are required to comply with CARB regulations regarding heavy-duty truck idling limits of five minutes at a location and the phase-in of off-road emission standards that result in an increase in energy savings in the form of reduced fuel consumption from more fuel-efficient engines. Although these regulations are intended to reduce criteria pollutant emissions, compliance with the anti-idling and emissions regulations would also result in the efficient use of construction-related energy.

The State have implemented energy policies relevant to the proposed project. The California Renewables Portfolio Standard (RPS) was established in 2002 and required retail sellers of electricity, including investor-owned utilities and community choice aggregators (CCAs), to provide at least 20 percent of their supply from renewable sources by 2013. Senate Bill (SB) 350 (Chapter 547, Statues of 2015) is the most recent update to the state's RPS requirements. The RPS requires publicly owned utilities and retail sellers of electricity in California to procure 33 percent of their electricity sales from eligible renewable sources by 2020 and 50 percent by the end of 2030. The project would comply with the applicable provisions of the 2019 Title 24 standards and the CALGreen Code in effect at the time of building permit issuance.

4 USEPA, Fact Sheet: EPA and NHTSA Adopt First-Ever Program to Reduce Greenhouse Gas Emissions and Improve Fuel Efficiency of Medium- and Heavy-Duty Vehicles, August 2011.

5 USEPA, Federal Register/Vol. 81, No. 206/Tuesday, Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2, October 25, 2016.

Locally, the City of Mission Viejo has adopted a Sustainability Action Plan (SAP) in 2013. The SAP identifies voluntary GHG reduction measures in the areas of urban forestry, water efficiency, clean & efficient energy, solid waste reduction, alternative transportation, and traffic management to achieve California GHG reduction targets. Many of these GHG reduction measures are related to energy use efficiency as a means of reducing GHG emissions and, therefore, are mutually beneficial. Consistent with the SAP, the WRP would incorporate technologically advanced and more efficient water treatment processes compared to the existing facility that would allow for greater locally recycled water use and result in less energy use from water importation.

Thus, since the proposed project would comply with state and local regulations to reduce energy consumption, the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency and impacts would be less than significant.

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3.7 Geology, Soils, and Seismicity

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

Discussion

The following evaluation is based on geologic and seismic information derived from various sources and compiled in this section to develop a comprehensive understanding of the potential constraints and hazards associated with geotechnical exploration activities. Information sources include geologic and soils maps and information prepared by the Department of Conservation, California Geologic Survey (CGS), and the County of Orange, all of which reflect the most up-to-date understanding of the regional geology and seismicity. Additionally, a paleontological resources fossil locality search was conducted by the Natural History Museum of Los Angeles County (LACM) on April 27, 2021.

Environmental Evaluation

Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)

Less than Significant Impact. The Alquist-Priolo Earthquake Fault Zoning Act, signed into law in December of 1972, requires the delineation of zones along active faults in California. The purpose of the Alquist-Priolo Act is to regulate development and prohibit construction on or near active fault traces to reduce hazards associated with fault rupture. The Alquist-Priolo Earthquake Fault Zones (AP Zones) are the regulatory zones delineated on maps that include surface traces of active faults. The maps are distributed to all affected cities, counties, and state agencies for their use in planning and controlling new or renewed construction. Local agencies must regulate most development projects within the zones, which include all land divisions and most structures for human occupancy.

According to the City's General Plan Public Safety Element (2009b), there are no faults within Mission Viejo itself. The nearest significant fault zones in the vicinity of Mission Viejo are the Newport-Inglewood Fault Zone approximately 12 miles to the west and the Elsinore Fault approximately 10 miles to the northeast. However, the project site is not within the boundaries of an active "Earthquake Fault Zone" as defined by the State of California in the Alquist-Priolo Earthquake Fault Zoning Act, and there are no known active faults crossing the site (CGS 2020). Therefore, impacts would be less than significant.

ii) Strong seismic ground shaking?

Less than Significant Impact. The project area lies within a region that is seismically active. In the event of an earthquake in Southern California, some seismic ground shaking would likely be experienced in the project area sometime during the operational life of the Oso Creek WRP and associated buildings. As discussed above, there are no known active faults within the immediate project area. Nonetheless, ground shaking could result in structural damage to proposed and existing facilities, which in turn could affect operation of related systems.

The WRP and associated buildings would be required to go through the appropriate design-level geotechnical evaluations prior to final design and construction as required to comply with the California Building Code (CBC). The geotechnical engineer, as a registered professional with the State of California, is required to comply with the CBC and local codes while applying standard engineering practice and the appropriate standard of care required for projects in the Orange County area. The California Professional Engineers Act (Building and Professions Code Sections 6700-6799), and the Codes of Professional Conduct, as administered by the California Board of Professional Engineers and Land Surveyors, provides the basis for regulating and enforcing

engineering practice in California. SMWD would design the proposed project in conformance with applicable standards established by the CBC. These design standards consider proximity to potential seismic sources and the maximum anticipated groundshaking possible. Compliance with these building safety design standards would reduce the potential to threaten the safety of existing onsite workers, and therefore, reduce the potential impacts associated with groundshaking to less than significant.

iii) Seismic-related ground failure, including liquefaction?

Less than Significant Impact. Liquefaction is a phenomenon where unconsolidated and/or near saturated soils loses cohesion and are converted to a fluid state as a result of severe vibratory motion. The relatively rapid loss of soil cohesion during strong earthquake shaking results in the temporary fluid-like behavior of the soil. The project area is partially located within a liquefaction hazard zone (County of Orange 2015). As a result, the WRP and associated buildings would be required to go through the appropriate design-level geotechnical evaluations prior to final design and construction as required to comply with the CBC. The geotechnical engineer, as a registered professional with the State of California, is required to comply with the CBC and local codes while applying standard engineering practice and the appropriate standard of care required for projects in the Orange County area. SMWD would design the proposed project in conformance with applicable standards established by the CBC. Therefore, compliance with the CDC building safety design standards would reduce the potential impacts associated with seismic-related ground failure, including liquefaction to less than significant.

iv) Landslides?

No Impact. The implementation of the proposed project would not result in landslides. Landslides are deep-seated ground failures (several tens to hundreds of feet deep) in which a large section of a slope detaches and slides downhill. There is no known history of landslides in the general area of the project. Further, the project area is not within a State-Designated Seismic Hazard Zone for Earthquake-Induced Landslides (City of Mission Viejo 2009). Therefore, landslides are not considered a potential hazard within the project area, and no impacts would occur.

b) Result in substantial soil erosion or the loss of topsoil?

Less than Significant Impact. Soil exposed by construction activities for the proposed project could be subject to erosion if exposed to heavy rain, winds, or other storm events. Further, as construction could disturb one or more acres of soil, SMWD would be required to comply with the National Pollutant Discharge Elimination System (NPDES) Construction General Permit. In compliance with this permit, a Storm Water Pollution Prevention Program (SWPPP) would be prepared and implemented, which would require erosion control, sediment control, non-stormwater and waste and material management BMPs to minimize the loss of topsoil or substantial erosion.

Furthermore, implementation of the proposed project would need to comply with SCAQMD Rule 403 for dust control that would ensure the prevention and/or management of the loss of topsoils

and erosion during construction. Therefore, potential loss of topsoil and substantial soil erosion during construction and operation of the proposed project would be less than significant.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less than Significant Impact. Non-seismically-induced geologic hazards such as landslides, lateral spreading, settlement, and slope failure can be caused by unstable soils. Subsidence of the ground surface occurs under static conditions (i.e., due to consolidation settlement from overlying load or long-term water or mineral extraction), but can also be accelerated and accentuated by earthquakes. The extraction of fluid resources from subsurface sedimentary layers (i.e., water or oil) can result in subsidence from the removal of supporting layers in the geologic formation. Settlement of loose, unconsolidated soils generally occurs slowly, but can cause significant structural damage if structures are not properly designed. According to the USGS, the project area is not located within an area with unstable soils susceptible to subsidence or an area with a history of subsidence (USGS 2021). Therefore, impacts related to subsidence would be considered less than significant.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

Less than Significant Impact. Expansive soils are predominantly comprised of clays, which expand in volume when water is absorbed and shrink when the soil dries. Expansion is measured by shrink-swell potential, which is the volume change in soil with a gain in moisture. Soils with a moderate to high shrink-swell potential can cause damage to roads, buildings, and infrastructure (USDA 2020). Primary soil types in the project area Alo Clay and Botella Clay (USDA 2021). These soils are characterized as having a moderate-to-high shrink-swell potential. The presence of expansive soils could decrease the structural stability of the proposed facilities, which could result in structural or operational failure of facilities and or threaten the health and safety of onsite workers. Such impacts are considered potentially significant. However, as described above, all proposed facilities would undergo appropriate design-level geotechnical investigations. The proposed facilities would be subject to the CBC which controls the design and location of facilities in order to safeguard the public and reduce potential impacts related to expansive soils to less than significant levels.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No Impact. The proposed project does not include the installation of septic tanks or alternative wastewater disposal systems. During project implementation, SMWD or the contractor may have portable toilet facilities available onsite temporarily for use by construction workers. Once the proposed WRP and associated buildings are constructed, such portable facilities would be removed and the wastewater properly handled and disposed in accordance with all applicable laws and regulations. There would be no impact associated with wastewater disposal.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less than Significant Impact with Mitigation Incorporated. A paleontological resources database search was conducted by the Natural History Museum of Los Angeles County (LACM) on April 27, 2021 (Bell, 2021) to: (1) determine whether any previously recorded fossil localities occur in the project site or vicinity; (2) assess the potential for disturbance of these localities during construction; and (3) assist in evaluating the paleontological sensitivity of the project site. A geologic map review was also conducted in order to assess the geologic units mapped within the project site.

The LACM indicates that no fossil localities lie directly within the project site, but that several fossil localities (LACM VP 3164-3165/6675, 3166, 4119, 5487, 6064, 6079, and 7131) are found nearby from the same sedimentary deposits that occur in the project site, either at the surface or at depth. LACM VP 3164-3165/6675 (located approximately 1 mile away) found within the Capistrano Formation yielded fossil specimens of Cetacean and white shark (*Charcharodon*). LACM VP 3166 (located approximately 1.15 miles away) found within the Capistrano Formation produced a Cetacean fossil. LACM VP 4119 (located approximately 1.4 miles away) found within Pleistocene aged soils of an unknown formation produced a fossil specimen of bison. LACM VP 5487 (located approximately 1.4 miles away) found within the Monterey Formation yielded a fossil specimen of fish (Osteichthyes). LACM VP 6064 (located approximately 0.75 miles away) found within the Topanga Formation produced an extinct marine mammal (*Paleoparadoxia*). LACM VP 6079 (located approximately 1 mile away) found within the Capistrano Formation yielded fossil specimens of Mako shark (*Isurus*) and sixgill shark (*Hexanchus*). Finally, LACM VP 7131 (located approximately 0.90 miles away) from the Niguel Formation produced fossil specimens of the elephant family (Elephantoidea), pronghorn antelope family (Merycodontinae), primitive horse (*Merychippus*), carnivore (Carnivora), and horse family (Equidae).

The geologic map review [San Bernardino and Santa Ana 30’ x 60’ quadrangles (1:100,000 scale) by Morton and Miller (2006)] indicates that the project site is located within Qy (Young Quaternary deposits). The Quaternary alluvium is assigned a low-to-high paleontological potential increasing with depth. The exact depth at which the transition from low to high potential occurs is unknown in the project site, but is estimated to be 5 feet based on similar geological settings.

Should paleontological resources be encountered, the project could directly or indirectly destroy a unique paleontological resource or site. No unique geologic features are known to be present in the project site. With implementation of **Mitigation Measures GEO-1 through GEO-4**, which require retention of a qualified paleontologist, construction worker paleontological resources sensitivity training, paleontological monitoring of excavations exceeding 5 feet in Quaternary alluvium (depth of anticipated fossiliferous sediments), impacts would be less than significant.

Mitigation Measures

Mitigation Measure GEO-1: The District shall retain a paleontologist who meets the Society of Vertebrate Paleontology's (SVP, 2010) definition for Qualified Professional Paleontologist (Qualified Paleontologist) to carry out all mitigation related to paleontological resources. Prior to the start of ground-disturbing activities, the Qualified Paleontologist or their designee shall conduct construction worker paleontological resources sensitivity training for all construction personnel. Construction personnel shall be informed on how to identify the types of paleontological resources that may be encountered, the proper procedures to be enacted in the event of an inadvertent discovery of paleontological resources, and safety precautions to be taken when working with paleontological monitors. The District shall ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance.

Mitigation Measure GEO-2: Paleontological monitoring shall be conducted during ground-disturbing activities that produce visible spoils or cuts in native undisturbed soils. Monitoring shall be required below 5 feet in Quaternary alluvium or until the contact with Pleistocene alluvium is better determined. Monitoring shall be conducted by a qualified paleontological monitor (SVP, 2010) working under the direct supervision of the Qualified Paleontologist. Monitoring shall consist of visually inspecting fresh exposures of rock for larger fossil remains and, where appropriate, collecting sediment samples to wet or dry screen to test promising horizons for smaller fossil remains. If the Qualified Paleontologist determines that full-time monitoring is no longer warranted, based on the specific geologic conditions at the surface or at depth, the Qualified Paleontologist may recommend that monitoring be reduced to periodic spot-checking or cease entirely.

Mitigation Measure GEO-3: If a potential fossil is found, the paleontological monitor shall be allowed to temporarily divert or redirect grading and excavation activities in the area of the exposed fossil to facilitate evaluation of the discovery. An appropriate buffer area shall be established around the find where construction activities shall not be allowed to continue. Work shall be allowed to continue outside of the buffer area. At the monitor's discretion, and to reduce any construction delay, the grading and excavation contractor shall assist in removing rock/sediment samples for initial processing and evaluation. If a fossil is determined to be significant, the Qualified Paleontologist shall implement a paleontological salvage program to remove the resources from their location, following the guidelines of the SVP (2010). Any fossils encountered and recovered shall be prepared to the point of identification, catalogued, and curated at an accredited repository. If no repository agrees to accept the fossil collection, it may be donated to a local educational facility, or historical society. Accompanying notes, maps, and photographs shall also be filed at the repository, educational facility, or historical society.

If construction personnel discover any potential fossils during construction while the paleontological monitor is not present, regardless of the depth of work or location, work at the discovery location shall cease in a 50-foot radius of the discovery until the Qualified Paleontologist has assessed the discovery and recommended and implemented appropriate treatment as described in this measure.

Mitigation Measure GEO-4: At the conclusion of paleontological monitoring, the Qualified Paleontologist shall prepare a report summarizing the results of the monitoring and any salvage efforts, the methodology used in these efforts, as well as a description of the fossils collected and their significance. The report shall be submitted to the District, the Natural History Museum of Los Angeles County, and representatives of other appropriate or concerned agencies to signify the satisfactory completion of the proposed project and required mitigation measures.

References

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3.8 Greenhouse Gas Emissions

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
8. GREENHOUSE GAS EMISSIONS — Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Environmental Evaluation

Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than Significant Impact. Gases that trap heat in the atmosphere are called greenhouse gases (GHGs). The major concern with GHGs is that increases in their concentrations are causing global climate change. Global climate change is a change in the average weather on Earth that can be measured by wind patterns, storms, precipitation, and temperature. Although there is disagreement as to the rate of global climate change and the extent of the impacts attributable to human activities, most in the scientific community agree that there is a direct link between increased emissions of GHGs and long term global temperature increases. The Intergovernmental Panel on Climate Change (IPCC), in its *Fifth Assessment Report, Summary for Policy Makers*, stated that, "it is *extremely likely* that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in greenhouse gas concentrations and other anthropogenic forcing together."

The State of California defines GHGs as carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), perfluorocarbons (PFCs), and hydrofluorocarbons (HFCs). Because different GHGs have different global warming potentials (GWPs) and CO_2 is the most common reference gas for climate change, GHG emissions are often quantified and reported as CO_2 equivalents (CO_2e). For example, CH_4 has a GWP of 25 (over a 100-year period); therefore, 1 metric ton (MT) of CH_4 is equivalent to 25 MT of CO_2 equivalents ($MTCO_2e$). The State uses the GWP ratios available from the United Nations Intergovernmental Panel on Climate Change (IPCC) and published in the *Fourth Assessment Report* (AR4). By applying the GWP ratios, project-related CO_2e emissions can be tabulated in metric tons (MT) per year. Large emission sources are reported in million metric tons (MMT) of CO_2e.

According to the California EPA, the potential impacts in California due to global climate change may include: loss in snow pack; sea-level rise; more extreme heat days per year; more high-ozone days; larger forest fires; more drought years; increased erosion of California's coastlines and sea water intrusion into the Sacramento and San Joaquin Deltas and associated levee systems; and increased pest infestation (CalEPA 2006).

Globally, climate change has the potential to impact numerous environmental resources through potential, though uncertain, impacts related to future air temperatures and precipitation patterns. The projected effects of global warming on weather and climate are likely to vary regionally, but are expected to include the following direct effects (IPCC 2007):

- Higher maximum temperatures and more hot days over nearly all land areas;
- Higher minimum temperatures, fewer cold days and frost days over nearly all land areas;
- Reduced diurnal temperature range over most land areas;
- Increase of heat index over land areas; and
- More intense precipitation events.

Also, there are many secondary effects that are projected to result from global warming, including global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity. While the possible outcomes and the feedback mechanisms involved are not fully understood and much research remains to be done, the potential for substantial environmental, social, and economic consequences over the long term may be great.

California generated 425.3 $MMTCO_2e$ in 2018, the most recent year data are available. Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2018, accounting for approximately 40 percent of total GHG emissions in the state. This sector was followed by the industrial sector (21 percent) and the electric power sector (including both in-state and out-of-state sources) (15 percent).[6]

Impacts of GHGs are borne globally, as opposed to localized air quality effects of criteria air pollutants and toxic air contaminants. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; however, it is clear that the quantity is enormous, and no single project would measurably contribute to a noticeable incremental change in the global average temperature, or to global, local, or micro climates. From the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative.

The City of Mission Viejo has not adopted thresholds of significance for GHG emissions that would be applicable to this project. CEQA Guidelines 15064.4 states that the lead agency has the discretion to rely on a qualitative analysis or performance-based standards in determining the significance of a project's GHG emissions. Accordingly, the analysis herein examines the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions, consistent with CEQA Guidelines 15064.4 (b)(3).

In December 2008, the SCAQMD adopted a 10,000 $MTCO_2e$ per year significance threshold for industrial facilities for projects in which the SCAQMD is the lead agency. Although SCAQMD has not formally adopted a significance threshold for GHG emissions generated by a project for which SCAQMD is not the lead agency, or a uniform methodology for analyzing impacts related

6 CARB, Current California GHG Emission Inventory Data - 2000-2018 GHG Inventory (2020 Edition).

to GHG emissions on global climate change, in the absence of any industry-wide accepted standards applicable to this project, the SCAQMD's significance threshold of 10,000 $MTCO_2e$ per year for industrial projects is the most relevant GHG significance threshold and is used as a benchmark for the project. It should be noted that the SCAQMD's significance threshold of 10,000 $MTCO_2e$ per year for industrial projects is intended for long-term operational GHG emissions. The SCAQMD has developed guidance for the determination of the significance of GHG construction emissions that recommends that total emissions from construction be amortized over an assumed project lifetime of 30 years and added to operational emissions and then compared to the threshold (SCAQMD 2008).

The justification for the threshold is provided in SCAQMD's Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans ("SCAQMD Interim GHG Threshold") (SCAQMD 2008). The SCAQMD Interim GHG Threshold identifies a screening threshold to determine whether additional analysis is required. As stated by the SCAQMD:

> *"…the…screening level for stationary sources is based on an emission capture rate of 90 percent for all new or modified projects…the policy objective of [SCAQMD's] recommended interim GHG significance threshold proposal is to achieve an emission capture rate of 90 percent of all new or modified stationary source projects. A GHG significance threshold based on a 90 percent emission capture rate may be more appropriate to address the long-term adverse impacts associated with global climate change because most projects will be required to implement GHG reduction measures. Further, a 90 percent emission capture rate sets the emission threshold low enough to capture a substantial fraction of future stationary source projects that will be constructed to accommodate future statewide population and economic growth, while setting the emission threshold high enough to exclude small projects that will in aggregate contribute a relatively small fraction of the cumulative statewide GHG emissions. This assertion is based on the fact that [SCAQMD] staff estimates that these GHG emissions would account for slightly less than one percent of future 2050 statewide GHG emissions target (85 [$MMTCO_2e$ per year]). In addition, these small projects may be subject to future applicable GHG control regulations that would further reduce their overall future contribution to the statewide GHG inventory. Finally, these small sources are already subject to [Best Available Control Technology (BACT)] for criteria pollutants and are more likely to be single-permit facilities, so they are more likely to have few opportunities readily available to reduce GHG emissions from other parts of their facility."*

Thus, based on guidance from the SCAQMD, if an industrial project would emit GHGs less than 10,000 $MTCO_2e$ per year, the proposed project would not be considered a substantial GHG emitter and GHG emission impact would be less than significant, requiring no additional analysis and no mitigation.

CEQA Guidelines 15064.4 (b)(1) states that a lead agency may use a model or methodology to quantify GHGs associated with a project. In May 2021, the SCAQMD in conjunction with the California Air Pollution Control Officers Association (CAPCOA) released the latest version of the CalEEMod (Version 2020.4.0). The purpose of this model is to estimate construction-source and operational-source emissions from direct and indirect sources. Accordingly, the latest version of CalEEMod has been used for this project to estimate the proposed project's emission impacts.

Construction

Construction activities associated with the proposed project would result in emissions of CO_2 and to a lesser extent CH_4 and N_2O. Construction-period GHG emissions were quantified based on CalEEMod defaults for the light industrial and office land uses. To amortize the emissions over the life of the proposed project, the SCAQMD recommends calculating the total GHG emissions attributable to construction activities, dividing it by the 30-year project life, and then adding that number to a project's annual operational-phase GHG emissions. As such, construction emissions were amortized over a 30-year period. Project construction emissions are shown in **Table 3.8-1**. As shown, the GHG emissions would not exceed the threshold of significance. Therefore, impacts would be less than significant.

TABLE 3.8-1
UNMITIGATED CONSTRUCTION GREENHOUSE GAS EMISSIONS (METRIC TONS CO_2E)

Source	$MTCO_2e$
Demolition	54
Site Preparation	12
Grading/Excavation	119
Building Construction	432
Paving	25
Architectural Coating	5
Construction Office	5
Construction Water Energy	20
Total GHG Emissions	672
Amortized GHG Emissions	22
SCAQMD Numeric Indicator	**10,000**
Exceeds Thresholds?	No

SOURCE: ESA, 2021

Operations

Operational activities associated with the proposed project would result in minor amounts of GHG emissions. Operational sources of GHG emissions would include mobile sources from employees traveling to and from the project site, vehicles traveling to and from the project site for periodic maintenance and stationary sources for pumps and generators, and vendor trucks

delivering supplies. Mobile emissions would only add trace amounts of GHG emissions annually and would not substantially contribute to annual operational GHG emissions. As the proposed project is a replacement project of approximately the same size, the GHG emissions from stationary sources would be similar or less (because of more stringent regulations and more efficient, newer equipment) compared to the existing facility. Therefore, GHG emission impacts would be less than significant.

b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than Significant Impact. Construction and operation of the proposed project would not conflict with plans, policies or regulations adopted for the purpose of reducing the emissions of GHG as discussed below.

Construction

As discussed above in Section 3.8(a), GHG emissions generated by the proposed project would not exceed the SCAQMD's recommended threshold of 10,000 $MTCO_2e$ per year for industrial projects. The primary source of GHG emissions generated by project implementation would occur during construction, which would be short-term and temporary in nature. The proposed project would utilize contractors in compliance with regulations including the USEPA Heavy Duty Vehicle Greenhouse Gas Regulation that establishes GHG emissions and fuel efficiency standards for medium- and heavy-duty trucks (for vocational vehicles, which consist of a variety of work vehicles including dump trucks, the Phase 1 Heavy-Duty Vehicle Greenhouse Gas Regulation started with model year 2014 and the standard requires up to a 10 percent reduction in CO_2 emissions by model year 2017 over the 2010 baseline and the Phase 2 standards start in model year 2021 and require the phase-in of a 12 to 24 percent reduction in CO_2 emission reduction from vocational vehicles by model year 2027 over the 2017 baseline); the CARB anti-idling Air Toxics Control Measure that limits heavy-duty diesel motor vehicle idling to five minutes at any location (13 CCR, Section 2485); and the State's low carbon fuel standard regulation that requires a reduction of at least 7.5 percent in the carbon intensity of California's transportation fuels by 2020 and a 20-percent reduction in carbon intensity from a 2010 baseline by 2030. While the idling measure was adopted for the purpose of reducing diesel particulate matter emissions and reducing health risk impacts, the measure has co-benefits of minimizing GHG emissions from unnecessary truck idling. The proposed project would not conflict with these GHG reducing measures and regulations. Therefore, impacts would be less than significant.

Operations

Operation of the proposed project would generate minor amounts of GHG emissions from employees traveling to and from the project site, vehicles for periodic maintenance, and vendor trucks delivering supplies. These mobile source emissions would only add trace amounts of GHG emissions annually and would have no impact on the implementation of the SCAG RTP/Sustainable Communities Strategy (SCS) to reduce GHG emissions from vehicle travel. The proposed project would improve water quality through the refurbishment and technology upgrade for the water treatment processes. The proposed project would have no net effect on long-term water consumption and would not substantially contribute to GHG emissions from water supply, conveyance, distribution, and treatment. For these reasons, implementation of the proposed

project would not generate GHG emissions that would hinder the State's ability to achieve the GHG reduction goals under Health and Safety Code Division 25.5 – California Global Warming Solutions Act of 2006. Furthermore, the proposed project would not conflict with or impede the future statewide GHG emission reductions goals. CARB has outlined a number of potential strategies for achieving the 2030 reduction target of 40 percent below 1990 levels. These potential strategies include renewable resources for half of the State's electricity by 2030, reducing petroleum use in cars and trucks, reducing the carbon content of transportation fuels, continuation of the Cap-and-Trade Program, and adopting regulations for oil refineries. Locally, the City of Mission Viejo has adopted a Sustainability Action Plan (SAP) in 2013. The SAP identifies voluntary GHG reduction measures in the areas of urban forestry, water efficiency, clean & efficient energy, solid waste reduction, alternative transportation, and traffic management to achieve California GHG reduction targets. The proposed project would involve the construction of replacement offices and warehousing space, which would be compliant with the most recent 2019 Title 24 Building Energy Efficiency Standards. The WRP would also incorporate technologically advanced and more efficient water treatment processes compared to the existing facility. The project would not conflict with these regulations, as promulgated by the USEPA, CARB, California Energy Commission, City of Mission Viejo, or other agency. As a result, this impact would be less than significant.

References

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South Coast Air Quality Management District (SCAQMD), 2008. Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold, October 2008. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgboardsynopsis.pdf?sfvrsn=2. Accessed February 9, 2018.

3.9 Hazards and Hazardous Materials

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

Environmental Evaluation

Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less than Significant Impact. The California Office of Emergency Services oversees state agencies and programs that regulate hazardous materials (Health and Safety Code, Article 1, Chapter 6.95). A hazardous material is any material that because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or environment. The proposed project would require the use of construction vehicles and equipment and thus involve the routine transport, use, storage, and disposal of hazardous materials such as diesel fuel, gasoline, oils, grease, equipment fluids, cleaning solutions and solvents, lubricant oils, and adhesives. If such hazardous materials were not handled properly or, in accordance with federal, state and local regulations, a potentially significant hazard to the public or environmental could occur.

Existing federal and state law regulates the handling, storage and transport of hazardous materials and hazardous wastes. Pursuant to the federal Hazardous Materials Transportation Act, 49 U.S.C. § 5101 et seq., the United States Department of Transportation promulgated strict regulations applicable to all trucks transporting hazardous materials. Occupational safety standards have been established in federal and state laws to minimize worker safety risks from both physical and chemical hazards in the workplace, including construction sites. The California Division of Occupational Safety and Health (CalOSHA) has primary responsibility for developing and enforcing standards for safe workplaces and work practices in California in accordance with regulations specified in California Code of Regulations (CCR) Title 8. For example, under Title 8 CCR 5194 (Hazard Communication Standard), construction workers must be informed about hazardous substances that may be encountered, and under Title 8 CCR 3203 (Injury Illness Prevention Program) workers must be properly trained to recognize workplace hazards and to take appropriate steps to reduce potential risks due to such hazards. During construction, contractors and/or SMWD staff handling, storing or transporting hazardous materials or wastes must comply with regulations that would reduce the risk of accidental release and provide protocols and notification requirements should an accidental release occur.

Operation and maintenance activities associated with the proposed project would also require routine transport, storage, use, and disposal of hazardous materials for purposes of treatment of water (e.g., Sodium Hypochlorite, Sodium Bisulfite, Ferric Chloride). Hazardous materials would be stored in appropriate containers within the various facilities and would be used in accordance with state and local regulations. Therefore, by complying with relevant federal, state, and local laws, the proposed project would not result in a significant hazard to the public or to the environment through the routine transport, use, or disposal of hazardous materials during implementation of the proposed project.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less than Significant Impact. As discussed above in the response to Hazards and Hazardous Materials, Issue 3.9 a), the proposed project would involve the routine use of hazardous materials during activities associated with construction; the transport, use, storage and disposal of such hazardous materials would be required to comply with existing applicable federal, state and local regulations. Accidental spills of small amounts of these materials could occur during routine transport, use, storage or disposal, and could potentially injure construction workers, contaminate soil, and/or affect the groundwater below the site. In the event of an accidental release during implementation of the proposed project, containment and clean up would be in accordance with existing applicable regulatory requirements. Title 8 CCR 5194 requires preparation of a hazards communication program identifying hazardous materials onsite and reducing the potential for a spill; and 29 CFR 1910.120 includes requirements for emergency response to releases or substantial threats of releases of hazardous substances. Contractors and/or SMWD would be required to prepare and implement a Hazardous Materials Business Plan (HMBP), as required under the state Hazardous Materials Release Response Plans and Inventory Act, to manage any hazardous materials they use during construction and operation, respectively. A HMBP is a

document containing detailed information on the inventory of hazardous materials at a facility; Emergency Response Plans (ERP) and procedures in the event of a reportable release or threatened release of a hazardous material; a Site Safety Plan with provisions for training for all workers; a site map that contains north orientation, loading areas, internal roads, adjacent streets, storm and sewer drains, access and exit points, emergency shutoffs, hazardous material handling and storage areas, and emergency response equipment. Further, all spent hazardous materials would be disposed of in accordance with California Department of Toxic Substances Control (DTSC) and County regulations. Construction and maintenance specifications prepared for the proposed project would identify BMPs to ensure the lawful transport, use, storage, and disposal of hazardous materials.

As discussed above, operation and maintenance activities associated with the proposed project would also require routine transport, storage, use, and disposal of hazardous materials. In the event of an accidental release during operation of the proposed project, containment and clean up would be in accordance with existing applicable regulatory requirements. Therefore, potential impacts to the public or the environment related to reasonably foreseeable accident conditions involving hazardous materials would be less than significant.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?

Less than Significant Impact. The project area is located within 0.25 mile of Fred Newhart Middle School. In the event of an accidental release during construction, containment and clean up would occur in accordance with existing applicable regulatory requirements to protect school attendees.

Operation and maintenance activities associated with the proposed project would require routine transport, storage, use, and disposal of hazardous materials for purposes of the treatment of water. Hazardous materials would be stored in accordance with existing local and state regulations and would not impact Fred Newhart Middle School. Therefore, with proper compliance with local and state regulations on handling hazardous materials, impacts would be less than significant.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Less than Significant Impact. A review of the Department of Toxic Substances Control's (DTSC) Hazardous Waste and Substances List – Site Cleanup (Cortese List) indicates that there was a hazardous material site (diesel/gasoline spill) located within the proposed project site (DTSC 2020a). The site was cleaned up and closed in March of 1996. Further, a database search of hazardous materials sites using the online DTSC EnviroStor and State Water Resources Control Board (SWRCB) GeoTracker databases identified two other hazardous clean-up sites to the north and west of the site, both gas stations. The sites were cleaned up in September 2005 and November 2019 (DTSC 2020b; SWRCB 2020). The proposed project would not be located on an active hazardous materials site and would not create a significant hazard to the public or the environment. Impacts would be less than significant.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact. The nearest airport to the project area is the John Wayne Airport, located approximately 13 miles northwest of the project area. The proposed project is not located within an airport land use plan or within 2 miles of a public airport or public use airport. No impact would occur.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less than Significant Impact. Construction and operation of the proposed project would occur entirely within SMWD property. SMWD currently implements an internal program in accordance with Occupational Safety and Health Administration (OSHA) regulations to cover worker safety, spill prevention, emergency response and hazardous materials management for activities at the CWRP. SMWD's program includes safety procedures for operations and maintenance workers, which includes safety training, hazard communications, and personal protective equipment. Construction of the proposed project is not anticipated to physically interfere with an adopted emergency response plan or evacuation plan because all construction activities and staging areas including internal roadways would be within SMWD property. Impacts would be less than significant regarding interference with an adopted emergency response plan or emergency evacuation plan.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

Less than Significant Impact. The project site is within an urbanized area. The project site is bounded by La Paz Road and a strip mall to the north, open space and residential to the east and south; Oso Creek and commercial uses to the west. According to the City's General Plan Public Safety Element, the project site is not within an area identified as a Fire Hazard Area that may contain substantial fire risk or a Very High Fire Hazard Severity Zone (VHFHSZ). According to the California Department of Forestry and Fire Protection (CAL FIRE), the project site is not located in a VHFHSZ (CAL FIRE 2021). As a result, the proposed project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires. Therefore, impact s would less than significant.

References

California Department of Forestry and Fire Protection (CAL FIRE), 2021. California Fire Hazard Severity Zone Viewer. Available online at: https://gis.data.ca.gov/datasets/789d5286736248f69c4515c04f58f414, accessed May 2021.

Department of Toxic Substance Control (DTSC), 2021a. Available online at: https://calepa.ca.gov/sitecleanup/corteselist/, accessed June 2021.

DTSC, 2021b. EnviroStor Database. Available online at: https://www.envirostor.dtsc.ca.gov/public/, accessed May 2021.

State Water Resources Control Board (SWRCB), 2021. GeoTracker. Available online at: https://geotracker.waterboards.ca.gov/, accessed June 2021.

3.10 Hydrology and Water Quality

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

Environmental Evaluation

Would the project:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less than Significant Impact. Construction of the proposed project would involve demolition, excavation, trenching, and grading to install the WRP and associated buildings. Demolition materials and exposed soils would have the potential to be transported down gradient areas, potentially resulting in water quality impacts. Additionally, stormwater runoff passing through the construction and staging sites has the potential to pick up construction-related pollutants. Since the proposed project would disturb more than one acre during construction, SMWD would be required to obtain coverage under the Statewide Construction General Permit. Construction activities subject to this permit includes clearing, grading and disturbances to one-acre or more, stockpiling and excavation. The Construction General Permit requires the development of a SWPPP by a certified Qualified SWPPP Developer. The SWPPP would identify BMPs to control

erosion and sedimentation issues. Compliance with the Construction General Permit by developing and implementing a SWPPP, would ensure issues related to soil erosion and loss of topsoil would be less than significant.

During its operation, as part of the treatment process, the WRP would use the chemicals listed in Section 1.7.2, Operation and Maintenance Characteristics. Accidental spills of these chemicals could adversely affect the water quality of nearby surface water bodies. Rainfall falling on the WRP could result in polluted stormwater runoff that could adversely affect water quality. However, the required SWPPP would include Best Management Practices (BMPs) to manage rainwater falling on the WRP by treating stormwater prior to discharge to the municipal stormwater system. The WRP also would be required to comply with the Municipal Stormwater Permit and its local MS4 permit development standards, which would require reducing pollutants and runoff flows from new development using BMPs and Low Impact Development (LID)/post-construction standards such as bioswales, infiltration galleries, and other pre-treatment measures. The required compliance with the numerous laws and regulations discussed above that would govern the operations of the WRP would limit the potential for adverse impacts to water quality. Impacts would be impact less than significant.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less than Significant Impact. The demolition and the construction of the WRP and associated buildings would require the use of water for demolition and trenching dust suppression, and equipment cleaning. Construction would not affect groundwater supplies because the quantity of water used would be minimal. In addition, once operational the WRP would treat wastewater and would not include any component that would extract groundwater.

The new WRP and associated buildings would result in a minor increase in new impervious surface from the current conditions. However, rainwater falling on the WRP would be captured and treated on-site pursuant to the Municipal Stormwater Permit. Once treated in compliance with the Municipal Stormwater Permit, the rainwater would be routed to on-site infiltration systems (e.g. infiltration swales) or to the storm drain system and returned to the environment, as it is now, resulting in a less than significant impact.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or river or through the addition of imperious surfaces, in a manner which would:

- **i) result in substantial erosion or siltation on- or off-site;**
- **ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;**
- **iii) create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or**
- **iv) impede or redirect flood flows?**

Less than Significant Impact. Construction of the proposed projects would not alter existing drainages that could result in erosion or flooding or exceed the capacity of a drainage system. Potential stormwater quality impacts during construction are evaluated in Impact 3.10 a), above.

Once constructed, the proposed project would result in a minor alteration of the drainage pattern of the existing land surface. Currently, the existing Oso Creek WRP covers the majority of the site; however, the new WRP and administrative building would have slightly larger footprint resulting in the addition of hardscape that would concentrate the flow of surface water runoff. However, compliance with MS4 development design would ensure that the new facility does not channelize runoff in a manner that could cause scouring and erosion, and captures water prior to runoff from the facility. Impacts would be less than significant.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact. According to Federal Emergency Management Agency (FEMA), the project site is located within the X Zone, which is defined as minimal risk areas outside the 1-percent and .2-percent-annual-chance flood event. The project is adjacent to an AE Zone, Oso Creek, which is defined as an area subject to inundation by the 1-percent-annual-chance flood event. However, the project does not propose construction of any habitable structures and would not expose people or structures to a significant risk of loss, injury, or death involving flooding. Further, the project site is not located near any large water bodies; therefore, there is no potential for inundation of the project site by seiche or tsunami. Additionally, the site is located within a developed area and would not be subject to mudflows. Therefore, no impact would occur.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less than Significant Impact. The proposed project would replace an existing WRP with a new technologically advanced WRP within the same footprint. The proposed project would not include the extraction of the groundwater. The operation of the proposed project would be very similar the current operations of the Oso Creek WRP and therefore would not conflict with implementation of a water quality control plan or groundwater management plan and impacts would be less than significant.

References

Federal Emergency Management Agency, National Flood Hazard Layer FIRMette, June 2021, Available online at: https://www.fema.gov/flood-maps; Accessed on June 2021

3.11 Land Use and Land Use Planning

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*
11. LAND USE AND LAND USE PLANNING — Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

Environmental Evaluation

Would the project:

a) Physically divide an established community?

No Impact. The proposed project does not propose any action that could divide an established community. The physical division of an established community generally refers to the construction of a feature such as an interstate highway or railroad tracks, or removal of a means of access, such as a local road or bridge that would impact mobility within an existing community or between a community and outlying area. Given the proposed project would construct the proposed WRP and office building within SMWD property, the proposed project would not physically divide an established community.

b) Cause a significant environmental impact due to a conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. As described above in Section 1.3, *Project Background*, the project would be implemented within SMWD-owned property within the same footprint as the existing Oso Creek WRP. The implementation of the new WRP would be the same use that is currently there now. As a result, no impact would occur.

3.12 Mineral Resources

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

Environmental Evaluation

Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No Impact. According to the USGS Mineral Resources Data System (USGS 2020), the project area is not identified as a known mineral resource area and does not have a history of mineral extraction uses. In addition, according to the State of California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, no oil or gas wells exists within the project area (CDC 2020). The Surface Mining and Reclamation (SMARA) Mineral Land Classification prepared by CGS indicates that the project area consists of MRZ-3 areas (CGS 1994). A MRZ-3 designation is assigned to CGS study areas containing mineral deposits whose significance cannot be evaluated due to inadequate subsurface data (CGS 1994). Therefore, the proposed project would not result in the loss of availability of a known mineral resource, and no impacts would occur.

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

No Impact. The County of Orange (County of Orange 2005) does not identify the project area as a mineral resource recovery zone. Therefore, implementation of the proposed project would not result in the loss of availability of a locally important mineral resource recovery site. No impacts would occur.

References

CDC, 2021. DOGGR Well Finder. Available online at: https://maps.conservation.ca.gov/doggr/wellfinder/#openModal, accessed May 2021.

CGS, 1994. *Revised Mineral Land Classification Map, Aggregate Resources Only, Open File Report 94-15, Plate 2*. 1994.

County of Orange, 2005. Mineral Resource Areas. Available online at: https://www.ocgov.com/civicax/filebank/blobdload.aspx?blobid=8625, accessed June 2021.

United State Geologic Survey (USGS), 2021. Mineral Resource Data System (MRDS). Available online at: https://mrdata.usgs.gov/mrds/map-graded.html#home¸accessed June 2021.

3.13 Noise

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

Environmental Evaluation

Would the project:

a) Generation of a substantial temporary or permanent increase in ambient noise levels in in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Discussion

a) **Less than Significant Impact.** Noise is defined as unwanted sound; however, not all unwanted sound rises to the level of a potentially significant noise impact. To differentiate unwanted sound from potentially significant noise impacts, the City of Mission Viejo has established noise regulations that take into account noise-sensitive land uses. The following analysis evaluates potential noise impacts at nearby noise-sensitive land uses that may result from construction and operation of the project.

Noise Principles and Descriptors

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air). Noise is generally defined as unwanted sound (i.e., loud, unexpected, or annoying sound). Acoustics is defined as the physics of sound. In acoustics, the fundamental scientific model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the noise perceived by the receiver. Acoustics addresses primarily the propagation and control of sound (Caltrans 2013, Section 2.2.1).

Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) that is measured in decibels (dB), which is the standard unit of sound amplitude measurement. The dB scale is a logarithmic scale (i.e., not linear) that

describes the physical intensity of the pressure vibrations that make up any sound, with 0 dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of feeling and pain, respectively. In a non-controlled environment, a change in sound level of 3 dB is considered "just perceptible," a change in sound level of 5 dB is considered "clearly noticeable," and a change in 10 dB is perceived as a doubling of sound volume (Caltrans 2013, Section 2.1.3). Pressure waves traveling through air exert a force registered by the human ear as sound (Caltrans 2013, Section 2.1.3).

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. When assessing potential noise impacts, sound is measured using an electronic filter that deemphasizes the frequencies below 1,000 hertz (Hz) and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to sound with extremely low and extremely high frequencies. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). A-weighting follows an international standard methodology of frequency de-emphasis and is typically applied to community noise measurements (Caltrans 2013, Section 2.1.3).

An individual's noise exposure is a measure of noise over a period of time, whereas a noise level is a measure of noise at a given instant in time. Community noise varies continuously over a period of time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic. What makes community noise variable throughout a day, besides the slowly changing background noise, is the addition of short-duration, single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual. These successive additions of sound to the community noise environment change the community noise level from instant to instant, requiring the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts (Caltrans 2013, Section 2.2.2.1).

The time-varying characteristic of environmental noise over specified periods of time is described using statistical noise descriptors in terms of a single numerical value, expressed as dBA. The most frequently used noise descriptors are summarized below (Caltrans 2013, Section 2.2.2.2):

L_{eq}: The L_{eq}, or equivalent continuous sound level, is used to describe the noise level over a specified period of time, typically 1-hour, i.e., $L_{eq(1h)}$, expressed as L_{eq}. The L_{eq} may also be referred to as the "average" sound level.

L_{max}: The maximum, instantaneous noise level.

L_{min}: The minimum, instantaneous noise level.

L_x: The noise level exceeded for specified percentage (x) over a specified time period; i.e., L_{50} and L_{90} represent the noise levels that are exceeded 50 and 90 percent of the time specified, respectively.

L_{dn}: The L_{dn} is the average noise level over a 24-hour day, including an addition of 10 dBA to the measured hourly noise levels between the hours of 10:00 p.m. to 7:00 a.m. to account for nighttime noise sensitivity. L_{dn} is also termed the day-night average noise level or DNL.

CNEL: Community Noise Equivalent Level (CNEL), is the average noise level over a 24-hour day that includes an addition of 5 dBA to the measured hourly noise levels between the evening hours of 7:00 p.m. to 10:00 p.m. and an addition of 10 dBA to the measured hourly noise levels between the nighttime hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity during the evening and nighttime hours, respectively. CNEL and L_{dn} noise levels typically differ by less than 1 dBA and are generally interchangeable.

Mission Viejo General Plan

The Noise Element of the Mission Viejo General Plan (City of Mission Viejo 2009) provides goals, policies, and implementation measures applicable to noise, which, as related to the project, are provided below. The major purpose of the City's Noise Element is to establish reasonable standards for maximum noise levels desired in Mission Viejo (City), and to develop an implementation program which could effectively mitigate potential noise problems and not subject residential or other sensitive noise land uses to exterior noise levels in excess of 65 dBA L_{dn}, and interior noise levels in excess of 45 dBA L_{dn}. For construction, the Mission Viejo Municipal Code (MVMC) includes acceptable hours of construction as discussed below. Applicable goals, policies, and implementation measures from the City's General Plan that are relevant to the proposed project are summarized below.

Noise Element

Goals

Goal 1: Minimize noise impacts from transportation noise sources

Policy 1.1: Require the construction of noise barriers to mitigate sound emissions where necessary or where feasible. Actively participate in the development of noise abatement plans for freeways, toll roads, and railroads.

Policy 1.2: Employ noise mitigation practices, as necessary, when designing future streets and highways, and when improvements occur along existing road segments. Mitigation measures should emphasize the establishment of natural buffers or setbacks between the arterial roadways and adjoining noise-sensitive areas.

Policy 1.3: Control truck traffic routing to reduce transportation-related noise impacts to sensitive land uses.

Policy 1.5: Require that development generating increased traffic and subsequent increases in the ambient noise level adjacent to noise-sensitive land uses provide appropriate mitigation measures.

Policy 1.9: Encourage the development and use of alternative transportation modes and technologies that minimize noise impacts.

Goal 2: Minimize the effects of noise through proper land use planning

Policy 2.1: Ensure that new development and reuse/revitalization projects can be made compatible with the noise environment by utilizing noise/land use compatibility standards and the Noise Contour Map as a guide.

Policy 2.2: Require the inclusion of design features in development and reuse/revitalization projects to reduce the impact of noise on residential development.

Policy 2.3: Ensure proposed development meets noise insulation standards for construction and residential development.

Goal 3: Minimize non-transportation related noise impacts

Policy 3.1: Reduce the impacts of noise-producing land uses, activities, and businesses on noise-sensitive land uses.

Policy 3.2: Incorporate sound-reduction design in new construction or rehabilitation projects impacted by non-transportation-related noise.

Mission Viejo Municipal Code

The MVMC Section 6.35.040 (Exterior Noise Standards) includes exterior noise standards of 55 dBA between the hours of 7:00 a.m. and 10:00 p.m. and 50 dBA between the hours of 10:00 p.m. and 7:00 a.m. These noise level limits are designed for long-term, stationary noise sources within the community. Noise sources associated with construction, repair, remodeling or grading of any real property, and delivery or repair of construction and grading equipment, are exempt from the above noise level limits, provided such activities do not take place between the hours of 8:00 p.m. to 7:00 a.m. on weekdays and Saturdays, or at any time on Sunday or a federal holiday.

City of Mission Viejo Thresholds of Significance

The City's noise ordinances regulate construction and operational noise. With respect to the community noise assessment, changes in noise levels of less than 3 dBA are generally not discernable to most people, while changes greater than 5 dBA are readily noticeable and would be considered a significant increase. Therefore, the significance threshold for mobile source noise is based on human perceptibility to changes in noise levels (increases) with consideration of existing ambient noise conditions and City's land use noise compatibility guidelines. Therefore, the project would result in a significant noise impact if:

- For sensitive receptors located in the City, Per MVMC Section 6.35.060, construction activities are exempted from exterior noise standards provided that activity is limited

to the hours of 7:00 a.m. to 8:00 p.m. on weekdays and Saturdays and does not occur on Sundays.

- Project on-site long-term, stationary sources (i.e., air conditioning units, pumps) increase existing ambient noise levels at adjacent sensitive receptors by 5 dBA or more if the existing noise levels do not already exceed the City's exterior noise standards, or by 3 dBA or more if the existing noise levels already exceed the City's exterior noise standards or if the resulting noise levels would result in (an increase from lower than to) the exceedance of the City's exterior noise standards; or
- Project-related off-site traffic increases ambient noise levels by 5 dBA CNEL or more along roadway segments with sensitive receptors, and the resulting noise level occurs on a noise-sensitive land use within an area categorized as "normally acceptable;" or causes ambient noise levels to increase by 3 dBA CNEL or more and the resulting noise occurs on a noise-sensitive land use within an area categorized as "conditionally acceptable," "normally unacceptable," or "clearly unacceptable."

Existing Conditions

The project is located in a suburban area. The project site is bounded by a commercial strip mall to the north, open space and residential to the east and south, and Oso Creek and a commercial strip mall to the west. The residential uses are located approximately 300 feet away from the project site. Access to the project site is provided via La Paz Road and Oso Creek Road.

Noise Sensitive Receptors

For purposes of this analysis, the closest sensitive receptors to the project were analyzed. Any receptors located at greater distances would experience lower noise levels and impacts would be less than those disclosed. The following locations are the closest sensitive receptors to the project site:

- Single-family residences located approximately 300 feet east/southeast of the proposed project.

Construction Noise

Project construction is expected to commence in 2021 and would last through 2023. The project consists of (1) demolition, (2) site preparation, (3) grading, (4) building construction, (5) paving, and (6) architectural coating.

On-Site Construction Activities

Noise from construction activities would be generated by the operation of vehicles and equipment involved during various stages of construction of the treatment facilities. The noise levels generated by construction equipment would vary depending on factors such as the type and number of equipment, the specific model (horsepower rating), the construction activities being performed, and the maintenance condition of the equipment. To more accurately characterize construction-period noise levels, the average (Hourly L_{eq}) noise level associated with each construction phase is estimated based on the quantity, type, and usage factors for each type of equipment used during each construction phase and are typically attributable to multiple pieces of equipment

operating simultaneously. Over the course of a construction day, the highest noise levels would be generated when multiple pieces of construction equipment are operated concurrently.

As previously stated, the closest sensitive receptors to the project site are the single-family residences located approximately 300 feet east/southeast of the proposed project. It is conservatively assumed that multiple pieces of construction equipment would operate simultaneously in an area at the closest distance to the sensitive receptor locations. In reality equipment would likely be dispersed throughout the project area; therefore, the noise levels represent a conservative maximum and actual noise levels would be lower. The closet sensitive receptors in the affected jurisdiction were analyzed; sensitive receptors located at further distances than analyzed would experience lower noise levels than those disclosed below. Generally, noise attenuates at a rate of 6 dBA for every doubling of distance from the noise source for acoustically hard or reflective surfaces.[7] **Table 3.13-1** presents the results of construction noise modeling for each of the project components. **Appendix D** provides a detailed list of construction equipment, quantities of equipment, reference noise levels, and assumed distances.

TABLE 3.13-1
ESTIMATED CONSTRUCTION NOISE LEVELS

Construction Phase	Estimated Hourly Noise Level L_{eq} at the Nearest Residential (dBA L_{eq}) per Phase, 300 feet
Demolition	72
Site Preparation	71
Grading	71
Building Construction	70
Paving	71
Architectural Coating	59

SOURCE: ESA 2021.

As shown in Table 3.13-1, estimated construction noise levels at the nearest off-site sensitive receptor could be up to 72 dBA L_{eq}. Construction would occur between 7:00 a.m. and 8:00 p.m. Monday through Friday; weekend and nighttime construction is not expected. The City limits construction noise to between the hours of 7:00 a.m. and 8:00 p.m., therefore, the project construction would occur within the allowable hours for construction.

[7] Noise from a localized source (i.e., point source) propagates uniformly outward in a spherical pattern, referred to as "spherical spreading." Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (i.e., reduce) at a rate between 6 dBA for acoustically "hard" sites for each doubling of distance from the reference measurement, Caltrans, Technical Noise Supplement, September, 2013.

Per Government Code Section 53091, building ordinances of local cities or counties do not apply to the location or construction of facilities for the projection, generation, storage, treatment, or transmission of water or wastewater. Specifically, Section 53091 states (State of California Legislative Council 2003):

(d) Building ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water, wastewater, or electrical energy by a local agency.

(e) Zoning ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water.

As a result, construction of the project would be exempt from conflicting with the residential land use or zoning designations for the jurisdictions within the project area. As a result, any project facilities that conflict with local General Plan land use designations would not be subject to a conditional use permit or general plan amendment. It should be noted that the increase in noise levels at the off-site locations during construction at the project site would be temporary in nature and would not generate continuously high noise levels, although occasional short-term disturbances from construction are possible. Additionally, while the estimated construction noise levels at each of the off-site locations would be the loudest when construction activities are occurring at an area within the project site that is nearest to the off-site sensitive receptor locations, the noise levels at these locations would be lower for the majority of the construction time as construction activities conclude or move to another more distant location of the project site.

The project proponent would limit construction activities during the construction period to between 7:00 a.m. and 8:00 p.m. on Monday through Friday in compliance with the MVMC Section 6.35.060 and therefore, impacts related to on-site construction noise would be less than significant.

Off-Site Construction Activities

During all phases of construction, haul and vendor truck trips would be required to bring construction materials and ship building debris to and from the project site. During the most intensive phase of construction (grading), the project would require 15 workers, 2 vendors, and 17 haul trips per day. The temporary addition of the number of trips required per day during construction activities would result in noise levels of 53.7 dBA CNEL, and would be below the exterior noise level standard of 55 dBA (even though activity associated with construction of this project is exempt from the noise level limits), and would occur within the allowable construction hours for the City. Additionally, the off-site haul truck activities are temporary in nature and would only take place for project construction, after which the project would cease to have any significant lasting noise impact on the surrounding areas. Therefore, off-site construction traffic noise impacts would be less than significant and no mitigation measures would be required.

Operational Noise

Off-Site Traffic Noise

Vehicle trips attributed to operation of the project would increase average daily traffic (ADT) volumes along the major thoroughfares within the project vicinity, which was analyzed to determine if any traffic-related noise impacts would result from project development. Typically, a doubling of traffic volumes increases the hourly equivalent sound level by approximately 3 dBA (FHWA 2018). Operation of the project is anticipated to be similar to the existing facility and therefore would not result in a substantial increase in operational trips. The project would require periodic maintenance activities which would involve a few trucks or vehicles per month, similar to existing conditions. The project would not double existing daily trips and traffic noise from the project would generate considerably less than a 3 dBA increase. Because there would be no nighttime maintenance traffic, including project-related operational traffic volumes into the 24-hour weighted average noise level (CNEL) would be even less than the increase on the daytime hourly traffic noise. Therefore, operation of the project would not result in a substantial increase in project-related traffic noise levels over existing traffic noise levels in the project vicinity. The project would not cause traffic volumes to double as a result of implementation and operation. As a result, project-related operational traffic noise impacts would be less than significant.

On-Site Operational Noise

Once operational, noise will primarily be a result of stationary equipment at the facilities. The stationary equipment used at the facilities would be completely housed within structures which would shield any sensitive uses from operational noise. Once completed, pipelines would be subterranean and would not produce any perceptible noise levels. The closest sensitive receptor to any stationary source are the single-family residences located approximately 300 feet east/southeast of the proposed project. At this distance, housed operational equipment would be imperceptible by sensitive receptors, and noise levels would not exceed the exterior noise level standards. Therefore, operational impacts from stationary sources would be less than significant.

b) Generate excessive groundborne vibration or groundborne noise levels?

Less than Significant Impact. Ground-borne vibration from development is primarily generated from the operation of construction equipment and from vehicle traffic. Ground-borne vibration propagates from the source through the ground to adjacent buildings by surface waves. Vibration energy dissipates as it travels through the ground, causing the vibration amplitude to decrease with distance away from the source. Vibration in buildings is typically perceived as rattling of windows, shaking of loose items, or the motion of building surfaces. The vibration of building surfaces also can be radiated as sound and heard as a low-frequency rumbling noise, known as ground-borne noise. Vibration levels for potential structural damage is described in terms of the peak particle velocity (PPV) measured in inches per second (in/sec).

Ground-borne vibration is generally limited to areas within a few hundred feet of certain types of industrial operations and construction/demolition activities such as pile driving. Road vehicles rarely create enough ground-borne vibration amplitude to be perceptible to humans unless the receiver is in immediate proximity to the source or the road surface is poorly maintained and has potholes or bumps. If traffic, typically heavy trucks, does induce perceptible building vibration, it is most likely an effect of low-frequency airborne noise or ground characteristics.

Human sensitivity to vibration varies by frequency and by receiver. Generally, people are more sensitive to low-frequency vibration. Human annoyance also is related to the number and duration of events; the more events or the greater the duration, the more annoying it becomes. Ground-borne vibration related to human annoyance is generally related to root mean square (rms) velocity levels, and expressed as velocity in decibels (VdB).

Regulatory Framework

The City does not address vibration either in their municipal code or in the Noise Element of their General Plan. With respect to ground-borne vibration from construction activities, the California Department of Transportation (Caltrans) has adopted guidelines/recommendations to limit ground-borne vibration based on the age and/or condition of the structures that are located in close proximity to construction activity. With respect to residential and commercial structures, Caltrans' technical publication, titled Transportation- and Construction-Induced Vibration Guidance Manual, provides a vibration damage potential threshold criteria of 0.5 inches per second PPV for historic and older buildings, 1.0 inch-per-second PPV for newer residential structures, and 2.0 inches per second PPV for modern industrial/commercial buildings. In addition, the guidance also sets 0.035 inches per second PPV as the threshold for "distinctly perceptible" human response to steady state vibration (Caltrans 2004).

According to the Federal Transit Administration (FTA), ground vibrations from construction activities very rarely reach the level that can damage structures. A possible exception is the case of old, fragile buildings of historical significance where special care must be taken to avoid damage. The construction activities that typically generate the most severe vibrations are blasting and impact pile driving, which would not be utilized for the proposed project. The proposed project would utilize construction equipment such as use of skid steer loaders and excavators, which would generate ground-borne vibration during excavation and trenching activities. Based on the vibration data by the FTA, typical vibration velocities from the operation of a large bulldozer would be approximately 0.089 inches per second PPV at 25 feet from the source of activity, 0.031 inches per second PPV at 50 feet distance, and 0.011 inches per second PPV at 100 feet distance.

Construction Vibration

The nearest off-site single-family residential buildings are located to the east and southeast of the project along Pacific Hills Drive, which are approximately 300 feet from

the project site. At a distance of 300 feet, the maximum vibration level (using large bulldozer as an example, as shown above) would be well below the Caltrans construction vibration structure damage criteria as the project would not generate vibration levels at nearby buildings that would exceed the 0.5 inches per second PPV structural damage threshold or the 0.035 inches per second PPV "distinctly perceptible" human response threshold. Therefore, construction vibration impacts would be less than significant.

Operational Vibration

Once construction activities have been completed, there would be no substantial sources of vibration activities from the project facilities. The project's operations would include industrial-grade stationary mechanical and electrical equipment, such as pumps, compressor units, and exhaust fans, which would produce limited levels of vibration. Ground-borne vibration generated by each of the above-mentioned equipment and activities would generate approximately up to 0.0014 inches per second PPV at locations adjacent (within 50 feet) to the project (ASHRAE 1999). The potential vibration levels from all project operational sources at the closest existing building and human annoyance receptor locations would be less than the significance criteria for building damage and human annoyance of 0.5 inches per second PPV and 0.035 inches per second PPV, respectively as the closest sensitive receptors to stationary equipment generating vibration are approximately 300 feet away from the proposed project. As such, vibration impacts associated with operation of the project would be less than significant.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. The project is not located within the vicinity of a private airstrip or an airport land use plan or, within two miles of a public airport or public use airport. As such, the project will not expose people residing or working on the project site to excessive noise levels, no Project impacts would occur.

References

America Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE), Heating, Ventilating, and Air-Conditioning Applications, 1999.

California Department of Transportation (Caltrans), 2013. Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013.

City of Mission Viejo, 2009. General Plan, Noise Element. Available: https://cityofmissionviejo.org/sites/default/files/Noise%20Element%202009%2C%20Converted.pdf. Accessed July 2021.

City of Mission Viejo, 2020. Municipal Code. Available: https://library.municode.com/ca/mission_viejo/codes/code_of_ordinances. Accessed July 2021.

Federal Highway Administration (FHWA), 2018. Techniques for Reviewing Noise Analyses and Associated Noise Reports. Available: https://www.fhwa.dot.gov/Environment/noise/resources/reviewing_noise_analysis/fhwahep18067.pdf. Accessed April 2021.

FHWA, 2006. Roadway Construction Noise Model – RCNM and User Guide, 2006. Available: https://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/. Accessed April 2021.

Federal Transit Administration (FTA), 2018. Transit Noise and Vibration Impact Assessment. Available: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Noise_and_Vibration_Manual.pdf. Accessed April 2021.

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State of California, Office of Planning and Research (OPR), 2003. General Plan Guidelines. (2003). Available: https://www.opr.ca.gov/docs/General_Plan_Guidelines_2003.pdf. Accessed April 2021.

3.14 Population and Housing

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

Environmental Evaluation

Would the project:

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Less than Significant Impact. The proposed project does not include construction of new homes or businesses that would result in a direct increase in population or create a substantial number of jobs. Construction activities would require temporary employment. Construction worker opportunities are expected to be filled by workers within the local economy. In September 2020, there was an unemployment average of 9.0 percent, with a County-wide decrease of 2.1 percent of workers in construction specifically from 2019 to 2020 (EDD 2020). Given that there was an average of 105,500 persons within the County involved in construction activities, specifically, it is reasonable to assume that there are readily available workers for the construction activities associated with the proposed project. Because the majority of the work force is located in the County which is highly populated, there would be an adequate number of local workers that could be available for construction jobs and could commute to the temporary construction jobs rather than relocate and induce growth in the area.

The proposed project will consist of demolishing the existing 3.0 MGD Oso Creek WRP, existing office and warehousing buildings and constructing a new technologically advanced WRP that is able to treat 3.3 MGD, an advanced water treatment facility to treat the captured and returned Oso Barrier urban return water, office building and warehouse space. The new facility would allow SMWD to continue to provide wastewater services in its service area and to meet forecasted demand and growth in the service area. The proposed project's minor expansion is consistent with development anticipated by SMWD's Urban Water Management Plan, the Southern California Association of Governments (SCAG), the County of Orange General Plan, and expected population growth. Therefore, the implementation of the proposed project would result in less than significant impacts related to indirect inducement of population growth.

Further, the operation of the proposed facilities would not require any additional employees. The project would not induce unplanned growth or population to the project area as a result of new employees. No impact would occur.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. The proposed project would include demolition and the construction of a new technologically advanced WRP and associated building located within the same site as the existing Oso Creek WRP. The proposed project would not displace people or housing necessitating the construction of replacement housing elsewhere. No impact would occur.

3.15 Public Services

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

Environmental Evaluation

Would the project:

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

i) Fire protection?

No Impact. Fire services for the City are provided by the Orange County Fire Authority (OCFA). The OCFA provides the primary response for fire suppression and emergency medical services to the project area (OCFA 2020a). The nearest station to the project area is OCFA Station 24, located at 25862 Marguerite Pkwy (OCFA 2020b). The proposed project would not change existing demand for fire protection services because operation would not result in a substantial increase of onsite employees or population. Further, the proposed WRP would not introduce structures or ancillary facilities that increase fire susceptibility as compared to existing structures within the project area. Therefore, the proposed project would not increase the need for new fire department staff or new facilities and no impacts would occur.

ii) Police protection?

No Impact. The City of Mission Viejo contracts police protection services with the Orange County Sheriff's Department (OCSD) (OCSD 2020). The proposed project does not include new homes or businesses that would require any additional services or extended response times for police protection services. Therefore, OCSD would not be required to expand or construct new

police stations to serve the proposed project. No impacts would occur with the proposed project because additional police protection facilities would not be needed.

iii) Schools?

No Impact. The project area lies within the Capistrano Unified School District (CUSD) service area (CUSD 2021). The student generation rates within CUSD and other private schools within the project area would not be affected or altered by the implementation of the proposed project. The proposed project would not increase growth in the immediate area resulting in additional school enrollment. No school facilities would be impacted by the proposed project or be required to be constructed.

iv) Parks?

No Impact. The proposed project would not interfere with or have adverse impacts on parks. The proposed project would not involve new housing or employment opportunities that would prompt the need for new parks. Construction and operation of the proposed project would not impact the use of nearby recreational uses.

v) Other public facilities?

No Impact. The proposed project would not introduce inhabitants to the project area that would require additional public facilities. No impacts would occur with the proposed project because public facilities would not be needed.

References

CUSD Boundary map, 2021, Available online at: https://www.zipdatamaps.com/schools/california/district/map-of-capistrano-unified-school-district-ca-elementary-school-attendance-zones; accessed June 2021

OCFA, 2021a. Service Area. Available online at: https://www.ocfa.org/AboutUs/AboutOCFA.aspx#servicearea, accessed June 2021.

OCFA, 2021b. Fire Stations. Available online at: https://www.ocfa.org/AboutUs/FireStations.aspx, accessed June 2021.

OCSD, 2021. Patrol Areas. Available online at: https://www.ocsheriff.gov/patrol-areas¸accessed June 2021.

3.16 Recreation

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

Environmental Evaluation

Would the project:

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

No Impact. The City of Mission Viejo maintains the local parks and provides recreational services for the project area. The nearest recreational facility to the project area is the Oso Viejo Community Park located approximately 0.25 mile to the northeast. The proposed project would not directly introduce new residents within the project area. Therefore, the proposed project would not increase the use of these existing recreational facilities within the project area and would result in no impact to the physical deterioration of recreational facilities.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact. The proposed project would be the demolition and construction of a new technologically advanced WRP and associated buildings with the same site as the existing Oso Creek WRP. The implementation of the proposed project would not require the construction of any new recreational facilities to serve the project. Therefore, the proposed project would not result in an adverse physical effect on the environment from the construction or expansion of additional recreational facilities because the proposed project would not require recreational facilities. (For additional discussion of temporary impacts to recreational facilities, refer to Section 3.15 Public Services, Issue 3.15 a)(iv).)

References

OC Parks, 2021. Interactive Parks Map. Available online at: https://www.ocparks.com/gov/occr/ocparks/map.asp?afilter=on, accessed June 2021.

3.17 Transportation

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

Environmental Evaluation

Would the project:

a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Construction

Circulation System

Less than Significant Impact. Direct impacts to the local circulation system could occur due to the temporary addition of project-related vehicles to local roadways over the construction period. Implementation of the proposed project could temporarily increase the number of vehicles on local roadways due to the transport and delivery of construction equipment and materials as well as daily construction worker commute trips. All equipment and materials would be transported to the site on public highways, local roads, private roads, and private driveways, using standard transport vehicles. Primary access to the project site would occur from La Paz Road. The construction equipment would be off-loaded at staging areas located around the project site footprint within SMWD property boundaries. The Orange County Transit Authority (OCTA) operates bus services on La Paz Road, however, there would be no lane closure as part of the proposed project. The project-related vehicles would turn off of La Paz Road and use a driveway to the project site where supplies would be off loaded within the SMWD property.

Importing of construction equipment would include one or more cranes, forklifts, concrete trucks and trucks to deliver and move materials onsite. Construction of the work area may involve the use of tracked bulldozers and excavators, loaders, compactors, motor graders, water trucks, dump trucks. Once the equipment and materials are onsite there would be minimal construction trips required during the project. It is not anticipated that soils would be required to be exported from the site; however, the project would include the removal of concrete debris and old equipment during the demolition phase. It is anticipated approximately 400 round-trip truck trips would be required to export the debris offsite to an official recycle center. The demolition phase would last for

approximately 12 weeks. The majority of traffic impacts would occur from the daily arrival and departure of workers, which would be an average of 25 round-trips per day over the entire project schedule. The addition of 25 round trips would be minimal and would not result in a significant impact to the local circulation system. Further, all workers would park onsite within the SMWD property. Project-generated traffic would be temporary, and therefore, would not result in any long-term degradation in operating conditions on local roadways used for the project. Impacts to the local circulation system would be less than significant during construction.

Operation

Less than Significant Impact. The proposed WRP would require operational and maintenance activities by SMWD staff similar to what is currently occurring at the current Oso Creek WRP. The project would not include any addition staff to operate the facility. Operation of the proposed project will be similar to the current WRP's activities. Further, the proposed project would not alter the local roadway configuration or disrupt transit, roadway, bicycle, or pedestrian facilities, and therefore would be consistent with all applicable transportation and traffic plans. As a result, operation of the proposed project would not change the performance of the local or regional circulation systems beyond what is occurring currently. Impacts would be less than significant.

b) Would the project conflict with or be inconsistent with CEQA Guidelines section 15064.3 subdivision (b)?

Less than Significant Impact. In accordance with SB 743, *CEQA Guidelines* section 15064.3, subdivision (b) was adopted in December 2018 by the California Natural Resources Agency. These revisions to the *CEQA Guidelines* criteria for determining the significance of transportation impacts are primarily focused on projects within transit priority areas and shift the focus from driver delay to reduction of greenhouse gas emissions, creation of multimodal networks, and promotion of a mix of land uses. Vehicle miles traveled, or VMT, is a measure of the total number of miles driven to or from a development and is sometimes expressed as an average per trip or per person. Section 15064.3 of the *CEQA Guidelines* suggests that the analysis of VMT impacts applies mainly to land use and transportation projects, and not water infrastructure projects. Furthermore, projects that generate or attract fewer than 110 operational trips per day would generally be exempt from further consideration with respect to VMT. Since the proposed project is neither a land use nor a transportation project, and is not anticipated to generate any new operational trips per day beyond what occurs currently, impacts with respect to VMT would be less than significant.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less than Significant Impact. The proposed project would be implemented entirely within the boundaries of SMWD property. The proposed project does not include the construction or design of any roadway infrastructure that would cause a safety risk to vehicle operations. Further, the project would not adversely alter the physical configuration of the existing roadway network serving the area, and would not introduce unsafe design features associated with large equipment transport. Impacts would be less than significant.

d) Result in inadequate emergency access?

No Impact. Refer to response to, Issue f) in Section 3.9, *Hazards and Hazardous Materials*, and Section 3.17, *Transportation*, Issue a) and c) above. The proposed project would nominally add vehicles to the local roadway and circulation system. However, no lane or road closures would be required. All project-related activities would occur onsite. The proposed project would not interfere with emergency response access. As a result, the proposed project would not impact long-term emergency access.

References

OCTA, 2021. System Map. Available online at: https://www.octa.net/ebusbook/RoutePdf/SystemMap.pdf, accessed June 2021.

3.18 Tribal Cultural Resources

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

Environmental Evaluation

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

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

Less than Significant Impact. Assembly Bill 52 (AB 52), signed into law on September 25, 2014, requires lead agencies to evaluate a project's potential to impact Tribal Cultural Resources (TCR) and establishes a formal consultation process for California Native American Tribes as part of CEQA. TCRs includes sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe that are eligible for inclusion in the California Register or included in a local register of historical resources. AB 52 also gives lead agencies the discretion to determine, supported by substantial evidence, whether a resource qualifies as a TCR. Consultation is required upon request by a California Native American tribe that has previously requested that SMWD provide it with notice of such projects, and that is traditionally and culturally affiliated with the geographic area of a proposed project.

SMWD commenced tribal notification in accordance with AB 52 on June 22, 2021, via a mailing to all of the requestors on the SMWD AB 52 notification list. The 30-day notification response window closed on July 21, 2021, with only one response received from the Juaneno Band of Mission Indians Acjachemen Nation- Belardes tribe requesting Native American monitoring. No tribal cultural resources were identified as a result of the Native American outreach conducted the SMWD. Therefore, no tribal cultural resources that are listed in or eligible for listing in the

CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(k) would be impacted by project implementation. No impact would occur.

b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Less than Significant Impact. Under AB 52, if a lead agency determines that a project may cause a substantial adverse change to a TCR, the lead agency must consider measures to mitigate that impact. PRC Section 21074 provides a definition of a TCR. In brief, in order to be considered a TCR, a resource must be either: 1) listed, or determined to be eligible for listing, on the national, State, or local register of historic resources, or 2) a resource that the lead agency chooses, in its discretion supported by substantial evidence, to treat as a TCR. In the latter instance, the lead agency must determine that the resource meets the criteria for listing in the State register of historic resources or County Designated Cultural Resource. In applying those criteria, a lead agency shall consider the value of the resource to the tribe.

As noted above under Section 3.18 (a.i), no tribal cultural resources were identified as a result of the Native American outreach conducted by the SMWD. Therefore, no tribal cultural resources that have been determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1, would be impacted by project implementation. Although no tribal cultural resources were identified as a result of the outreach, the Juaneno Band of Mission Indians Acjachemen Nation-Belardes tribe requesting Native American monitoring.

3.19 Utilities and Service Systems

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

Environmental Evaluation

Would the project:

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications, the construction of which could cause significant environmental effects?

Less than Significant Impact. The proposed project may require a limited use of potable water and/or recycled water during construction activities. Water required for dust suppression would be obtained from a recycled water support truck or from the existing water or recycled water lines located within the Oso Creek WRP site. New water facilities or expansion of existing facilities would not be required to support this use. Additionally, the proposed project would not require new electric power, natural gas, or telecommunications facilities. The site is currently being used as a WRP and once the new facility is constructed the project would not require any additional utilities beyond what is currently onsite.

The proposed project is demolition and construction of a new technologically advanced WRP within the same footprint as the current Oso Creek WRP. The project would not require the construction or expansion of a water or wastewater facility. Further, the proposed project would not substantially alter the local drainage pattern of the project site. During operation of the proposed project, the project office building would generate minor amounts of wastewater that

would be treated at the new WRP, and therefore would not exceed wastewater treatment requirements. In addition, surface water generated by storms or by construction activities would be collected by existing and temporary onsite drainage systems and directed to the existing storm drains implemented during the construction of the current Oso Creek WRF. Compliance with the permit conditions would ensure that all RWQCB requirements would not be exceeded. Therefore, the implementation of the proposed project would not require new or expanded wastewater treatment facilities or stormwater drainage systems. Less than significant impacts would occur.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Less than Significant Impact. The project would replace an aging WRP with a new technologically advanced WRP. The new facility would not use any more water than the current facility and would not have an adverse impact on water supply availability. Impacts would be less than significant.

c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less than Significant Impact. The proposed project would result in the generation of wastewater associated with temporary use of portable toilets. During project implementation, SMWD or the contractor may have portable toilet facilities available onsite temporarily for use by construction workers. Given the relatively small construction workforce for a temporary construction period, this amount of waste would be minimal. Once the construction phase is over, such portable facilities would be removed and the wastewater properly handled and disposed in accordance with all applicable laws and regulations.

During operation of the proposed project, the project office building would generate minor amounts of wastewater that would be treated at the new WRP. Impacts would be less than significant.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less than Significant Impact. Construction and implementation of the proposed project would generate solid waste from the demolition of the existing WRP. The construction contractor would be required to dispose of or recycle solid waste in accordance with local solid waste disposal requirements. In compliance with the California Integrated Waste Management Act of 1989 and the California Green Building Code, the proposed Project would be required to divert 50 percent of its construction waste from landfills. The remaining construction solid waste would be taken to a nearby landfill to be determined by the construction contractor. Construction of the proposed project would result in the removal 9,250 cubic yards of material during construction. The generation of material from the proposed project implementation is considered minimal compared to the remaining capacity at the nearest landfill which is the Prima Deshecha Landfill located at

32250 Avenida La Pata in San Juan Capistrano. The landfill is permitted to accept up to 4,000 tons per day and processes and transfers solid waste for recycling or to other local landfills with a projected capacity to serve the region until approximately 2102 (OC Waste and Recycling 2020). In addition, it is anticipated that the concrete and metal waste generated from the demolition activities will be diverted to material recycling facilities in Santa Ana or Irvine and would not be landfilled. Because the proposed project would only generate construction waste temporarily and no long-term waste would be generated, the implementation of the proposed project would result in less than significant impacts on daily permitted capacity of the Prima Deshecha Landfill. Further, the project would not impair attainment of solid waste reduction goals. Impacts would be less than significant.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less than Significant Impact. See Section 3.19, *Utilities and Service Systems*, Issue d) above, the proposed project would comply with all federal, State, and local statutes and regulations related to solid waste, including the California Integrated Waste Management Act and County of Orange requirements for solid waste generated during the construction process. Impacts would be less than significant.

References

OC Waste and Recycling, 2021. Prima Deshecha Landfill. Available online at: https://www.oclandfills.com/landfills/active-landfills/prima-deshecha-landfill, accessed June 2021.

3.20 Wildfire

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

Environmental Evaluation

Would the project:

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

Less than Significant Impact. As discussed in response to Issue f), 3.9 *Hazards and Hazardous Materials*, implementation of the proposed project is not anticipated to substantially impair an adopted emergency response plan or evacuation plan because all construction and operational activities would be within the boundaries of SMWD property. Construction activities would not interfere with emergency response access to the project site, or project vicinity. Impacts would be less than significant.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risk, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Less than Significant Impact. As discussed in response to Issue g), 3.9 *Hazards and Hazardous Materials*, the project site is within an urbanized area bounded by La Paz Road and a strip mall to the north, open space and residential to the east and south; Oso Creek and commercial uses to the west. According to the City's General Plan Public Safety Element, the project site is not within an area identified as a Fire Hazard Area that may contain substantial fire risk or a Very High Fire Hazard Severity Zone (VHFHSZ). According to the California Department of Forestry and Fire Protection (CAL FIRE), the project site is not located in a VHFHSZ (CAL FIRE 2021). The closest zone is approximately a mile to the east of the project site. However, the project does have a vegetated hillside adjacent to the property line. During construction, if regulatory standards are

ignored, equipment and onsite diesel fuel could pose a risk to wildfire with possible ignition sources such as internal combustion engines, gasoline-powered tools, and equipment that could produce a spark, fire, or flame. Absent adherence to relevant statutes, the use of spark-producing construction machinery within fire risk areas such as the project area could expose temporary project workers and contractors to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire. However, contractors would have to comply with Public Resource Codes (PRC) Sections 4427, 4428, 4431, and 4442, requiring but not limited to clearing flammable materials 10 feet from activities, having the proper tools in event of a fire (e.g. fire extinguisher, axes, shovels) and avoiding construction activities during the time of year when burn permits are required. During construction, strict adherence to these PRC sections would ensure that contractors are responsible for all monitoring and safety measures ensuring that any risk to wildfire is not exacerbated. As a result, the proposed project would not expose people to wildfire risk, or pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Therefore, impacts would less than significant.

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Less than Significant Impact. The proposed project would not result in the installation of permanent roads, fuel breaks, emergency water sources or new power lines. Construction and operational activities of wastewater treatment facility and administration building include various piping and electrical controls that may require maintenance. However, all activities must comply with fire protection and prevention requirements specified by the California Code of Regulations (CCR) and Cal/OSHA. This includes various measures such as easy accessibility of firefighting equipment, proper storage of combustible liquids, no smoking in service and refueling areas, and worker training for firefighter extinguisher use. With adherence to applicable laws and regulations, impacts would be reduced to a less than significant level.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact. As discussed in Section 3.7, *Geology, Soils, and Seismicity* a)(iv) and c), Section 3.9 *Hydrology and Water Quality* c)(ii), and c)(i), the project would not result in increased drainage or runoff that could contribute to landslide or flooding impacts. No impact would occur.

References

CAL FIRE, 2021. Fire Severity Zone Map. Available online at: https://osfm.fire.ca.gov/media/5890/c30_missionviejo_vhfhsz.pdf, accessed June 2021.

3.21 Mandatory Findings of Significance

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

Environmental Evaluation

Would the project:

a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less than Significant with Mitigation. The demolition and construction of the proposed project has the potential to affect state and federally special–status species, as well as nesting and foraging activities for common avian species protected under the Migratory Bird Treaty Act. However, implementation of **Mitigation Measures BIO-1** through **BIO-3** would ensure that impacts to biological resources are mitigated to a less than significant level.

The proposed project area is considered sensitive for the presence of subsurface archaeological deposits based on proximity to and number of known prehistoric sites within a 1-mile radius, and potential underlying paleontological resources based on the underlying geologic formation of the proposed project area. Implementation of **Mitigation Measures CUL-1** through **CUL-4** and **GEO-1** through **GEO-4** would ensure impacts to archaeological resources and paleontological resources are mitigated to a less than significant level.

Mitigation Measures:

Implement **Mitigation Measures BIO-1** through **BIO-3**, **CUL-1** through **CUL-4**, and **GEO-1** through **GEO-4**

b) Have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Less than Significant with Mitigation. A cumulative impact could occur if the proposed project would result in an incrementally considerable contribution to a significant cumulative impact in consideration of past, present, and reasonably foreseeable future projects for each resource area. No direct significant impacts were identified for the proposed project that could not be mitigated to a less than significant level. However, when combined with other projects within the vicinity, the proposed project may contribute to a cumulative impact. However, the project's contribution would not be cumulatively considerable since the construction efforts would be short term, and the proposed project would be compatible with surrounding land uses and would not add significant traffic, air emissions, or noise to the area.

The proposed project would involve the construction and operation of a new technologically advanced water reclamation plant within the same footprint as the existing Oso Creek WRP. The project is located within the City of Mission Viejo. There are no projects currently planned to be constructed concurrently with the project in the immediate vicinity; however, any project that would be constructed concurrently with the WRP would be required to mitigate any potential impacts. As a result, implementation of mitigation measures during construction of future concurrent projects are expected to reduce impacts to non-significant levels and therefore, would not be cumulatively considerable.

Mitigation Measures:

Implement **Mitigation Measures BIO-1** through **BIO-3**, **CUL-1** through **CUL-5**, and **GEO-1** through **GEO-4.**

c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less than Significant with Mitigation. Based on the analysis of the project's impacts in the Responses 1 thru 20, there is no indication that this project could result in substantial adverse effects on human beings. While there would be a variety of effects during construction related to biological resources, cultural and paleontological resources, these impacts would be less than significant based on compliance with applicable regulatory requirements and mitigation measures, where applicable. The project would not have any long-term impacts. With implementation of mitigation measures included in this IS/MND, the proposed project would not result in substantial adverse effects to humans, either directly or indirectly.

Mitigation Measures:

Implement **Mitigation Measures BIO-1** through **BIO-3**, **CUL-1** through **CUL-4**, and **GEO-1** through **GEO-4**.

Appendix A

Air Quality/ Greenhouse Gases Emissions Calculations

ESA

Oso Creek

Construction Assumptions

Project Site Acreage 5

Project Summary

Land Use	CalEEMod Landuse Type	Unit Amount	Size Metrics	Lot Acreage	Square Feet
Industrial	General Light Industry	26.28	1,000 sqft	4	26,282
Commercial	General Office Building	5.58	1,000 sqft	1	5,575

Notes

1 Land use acreage is an estimate of the total site acreage of 5 acres

Project Description

Location	CEC Forecasting Climate Zone	Start of Construction	Operational Year	Utility Company
Orange County	8	1-Oct-21	2024	San Diego Gas & Electric

Construction Schedule

Phase Name	CalEEMod Phase Type	Start Date	End Date	Total Days	# of Workers per day	Total One-way Worker Trips per day	Trip Length	Vendor Trips per day	Total One-Way Vendor Trips per day	Trip Length	Total Haul Trucks	Total One-way Haul Trips	Trucks per day	Trip Length
Demolition	Demolition	10/1/2021	11/5/2021	26	15	30	14.7	2	4	6.9	51	101	2	20
Site Preparation	Site Preparation	11/6/2021	11/15/2021	6	18	36	14.7	2	4	6.9	6	12	1.0	20
Grading/Excavation	Grading	11/16/2021	1/10/2022	40	15	30	14.7	2	4	6.9	683	1365	17	20
Building Construction	Building Construction	1/11/2022	1/17/2023	266	13	26	14.7	10	20	6.9	2	4	0	20
Paving	Paving	1/18/2023	2/17/2023	23	20	40	14.7	2	4	6.9	0	0	0	20
Architectural Coating	Architectural Coating	2/18/2023	3/22/2023	23	3	6	14.7	2	4	6.9	0	0	0	20

Note: Worker/Vendor/Haul are CalEEMod defaults. Schedule set for ~18 months (October 2021 to March 2023) per Applicant.

Project Structures	Area (square feet)	Depth (feet)	Volume (CY)
Effluent Monitoring Location/Pump Station	780	14	404
Pasteurization (Disinfection)	3,577	4	530
MBR Control/Blower/Ras Bldg and MBR Basins	3,528	14	1,829
Electrical Building	758	4	112
Barrier Treatment Building	2,836	4	420
Aeration Basins	11,672	14	6,052
Influent Pump Station	480	20	356
Fine Screens	100	4	15
Odor Scrubbers	907	4	134
Plant Operations Building	1,644	4	244
Office Building/Storage Space	5,575	4	826
Light Industrial Total:	26,282		10,097
Office Total:	5,575		826

Existing Structures	Area (square feet)	Depth (feet)	Volume (CY)
Total	22,165		

Note: Square footages for project and existing structures are measured from the Site Plan.

Construction Equipment

Equipment Mix

Phase Name	Equipment Type	Equipment Amount[1]	Hours per Day
Demolition	Concrete/Industrial Saws	1	8
Demolition	Excavators	3	8
Demolition	Rubber Tired Dozers	2	8
Site Preparation	Rubber Tired Dozers	3	8
Site Preparation	Tractors/Loaders/Backhoes	4	8
Grading	Excavators	1	8
Grading	Graders	1	8
Grading	Rubber Tired Dozers	1	8
Grading	Tractors/Loaders/Backhoes	3	8
Building Construction	Cranes	1	7
Building Construction	Forklifts	3	8
Building Construction	Generator Sets	1	8
Building Construction	Tractors/Loaders/Backhoes	3	7
Building Construction	Welders	1	8
Paving	Cement and Mortar Mixers	2	6
Paving	Pavers	1	8
Paving	Paving Equipment	2	6
Paving	Rollers	2	6
Paving	Tractors/Loaders/Backhoes	1	8
Architectural Coating	Air Compressors	1	6

Notes:

1 Based on CalEEMod defaults and specialty equipment listed in the Project Description

Excavation Oso Creek

Land Use Excavation/ Grading Quantities[1]	Export (CY)	Import (CY)
Excavation	10,923	

Haul Truck Capacity (CY)	16	
Total Haul Trucks	683	
Total One-way Haul Trips	1,365	*Enter into CalEEMod*
Duration (days)	40	
Daily Haul Trucks	18	

Source: Estimated based on square footage and depths

Oso Creek WRP

Regional Emissions

Air Quality Construction Analysis

Regional Maximums Source	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
				lb/day		
3.2 Demolition - 2021	3.2	32.7	23.6	0.05	2.3	1.6
3.3 Site Preparation - 2021	3.9	41.4	23.2	0.04	10.1	5.9
3.4 Grading - 2021	2.4	32.6	21.7	0.06	5.0	2.7
3.4 Grading - 2022	2.0	28.0	21.0	0.06	4.7	2.5
3.5 Building Construction - 2022	1.7	17.5	18.8	0.04	1.2	0.9
3.5 Building Construction - 2023	1.6	15.8	18.5	0.04	1.1	0.8
3.6 Paving - 2023	0.9	9.2	13.9	0.02	0.9	0.5
3.7 Architectural Coating - 2023	13.0	1.6	2.3	0.00	0.2	0.1
Project Daily Maximum Emissions	**13.0**	**41.4**	**23.6**	**0.1**	**10.1**	**5.9**
SCAQMD Regional Significance Threshold	75	100	550	150	150	55
Exceeds Threshold?	No	No	No	No	No	No

Oso Creek WRP

Summer

Air Quality Construction Analysis

Summer Regional Emissions	Onsite Emissions						Offsite Emissions					
	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
Source	lb/day						lb/day					
3.2 Demolition - 2021	3.17	31.44	21.57	0.04	1.88	1.49	0.04	1.29	2.06	0.01	0.42	0.11
3.3 Site Preparation - 2021	3.89	40.50	21.15	0.04	9.71	5.82	0.04	0.89	2.08	0.01	0.44	0.12
3.4 Grading - 2021	2.29	24.74	15.86	0.03	3.92	2.40	0.11	7.85	5.85	0.03	1.04	0.31
3.4 Grading - 2022	1.95	20.86	15.27	0.03	3.70	2.20	0.08	7.19	5.75	0.03	1.02	0.30
3.5 Building Construction - 2022	1.71	15.62	16.36	0.03	0.81	0.76	0.04	1.84	2.40	0.01	0.41	0.11
3.5 Building Construction - 2023	1.57	14.38	16.24	0.03	0.70	0.66	0.03	1.41	2.22	0.01	0.39	0.10
3.6 Paving - 2023	0.92	8.79	12.19	0.02	0.44	0.40	0.03	0.38	1.74	0.01	0.44	0.11
3.7 Architectural Coating - 2023	13.03	1.30	1.81	0.00	0.07	0.07	0.01	0.28	0.47	0.00	0.09	0.02

Regional Emissions	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
3.2 Demolition - 2021	3.20	32.73	23.62	0.05	2.29	1.60
3.3 Site Preparation - 2021	3.93	41.38	23.23	0.04	10.15	5.94
3.4 Grading - 2021	2.40	32.59	21.70	0.06	4.96	2.72
3.4 Grading - 2022	2.03	28.05	21.02	0.06	4.73	2.50
3.5 Building Construction - 2022	1.74	17.45	18.77	0.04	1.22	0.87
3.5 Building Construction - 2023	1.60	15.79	18.47	0.04	1.09	0.76
3.6 Paving - 2023	0.95	9.17	13.93	0.02	0.87	0.51
3.7 Architectural Coating - 2023	13.04	1.59	2.29	0.00	0.16	0.09
Project Daily Maximum Emissions	**13.04**	**41.38**	**23.62**	**0.06**	**10.15**	**5.94**

Oso Creek WRP
Winter
Air Quality Construction Analysis

Winter Regional Emissions	Onsite Emissions						Offsite Emissions					
	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
Source	lb/day						lb/day					
3.2 Demolition - 2021	3.17	31.44	21.57	0.039	1.88	1.49	0.04	1.29	2.06	0.01	0.42	0.11
3.3 Site Preparation - 2021	3.89	40.50	21.15	0.038	9.71	5.82	0.04	0.89	2.08	0.01	0.44	0.12
3.4 Grading - 2021	2.29	24.74	15.86	0.030	3.92	2.40	0.11	7.85	5.85	0.03	1.04	0.31
3.4 Grading - 2022	1.95	20.86	15.27	0.030	3.70	2.20	0.08	7.19	5.75	0.03	1.02	0.30
3.5 Building Construction - 2022	1.71	15.62	16.36	0.027	0.81	0.76	0.04	1.84	2.40	0.01	0.41	0.11
3.5 Building Construction - 2023	1.57	14.38	16.24	0.027	0.700	0.66	0.03	1.41	2.22	0.01	0.39	0.10
3.6 Paving - 2023	0.92	8.79	12.19	0.019	0.436	0.40	0.03	0.38	1.74	0.01	0.44	0.11
3.7 Architectural Coating - 2023	13.03	1.30	1.81	0.003	0.071	0.07	0.01	0.28	0.47	0.00	0.09	0.02

Regional Emissions	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
3.2 Demolition - 2021	3.2	32.7	23.6	0.0	2.3	1.6
3.3 Site Preparation - 2021	3.9	41.4	23.2	0.0	10.1	5.9
3.4 Grading - 2021	2.4	32.6	21.7	0.1	5.0	2.7
3.4 Grading - 2022	2.0	28.0	21.0	0.1	4.7	2.5
3.5 Building Construction - 2022	1.7	17.5	18.8	0.0	1.2	0.9
3.5 Building Construction - 2023	1.6	15.8	18.5	0.0	1.1	0.8
3.6 Paving - 2023	0.9	9.2	13.9	0.0	0.9	0.5
3.7 Architectural Coating - 2023	13.0	1.6	2.3	0.0	0.2	0.1
Project Daily Maximum Emissions	**13.04**	**41.38**	**23.62**	**0.06**	**10.15**	**5.94**

Oso Creek WRP

Air Quality Construction Analysis

Localized Emissions Source	Onsite Emissions NOX	CO	Total PM10	Total PM2.5
	lb/day			
3.2 Demolition - 2021	31.44	21.57	1.88	1.49
3.3 Site Preparation - 2021	40.50	21.15	9.71	5.82
3.4 Grading - 2021	24.74	15.86	3.92	2.40
3.4 Grading - 2022	20.86	15.27	3.70	2.20
3.5 Building Construction - 2022	15.62	16.36	0.81	0.76
3.5 Building Construction - 2023	14.38	16.24	0.70	0.66
3.6 Paving - 2023	8.79	12.19	0.44	0.40
3.7 Architectural Coating - 2023	1.30	1.81	0.07	0.07

Localized Emissions	NOX	CO	Total PM10	Total PM2.5
3.2 Demolition - 2021	31	22	1.9	1.5
3.3 Site Preparation - 2021	40	21	9.7	5.8
3.4 Grading - 2021	25	16	3.9	2.4
3.4 Grading - 2022	21	15	3.7	2.2
3.5 Building Construction - 2022	16	16	0.8	0.8
3.5 Building Construction - 2023	14	16	0.7	0.7
3.6 Paving - 2023	9	12	0.4	0.4
3.7 Architectural Coating - 2023	1	2	0.1	0.1
Project Daily Maximum Emissions	**40.5**	**21.6**	**9.7**	**5.8**

SCAQMD LST Significance Threshold	157.3	1945.1	33.9	11.1
Exceeds Threshold?	No	No	No	No

Source: 3 acre, 90m, Saddleback Valley Area 19

Nearest receptor is ~90m away.

LST Threshold Calculation	NOX	CO	Total PM10	Total PM2.5
SCAQMD LST Significance Threshold - 2 acres, 50 m	127.0	1227.0	18.0	6.0
SCAQMD LST Significance Threshold - 2 acres, 100 m	139.0	1696.0	30.0	10.0
Extrapolated SCAQMD LST Signficance Threshold - 2 acres, 90 m	136.6	1602.2	27.6	9.2
SCAQMD LST Significance Threshold - 5 acres, 50 m	189.0	2102.0	37.0	11.0
SCAQMD LST Significance Threshold - 5 acres, 100 m	201.0	2763.0	49.0	16.0
Extrapolated SCAQMD LST Signficance Threshold - 5 acres, 90 m	198.6	2630.8	46.6	15.0
Extrapolated SCAQMD LST Signficance Threshold - 3 acres, 90 m	**157.3**	**1945.1**	**33.9**	**11.1**

Oso Creek WRP

Construction Annual GHG

	Metric Tons/Year			
Year	**On-Road Mobile Sources**	**CalEEMod**	**Water + Construction Office**	**Total**
2021	69	99	4	172
2022	127	304	17	448
2023	12	36	4	52
Total	**208**	**439**	**26**	**672**
Amortized - 30 years	**7**	**15**	**1**	**22**

Oso Creek WRP
Construction GHG Analysis

Temporary Construction Trailer - Electricity							
Land Use	**Square Feet**	**Energy Use per year (kWh)**	**Estimated Project Construction Duration (years)**	**Total Energy Use (kWh)**	**Construction Office GHG Emissions Total**	**Electricity Emission Factor**	**Electricity Emission Factor**
General Office	1,000	13,490	1.5	20,235	5.42	**(MT CO2/MWh)**	**(lbs CO2/MWh)**
Note: CalEEMod 2020.4.0 used to estimate energy use for temporary construction office						0.27	588.98
						(MT CH4/MWh)	**(lbs CH4/MWh)**
						1.50E-05	0.033
						(MT N2O/MWh)	**(lbs N2O/MWh)**
						1.81E-06	0.00400

Oso Creek WRP
Construction GHG Analysis

Construction Water Energy Estimates

Project Acres	5
Construction Duration (years)	1.5

Source	**Construction Water Use per Day (Mgal)**	**Total Construction Water Use (Mgal)**	**Total Electricity Demand from water Demand (kWh)**	**Annual Electricity Demand from water Demand (kWh)**
Project	0.015	5.775	75,196	50,131
CalEEMod Water Electricity Factors	**Electricity Intensity Factor To Supply (kWh/Mgal)**	**Electricity Intensity Factor To Treat (kWh/Mgal)**	**Electricity Intensity Factor To Distribute (kWh/Mgal)**	**Electricity Intensity Factor For Wastewater Treatment (kWh/Mgal)**
Project	9727	111	1272	1911

Construction Water GHG Emissions Total	**Electricity Emission Factor**	**Electricity Emission Factor**
20.16	**(MT CO2/MWh)**	**(lbs CO2/MWh)**
	0.27	588.98
	(MT CH4/MWh)	**(lbs CH4/MWh)**
	1.50E-05	0.033
	(MT N2O/MWh)	**(lbs N2O/MWh)**
	1.81E-06	0.00400

Sources:

Electricity Emission Factors for SDG&E in 2021. (Source: CalEEMod 2020.4.0)

Estimated construction water use assumed to be generally equivalent to landscape irrigation, based on a factor of 20.94 gallons per year per square foot of landscaped area within the Los Angeles area (Mediterranean climate), which assumes high water demand landscaping materials and an irrigation system efficiency of 85%. Factor is therefore (20.94 GAL/SF/year) x (43,560 SF/acre) / (365 days/year) / (0.85) = 2,940 gallons/acre/day, rounded up to 3,000 gallons/acre/day. (U.S. Department of Energy, Energy Efficiency & Renewable Energy, Federal Energy Management Program. “Guidelines for Estimating Unmetered Landscaping Water Use." July 2010. Page 12, Table 4 - Annual Irrigation Factor – Landscaped Areas with High Water Requirements).

Oso Creek WRP

Total On-Road Emissions

Oso Creek WRP

Total On-Road Emissions

260 Max construction days per year

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Idling per Day (minutes)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10 Dust	PM10 Exh	Total PM10	PM2.5 Dust	PM2.5 Exh	Total PM2.5	(MT/yr) Total CO2e
Demolition	2021															
Total Haul Trips	101															
Hauling	4	26	8	20	15	0.01	0.85	0.49	0.00	0.07	0.01	0.08	0.02	0.01	0.03	4.36
Vendor	4	26	8	6.9	15	0.00	0.33	0.24	0.00	0.02	0.00	0.03	0.01	0.00	0.01	1.54
Worker	30	26	8	14.7	0	0.03	0.11	1.33	0.00	0.31	0.00	0.31	0.08	0.00	0.08	3.79
					Total:	0.04	1.29	2.06	0.01	0.41	0.01	0.42	0.10	0.01	0.11	9.70
Site Preparation	2021															
Total Haul Trips	12															
Hauling	2	6	8	20	15	0.00	0.42	0.24	0.00	0.04	0.00	0.04	0.01	0.00	0.01	0.50
Vendor	4	6	8	6.9	15	0.00	0.33	0.24	0.00	0.02	0.00	0.03	0.01	0.00	0.01	0.36
Worker	36	6	8	14.7	0	0.03	0.13	1.59	0.00	0.37	0.00	0.37	0.09	0.00	0.09	1.05
					Total:	0.04	0.89	2.08	0.01	0.43	0.01	0.44	0.11	0.01	0.12	1.91
Grading/Excavation	2021															
Total Haul Trips	1160															
Hauling	35	34	8	20	15	0.08	7.41	4.28	0.03	0.65	0.06	0.71	0.17	0.05	0.23	49.93
Vendor	4	34	8	6.9	15	0.00	0.33	0.24	0.00	0.02	0.00	0.03	0.01	0.00	0.01	2.02
Worker	30	34	8	14.7	0	0.03	0.11	1.33	0.00	0.31	0.00	0.31	0.08	0.00	0.08	4.96
					Total:	0.11	7.85	5.85	0.03	0.98	0.06	1.04	0.26	0.06	0.31	56.91
Grading/Excavation	2022															
Total Haul Trips	205															
Hauling	35	6	8	20	15	0.05	6.78	4.29	0.03	0.65	0.04	0.69	0.17	0.04	0.21	8.72
Vendor	4	6	8	6.9	15	0.00	0.31	0.25	0.00	0.02	0.00	0.02	0.01	0.00	0.01	0.35
Worker	30	6	8	14.7	0	0.02	0.10	1.22	0.00	0.31	0.00	0.31	0.08	0.00	0.08	0.86
					Total:	0.08	7.19	5.75	0.03	0.98	0.04	1.02	0.26	0.04	0.30	9.93
Building Construction	2022															
Total Haul Trips	4															
Hauling	1	254	8	20	15	0.00	0.19	0.12	0.00	0.02	0.00	0.02	0.00	0.00	0.01	10.55
Vendor	20	254	8	6.9	15	0.02	1.56	1.23	0.01	0.12	0.01	0.12	0.03	0.01	0.04	74.86
Worker	26	254	8	14.7	0	0.02	0.08	1.05	0.00	0.27	0.00	0.27	0.07	0.00	0.07	31.41
					Total:	0.04	1.84	2.40	0.01	0.40	0.01	0.41	0.10	0.01	0.11	116.83
Building Construction	2023															
Total Haul Trips	0															
Hauling	0	12	8	20	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	20	12	8	6.9	15	0.01	1.33	1.25	0.01	0.12	0.01	0.12	0.03	0.01	0.04	3.47
Worker	26	12	8	14.7	0	0.02	0.07	0.97	0.00	0.27	0.00	0.27	0.07	0.00	0.07	1.45
					Total:	0.03	1.41	2.22	0.01	0.38	0.01	0.39	0.10	0.01	0.10	4.92
Paving	2023															
Total Haul Trips	0															
Hauling	0	23	8	20	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	4	23	8	6.9	15	0.00	0.27	0.25	0.00	0.02	0.00	0.02	0.01	0.00	0.01	1.33
Worker	40	23	8	14.7	0	0.03	0.12	1.49	0.00	0.41	0.00	0.41	0.10	0.00	0.10	4.28
					Total:	0.03	0.38	1.74	0.01	0.43	0.00	0.44	0.11	0.00	0.11	5.61
Architectural Coating	2023															
Total Haul Trips	0															
Hauling	0	23	8	20	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	4	23	8	6.9	15	0.00	0.27	0.25	0.00	0.02	0.00	0.02	0.01	0.00	0.01	1.33
Worker	6	23	8	14.7	0	0.00	0.02	0.22	0.00	0.06	0.00	0.06	0.02	0.00	0.02	0.64
					Total:	0.01	0.28	0.47	0.00	0.09	0.00	0.09	0.02	0.00	0.02	1.97

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

Oso Creek WRP

Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	5.58	1000sqft	1.00	5,575.00	0
General Light Industry	26.28	1000sqft	4.00	26,282.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2024
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	588.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 5 acre site to be conservative

Construction Phase - Schedule for 18 months

Off-road Equipment - defaults

Off-road Equipment - defaults

Off-road Equipment - defaults

Off-road Equipment - defaults

Off-road Equipment - defaults

Off-road Equipment - defaults

Trips and VMT - defaults and grading haul trips estimated from amount of excavation

Demolition - existing SF as measured by GIS

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

Grading - Material exported estimated based on sq footage of proposed buildings/structures and depths

Construction Off-road Equipment Mitigation - water 3x day per SCAQMD

Architectural Coating - defaults

Fleet Mix -

Vehicle Trips - mobile calculated outside caleemod

Road Dust - defaults

Consumer Products - defaults

Area Coating - defaults

Landscape Equipment - defaults

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Parking	0.00	100.00
tblAreaCoating	Area_Nonresidential_Exterior	0	15929
tblAreaCoating	Area_Nonresidential_Interior	0	47786
tblConstructionPhase	NumDays	18.00	23.00
tblConstructionPhase	NumDays	230.00	266.00
tblConstructionPhase	NumDays	20.00	26.00
tblConstructionPhase	NumDays	8.00	40.00
tblConstructionPhase	NumDays	18.00	23.00
tblConstructionPhase	NumDays	5.00	6.00
tblConsumerProducts	ROG_EF	0	1.98E-05
tblConsumerProducts	ROG_EF_Degreaser	0	3.542E-07
tblConsumerProducts	ROG_EF_PesticidesFertilizers	0	5.152E-08
tblGrading	MaterialExported	0.00	10,923.00
tblLandscapeEquipment	NumberSummerDays	0	250
tblRoadDust	MaterialMoistureContent	0	0.5
tblRoadDust	MaterialSiltContent	0	4.3
tblRoadDust	MeanVehicleSpeed	0	40
tblRoadDust	MobileAverageVehicleWeight	0	2.4

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

tblRoadDust	RoadPercentPave	0	100
tblRoadDust	RoadSiltLoading	0	0.1
tblTripsAndVMT	HaulingTripNumber	0.00	4.00
tblTripsAndVMT	HaulingTripNumber	1,080.00	1,365.00
tblTripsAndVMT	HaulingTripNumber	0.00	4.00

2.0 Emissions Summary

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					
2021	0.0974	1.0768	0.6626	1.5700e-003	0.2103	0.0475	0.2578	0.0951	0.0440	0.1391	0.0000	144.2114	144.2114	0.0339	6.6900e-003	147.0520
2022	0.2302	2.1267	2.2023	3.9700e-003	0.0677	0.1064	0.1741	0.0200	0.1000	0.1200	0.0000	347.1309	347.1309	0.0754	4.8400e-003	350.4562
2023	0.1709	0.2070	0.2700	4.6000e-004	4.4300e-003	0.0101	0.0145	1.1900e-003	9.4300e-003	0.0106	0.0000	40.4438	40.4438	9.5800e-003	3.4000e-004	40.7855
Maximum	**0.2302**	**2.1267**	**2.2023**	**3.9700e-003**	**0.2103**	**0.1064**	**0.2578**	**0.0951**	**0.1000**	**0.1391**	**0.0000**	**347.1309**	**347.1309**	**0.0754**	**6.6900e-003**	**350.4562**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0974	1.0768	0.6626	1.5700e-003	0.0923	0.0475	0.1398	0.0399	0.0440	0.0838	0.0000	144.2112	144.2112	0.0339	6.6900e-003	147.0519
2022	0.2302	2.1267	2.2023	3.9700e-003	0.0438	0.1064	0.1501	0.0125	0.1000	0.1125	0.0000	347.1305	347.1305	0.0754	4.8400e-003	350.4559
2023	0.1709	0.2070	0.2700	4.6000e-004	4.4300e-003	0.0101	0.0145	1.1900e-003	9.4300e-003	0.0106	0.0000	40.4438	40.4438	9.5800e-003	3.4000e-004	40.7855
Maximum	**0.2302**	**2.1267**	**2.2023**	**3.9700e-003**	**0.0923**	**0.1064**	**0.1501**	**0.0399**	**0.1000**	**0.1125**	**0.0000**	**347.1305**	**347.1305**	**0.0754**	**6.6900e-003**	**350.4559**

Oso Creek WRP - Orange County, Annual

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**	**50.27**	**0.00**	**31.81**	**53.91**	**0.00**	**23.24**	**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	**10-1-2021**	**12-31-2021**	1.1737	1.1737
2	**1-1-2022**	**3-31-2022**	0.6131	0.6131
3	**4-1-2022**	**6-30-2022**	0.5803	0.5803
4	**7-1-2022**	**9-30-2022**	0.5867	0.5867
5	**10-1-2022**	**12-31-2022**	0.5874	0.5874
6	**1-1-2023**	**3-31-2023**	0.3790	0.3790
		Highest	1.1737	1.1737

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	tons/yr										MT/yr					
Area	0.1299	0.0000	4.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.9000e-004	7.9000e-004	0.0000	0.0000	8.4000e-004
Energy	3.2100e-003	0.0292	0.0245	1.8000e-004		2.2200e-003	2.2200e-003		2.2200e-003	2.2200e-003	0.0000	109.9676	109.9676	4.9900e-003	1.1100e-003	110.4243
Mobile	0.0854	0.1022	0.9314	2.2400e-003	0.2490	1.5200e-003	0.2505	0.0665	1.4100e-003	0.0679	0.0000	207.1999	207.1999	0.0120	8.4200e-003	210.0088
Waste						0.0000	0.0000		0.0000	0.0000	7.6690	0.0000	7.6690	0.4532	0.0000	18.9996
Water						0.0000	0.0000		0.0000	0.0000	2.2427	26.3948	28.6374	0.2318	5.6200e-003	36.1072
Total	**0.2186**	**0.1314**	**0.9563**	**2.4200e-003**	**0.2490**	**3.7400e-003**	**0.2528**	**0.0665**	**3.6300e-003**	**0.0701**	**9.9117**	**343.5630**	**353.4746**	**0.7021**	**0.0152**	**375.5408**

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	0.1299	0.0000	4.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.9000e-004	7.9000e-004	0.0000	0.0000	8.4000e-004
Energy	3.2100e-003	0.0292	0.0245	1.8000e-004		2.2200e-003	2.2200e-003		2.2200e-003	2.2200e-003	0.0000	109.9676	109.9676	4.9900e-003	1.1100e-003	110.4243
Mobile	0.0854	0.1022	0.9314	2.2400e-003	0.2490	1.5200e-003	0.2505	0.0665	1.4100e-003	0.0679	0.0000	207.1999	207.1999	0.0120	8.4200e-003	210.0088
Waste						0.0000	0.0000		0.0000	0.0000	7.6690	0.0000	7.6690	0.4532	0.0000	18.9996
Water						0.0000	0.0000		0.0000	0.0000	2.2427	26.3948	28.6374	0.2318	5.6200e-003	36.1072
Total	**0.2186**	**0.1314**	**0.9563**	**2.4200e-003**	**0.2490**	**3.7400e-003**	**0.2528**	**0.0665**	**3.6300e-003**	**0.0701**	**9.9117**	**343.5630**	**353.4746**	**0.7021**	**0.0152**	**375.5408**

	ROG	NOx	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	10/1/2021	11/5/2021	5	26	
2	Site Preparation	Site Preparation	11/6/2021	11/15/2021	5	6	
3	Grading	Grading	11/16/2021	1/10/2022	5	40	

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

4	Building Construction	Building Construction	1/11/2022	1/17/2023	5	266	
5	Paving	Paving	1/18/2023	2/17/2023	5	23	
6	Architectural Coating	Architectural Coating	2/18/2023	3/22/2023	5	23	

Acres of Grading (Site Preparation Phase): 9

Acres of Grading (Grading Phase): 40

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 47,786; Non-Residential Outdoor: 15,929; Striped Parking Area: 0 (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	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36

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

Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	2.00	101.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	2.00	4.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	2.00	1,365.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	13.00	10.00	4.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

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

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0109	0.0000	0.0109	1.6500e-003	0.0000	1.6500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0412	0.4087	0.2804	5.0000e-004		0.0202	0.0202		0.0187	0.0187	0.0000	44.2010	44.2010	0.0124	0.0000	44.5120
Total	**0.0412**	**0.4087**	**0.2804**	**5.0000e-004**	**0.0109**	**0.0202**	**0.0311**	**1.6500e-003**	**0.0187**	**0.0204**	**0.0000**	**44.2010**	**44.2010**	**0.0124**	**0.0000**	**44.5120**

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	3.1000e-004	9.6700e-003	2.4700e-003	3.0000e-005	8.7000e-004	1.1000e-004	9.8000e-004	2.4000e-004	1.1000e-004	3.5000e-004	0.0000	3.1874	3.1874	2.9000e-004	5.1000e-004	3.3467
Vendor	6.0000e-005	1.4500e-003	4.7000e-004	1.0000e-005	1.6000e-004	2.0000e-005	1.8000e-004	5.0000e-005	2.0000e-005	7.0000e-005	0.0000	0.5032	0.5032	3.0000e-005	7.0000e-005	0.5254
Worker	6.3000e-004	5.0000e-004	6.6000e-003	2.0000e-005	2.1400e-003	1.0000e-005	2.1500e-003	5.7000e-004	1.0000e-005	5.8000e-004	0.0000	1.7340	1.7340	5.0000e-005	5.0000e-005	1.7487
Total	**1.0000e-003**	**0.0116**	**9.5400e-003**	**6.0000e-005**	**3.1700e-003**	**1.4000e-004**	**3.3100e-003**	**8.6000e-004**	**1.4000e-004**	**1.0000e-003**	**0.0000**	**5.4246**	**5.4246**	**3.7000e-004**	**6.3000e-004**	**5.6208**

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

3.2 Demolition - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.2500e-003	0.0000	4.2500e-003	6.4000e-004	0.0000	6.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0412	0.4087	0.2803	5.0000e-004		0.0202	0.0202		0.0187	0.0187	0.0000	44.2010	44.2010	0.0124	0.0000	44.5120
Total	**0.0412**	**0.4087**	**0.2803**	**5.0000e-004**	**4.2500e-003**	**0.0202**	**0.0244**	**6.4000e-004**	**0.0187**	**0.0194**	**0.0000**	**44.2010**	**44.2010**	**0.0124**	**0.0000**	**44.5120**

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	3.1000e-004	9.6700e-003	2.4700e-003	3.0000e-005	8.7000e-004	1.1000e-004	9.8000e-004	2.4000e-004	1.1000e-004	3.5000e-004	0.0000	3.1874	3.1874	2.9000e-004	5.1000e-004	3.3467
Vendor	6.0000e-005	1.4500e-003	4.7000e-004	1.0000e-005	1.6000e-004	2.0000e-005	1.8000e-004	5.0000e-005	2.0000e-005	7.0000e-005	0.0000	0.5032	0.5032	3.0000e-005	7.0000e-005	0.5254
Worker	6.3000e-004	5.0000e-004	6.6000e-003	2.0000e-005	2.1400e-003	1.0000e-005	2.1500e-003	5.7000e-004	1.0000e-005	5.8000e-004	0.0000	1.7340	1.7340	5.0000e-005	5.0000e-005	1.7487
Total	**1.0000e-003**	**0.0116**	**9.5400e-003**	**6.0000e-005**	**3.1700e-003**	**1.4000e-004**	**3.3100e-003**	**8.6000e-004**	**1.4000e-004**	**1.0000e-003**	**0.0000**	**5.4246**	**5.4246**	**3.7000e-004**	**6.3000e-004**	**5.6208**

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

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0590	0.0000	0.0590	0.0303	0.0000	0.0303	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0117	0.1215	0.0635	1.1000e-004		6.1300e-003	6.1300e-003		5.6400e-003	5.6400e-003	0.0000	10.0307	10.0307	3.2400e-003	0.0000	10.1118
Total	**0.0117**	**0.1215**	**0.0635**	**1.1000e-004**	**0.0590**	**6.1300e-003**	**0.0651**	**0.0303**	**5.6400e-003**	**0.0360**	**0.0000**	**10.0307**	**10.0307**	**3.2400e-003**	**0.0000**	**10.1118**

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	3.8000e-004	1.0000e-004	0.0000	3.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1262	0.1262	1.0000e-005	2.0000e-005	0.1325
Vendor	1.0000e-005	3.3000e-004	1.1000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.1161	0.1161	1.0000e-005	2.0000e-005	0.1212
Worker	1.7000e-004	1.4000e-004	1.8300e-003	1.0000e-005	5.9000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.4802	0.4802	1.0000e-005	1.0000e-005	0.4843
Total	**1.9000e-004**	**8.5000e-004**	**2.0400e-003**	**1.0000e-005**	**6.6000e-004**	**0.0000**	**6.8000e-004**	**1.8000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.7225**	**0.7225**	**3.0000e-005**	**5.0000e-005**	**0.7380**

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

3.3 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0230	0.0000	0.0230	0.0118	0.0000	0.0118	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0117	0.1215	0.0635	1.1000e-004		6.1300e-003	6.1300e-003		5.6400e-003	5.6400e-003	0.0000	10.0307	10.0307	3.2400e-003	0.0000	10.1118
Total	**0.0117**	**0.1215**	**0.0635**	**1.1000e-004**	**0.0230**	**6.1300e-003**	**0.0291**	**0.0118**	**5.6400e-003**	**0.0175**	**0.0000**	**10.0307**	**10.0307**	**3.2400e-003**	**0.0000**	**10.1118**

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	3.8000e-004	1.0000e-004	0.0000	3.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1262	0.1262	1.0000e-005	2.0000e-005	0.1325
Vendor	1.0000e-005	3.3000e-004	1.1000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.1161	0.1161	1.0000e-005	2.0000e-005	0.1212
Worker	1.7000e-004	1.4000e-004	1.8300e-003	1.0000e-005	5.9000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.4802	0.4802	1.0000e-005	1.0000e-005	0.4843
Total	**1.9000e-004**	**8.5000e-004**	**2.0400e-003**	**1.0000e-005**	**6.6000e-004**	**0.0000**	**6.8000e-004**	**1.8000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.7225**	**0.7225**	**3.0000e-005**	**5.0000e-005**	**0.7380**

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

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1236	0.0000	0.1236	0.0586	0.0000	0.0586	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4205	0.2696	5.0000e-004		0.0197	0.0197		0.0181	0.0181	0.0000	44.2913	44.2913	0.0143	0.0000	44.6494
Total	**0.0389**	**0.4205**	**0.2696**	**5.0000e-004**	**0.1236**	**0.0197**	**0.1433**	**0.0586**	**0.0181**	**0.0767**	**0.0000**	**44.2913**	**44.2913**	**0.0143**	**0.0000**	**44.6494**

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	3.5100e-003	0.1110	0.0284	3.6000e-004	9.9600e-003	1.3000e-003	0.0113	2.7300e-003	1.2400e-003	3.9700e-003	0.0000	36.6157	36.6157	3.3800e-003	5.8600e-003	38.4461
Vendor	8.0000e-005	1.9000e-003	6.2000e-004	1.0000e-005	2.1000e-004	3.0000e-005	2.4000e-004	6.0000e-005	3.0000e-005	9.0000e-005	0.0000	0.6580	0.6580	4.0000e-005	9.0000e-005	0.6870
Worker	8.2000e-004	6.5000e-004	8.6300e-003	2.0000e-005	2.8000e-003	2.0000e-005	2.8200e-003	7.4000e-004	2.0000e-005	7.6000e-004	0.0000	2.2675	2.2675	6.0000e-005	6.0000e-005	2.2868
Total	**4.4100e-003**	**0.1136**	**0.0376**	**3.9000e-004**	**0.0130**	**1.3500e-003**	**0.0143**	**3.5300e-003**	**1.2900e-003**	**4.8200e-003**	**0.0000**	**39.5412**	**39.5412**	**3.4800e-003**	**6.0100e-003**	**41.4199**

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

3.4 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0482	0.0000	0.0482	0.0228	0.0000	0.0228	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4205	0.2696	5.0000e-004		0.0197	0.0197		0.0181	0.0181	0.0000	44.2912	44.2912	0.0143	0.0000	44.6494
Total	**0.0389**	**0.4205**	**0.2696**	**5.0000e-004**	**0.0482**	**0.0197**	**0.0679**	**0.0228**	**0.0181**	**0.0410**	**0.0000**	**44.2912**	**44.2912**	**0.0143**	**0.0000**	**44.6494**

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	3.5100e-003	0.1110	0.0284	3.6000e-004	9.9600e-003	1.3000e-003	0.0113	2.7300e-003	1.2400e-003	3.9700e-003	0.0000	36.6157	36.6157	3.3800e-003	5.8600e-003	38.4461
Vendor	8.0000e-005	1.9000e-003	6.2000e-004	1.0000e-005	2.1000e-004	3.0000e-005	2.4000e-004	6.0000e-005	3.0000e-005	9.0000e-005	0.0000	0.6580	0.6580	4.0000e-005	9.0000e-005	0.6870
Worker	8.2000e-004	6.5000e-004	8.6300e-003	2.0000e-005	2.8000e-003	2.0000e-005	2.8200e-003	7.4000e-004	2.0000e-005	7.6000e-004	0.0000	2.2675	2.2675	6.0000e-005	6.0000e-005	2.2868
Total	**4.4100e-003**	**0.1136**	**0.0376**	**3.9000e-004**	**0.0130**	**1.3500e-003**	**0.0143**	**3.5300e-003**	**1.2900e-003**	**4.8200e-003**	**0.0000**	**39.5412**	**39.5412**	**3.4800e-003**	**6.0100e-003**	**41.4199**

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

3.4 Grading - 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					0.0393	0.0000	0.0393	0.0122	0.0000	0.0122	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.8500e-003	0.0626	0.0458	9.0000e-005		2.8200e-003	2.8200e-003		2.6000e-003	2.6000e-003	0.0000	7.8164	7.8164	2.5300e-003	0.0000	7.8796
Total	**5.8500e-003**	**0.0626**	**0.0458**	**9.0000e-005**	**0.0393**	**2.8200e-003**	**0.0421**	**0.0122**	**2.6000e-003**	**0.0148**	**0.0000**	**7.8164**	**7.8164**	**2.5300e-003**	**0.0000**	**7.8796**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.1000e-004	0.0168	4.5000e-003	6.0000e-005	1.7600e-003	1.2000e-004	1.8800e-003	4.8000e-004	1.2000e-004	6.0000e-004	0.0000	6.2797	6.2797	6.0000e-004	1.0100e-003	6.5944
Vendor	1.0000e-005	2.8000e-004	1.0000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1129	0.1129	1.0000e-005	2.0000e-005	0.1179
Worker	1.4000e-004	1.0000e-004	1.4100e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3879	0.3879	1.0000e-005	1.0000e-005	0.3911
Total	**5.6000e-004**	**0.0171**	**6.0100e-003**	**6.0000e-005**	**2.2900e-003**	**1.2000e-004**	**2.4200e-003**	**6.2000e-004**	**1.2000e-004**	**7.4000e-004**	**0.0000**	**6.7805**	**6.7805**	**6.2000e-004**	**1.0400e-003**	**7.1034**

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

3.4 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0153	0.0000	0.0153	4.7700e-003	0.0000	4.7700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.8500e-003	0.0626	0.0458	9.0000e-005		2.8200e-003	2.8200e-003		2.6000e-003	2.6000e-003	0.0000	7.8164	7.8164	2.5300e-003	0.0000	7.8796
Total	**5.8500e-003**	**0.0626**	**0.0458**	**9.0000e-005**	**0.0153**	**2.8200e-003**	**0.0181**	**4.7700e-003**	**2.6000e-003**	**7.3700e-003**	**0.0000**	**7.8164**	**7.8164**	**2.5300e-003**	**0.0000**	**7.8796**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.1000e-004	0.0168	4.5000e-003	6.0000e-005	1.7600e-003	1.2000e-004	1.8800e-003	4.8000e-004	1.2000e-004	6.0000e-004	0.0000	6.2797	6.2797	6.0000e-004	1.0100e-003	6.5944
Vendor	1.0000e-005	2.8000e-004	1.0000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1129	0.1129	1.0000e-005	2.0000e-005	0.1179
Worker	1.4000e-004	1.0000e-004	1.4100e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3879	0.3879	1.0000e-005	1.0000e-005	0.3911
Total	**5.6000e-004**	**0.0171**	**6.0100e-003**	**6.0000e-005**	**2.2900e-003**	**1.2000e-004**	**2.4200e-003**	**6.2000e-004**	**1.2000e-004**	**7.4000e-004**	**0.0000**	**6.7805**	**6.7805**	**6.2000e-004**	**1.0400e-003**	**7.1034**

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

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2167	1.9832	2.0782	3.4200e-003		0.1027	0.1027		0.0967	0.0967	0.0000	294.2911	294.2911	0.0705	0.0000	296.0537
Total	**0.2167**	**1.9832**	**2.0782**	**3.4200e-003**		**0.1027**	**0.1027**		**0.0967**	**0.0967**	**0.0000**	**294.2911**	**294.2911**	**0.0705**	**0.0000**	**296.0537**

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	3.1000e-004	8.0000e-005	0.0000	3.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1172	0.1172	1.0000e-005	2.0000e-005	0.1230
Vendor	2.0900e-003	0.0597	0.0206	2.4000e-004	8.0000e-003	5.6000e-004	8.5600e-003	2.3100e-003	5.3000e-004	2.8400e-003	0.0000	23.8934	23.8934	1.3700e-003	3.4300e-003	24.9487
Worker	4.9700e-003	3.7400e-003	0.0517	1.6000e-004	0.0181	1.0000e-004	0.0182	4.8100e-003	9.0000e-005	4.9000e-003	0.0000	14.2323	14.2323	3.5000e-004	3.6000e-004	14.3478
Total	**7.0700e-003**	**0.0638**	**0.0723**	**4.0000e-004**	**0.0262**	**6.6000e-004**	**0.0268**	**7.1300e-003**	**6.2000e-004**	**7.7500e-003**	**0.0000**	**38.2429**	**38.2429**	**1.7300e-003**	**3.8100e-003**	**39.4196**

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

3.5 Building Construction - 2022

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	0.2167	1.9832	2.0782	3.4200e-003		0.1027	0.1027		0.0967	0.0967	0.0000	294.2907	294.2907	0.0705	0.0000	296.0533
Total	**0.2167**	**1.9832**	**2.0782**	**3.4200e-003**		**0.1027**	**0.1027**		**0.0967**	**0.0967**	**0.0000**	**294.2907**	**294.2907**	**0.0705**	**0.0000**	**296.0533**

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	3.1000e-004	8.0000e-005	0.0000	3.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1172	0.1172	1.0000e-005	2.0000e-005	0.1230
Vendor	2.0900e-003	0.0597	0.0206	2.4000e-004	8.0000e-003	5.6000e-004	8.5600e-003	2.3100e-003	5.3000e-004	2.8400e-003	0.0000	23.8934	23.8934	1.3700e-003	3.4300e-003	24.9487
Worker	4.9700e-003	3.7400e-003	0.0517	1.6000e-004	0.0181	1.0000e-004	0.0182	4.8100e-003	9.0000e-005	4.9000e-003	0.0000	14.2323	14.2323	3.5000e-004	3.6000e-004	14.3478
Total	**7.0700e-003**	**0.0638**	**0.0723**	**4.0000e-004**	**0.0262**	**6.6000e-004**	**0.0268**	**7.1300e-003**	**6.2000e-004**	**7.7500e-003**	**0.0000**	**38.2429**	**38.2429**	**1.7300e-003**	**3.8100e-003**	**39.4196**

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

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.4400e-003	0.0863	0.0975	1.6000e-004		4.2000e-003	4.2000e-003		3.9500e-003	3.9500e-003	0.0000	13.9083	13.9083	3.3100e-003	0.0000	13.9910
Total	**9.4400e-003**	**0.0863**	**0.0975**	**1.6000e-004**		**4.2000e-003**	**4.2000e-003**		**3.9500e-003**	**3.9500e-003**	**0.0000**	**13.9083**	**13.9083**	**3.3100e-003**	**0.0000**	**13.9910**

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	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	5.2400e-003	5.2400e-003	0.0000	0.0000	5.5000e-003
Vendor	6.0000e-005	2.2000e-003	8.8000e-004	1.0000e-005	3.8000e-004	1.0000e-005	3.9000e-004	1.1000e-004	1.0000e-005	1.2000e-004	0.0000	1.0754	1.0754	6.0000e-005	1.5000e-004	1.1230
Worker	2.2000e-004	1.6000e-004	2.2700e-003	1.0000e-005	8.6000e-004	0.0000	8.6000e-004	2.3000e-004	0.0000	2.3000e-004	0.0000	0.6511	0.6511	2.0000e-005	2.0000e-005	0.6561
Total	**2.8000e-004**	**2.3700e-003**	**3.1500e-003**	**2.0000e-005**	**1.2400e-003**	**1.0000e-005**	**1.2500e-003**	**3.4000e-004**	**1.0000e-005**	**3.5000e-004**	**0.0000**	**1.7317**	**1.7317**	**8.0000e-005**	**1.7000e-004**	**1.7846**

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

3.5 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.4400e-003	0.0863	0.0975	1.6000e-004		4.2000e-003	4.2000e-003		3.9500e-003	3.9500e-003	0.0000	13.9083	13.9083	3.3100e-003	0.0000	13.9910
Total	**9.4400e-003**	**0.0863**	**0.0975**	**1.6000e-004**		**4.2000e-003**	**4.2000e-003**		**3.9500e-003**	**3.9500e-003**	**0.0000**	**13.9083**	**13.9083**	**3.3100e-003**	**0.0000**	**13.9910**

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	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	5.2400e-003	5.2400e-003	0.0000	0.0000	5.5000e-003
Vendor	6.0000e-005	2.2000e-003	8.8000e-004	1.0000e-005	3.8000e-004	1.0000e-005	3.9000e-004	1.1000e-004	1.0000e-005	1.2000e-004	0.0000	1.0754	1.0754	6.0000e-005	1.5000e-004	1.1230
Worker	2.2000e-004	1.6000e-004	2.2700e-003	1.0000e-005	8.6000e-004	0.0000	8.6000e-004	2.3000e-004	0.0000	2.3000e-004	0.0000	0.6511	0.6511	2.0000e-005	2.0000e-005	0.6561
Total	**2.8000e-004**	**2.3700e-003**	**3.1500e-003**	**2.0000e-005**	**1.2400e-003**	**1.0000e-005**	**1.2500e-003**	**3.4000e-004**	**1.0000e-005**	**3.5000e-004**	**0.0000**	**1.7317**	**1.7317**	**8.0000e-005**	**1.7000e-004**	**1.7846**

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

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0106	0.1011	0.1402	2.2000e-004		5.0100e-003	5.0100e-003		4.6300e-003	4.6300e-003	0.0000	18.8354	18.8354	5.9200e-003	0.0000	18.9833
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0106**	**0.1011**	**0.1402**	**2.2000e-004**		**5.0100e-003**	**5.0100e-003**		**4.6300e-003**	**4.6300e-003**	**0.0000**	**18.8354**	**18.8354**	**5.9200e-003**	**0.0000**	**18.9833**

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	2.0000e-005	8.4000e-004	3.4000e-004	0.0000	1.4000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	5.0000e-005	0.0000	0.4122	0.4122	2.0000e-005	6.0000e-005	0.4305
Worker	6.5000e-004	4.6000e-004	6.6900e-003	2.0000e-005	2.5200e-003	1.0000e-005	2.5400e-003	6.7000e-004	1.0000e-005	6.8000e-004	0.0000	1.9198	1.9198	4.0000e-005	5.0000e-005	1.9347
Total	**6.7000e-004**	**1.3000e-003**	**7.0300e-003**	**2.0000e-005**	**2.6600e-003**	**1.0000e-005**	**2.6900e-003**	**7.1000e-004**	**1.0000e-005**	**7.3000e-004**	**0.0000**	**2.3320**	**2.3320**	**6.0000e-005**	**1.1000e-004**	**2.3652**

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

3.6 Paving - 2023

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	0.0106	0.1011	0.1402	2.2000e-004		5.0100e-003	5.0100e-003		4.6300e-003	4.6300e-003	0.0000	18.8354	18.8354	5.9200e-003	0.0000	18.9833
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0106**	**0.1011**	**0.1402**	**2.2000e-004**		**5.0100e-003**	**5.0100e-003**		**4.6300e-003**	**4.6300e-003**	**0.0000**	**18.8354**	**18.8354**	**5.9200e-003**	**0.0000**	**18.9833**

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	2.0000e-005	8.4000e-004	3.4000e-004	0.0000	1.4000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	5.0000e-005	0.0000	0.4122	0.4122	2.0000e-005	6.0000e-005	0.4305
Worker	6.5000e-004	4.6000e-004	6.6900e-003	2.0000e-005	2.5200e-003	1.0000e-005	2.5400e-003	6.7000e-004	1.0000e-005	6.8000e-004	0.0000	1.9198	1.9198	4.0000e-005	5.0000e-005	1.9347
Total	**6.7000e-004**	**1.3000e-003**	**7.0300e-003**	**2.0000e-005**	**2.6600e-003**	**1.0000e-005**	**2.6900e-003**	**7.1000e-004**	**1.0000e-005**	**7.3000e-004**	**0.0000**	**2.3320**	**2.3320**	**6.0000e-005**	**1.1000e-004**	**2.3652**

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

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1477					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.2000e-003	0.0150	0.0208	3.0000e-005		8.1000e-004	8.1000e-004		8.1000e-004	8.1000e-004	0.0000	2.9362	2.9362	1.8000e-004	0.0000	2.9406
Total	**0.1499**	**0.0150**	**0.0208**	**3.0000e-005**		**8.1000e-004**	**8.1000e-004**		**8.1000e-004**	**8.1000e-004**	**0.0000**	**2.9362**	**2.9362**	**1.8000e-004**	**0.0000**	**2.9406**

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	2.0000e-005	8.4000e-004	3.4000e-004	0.0000	1.4000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	5.0000e-005	0.0000	0.4122	0.4122	2.0000e-005	6.0000e-005	0.4305
Worker	1.0000e-004	7.0000e-005	1.0000e-003	0.0000	3.8000e-004	0.0000	3.8000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2880	0.2880	1.0000e-005	1.0000e-005	0.2902
Total	**1.2000e-004**	**9.1000e-004**	**1.3400e-003**	**0.0000**	**5.2000e-004**	**0.0000**	**5.3000e-004**	**1.4000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.7002**	**0.7002**	**3.0000e-005**	**7.0000e-005**	**0.7207**

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

3.7 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1477					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.2000e-003	0.0150	0.0208	3.0000e-005		8.1000e-004	8.1000e-004		8.1000e-004	8.1000e-004	0.0000	2.9362	2.9362	1.8000e-004	0.0000	2.9406
Total	**0.1499**	**0.0150**	**0.0208**	**3.0000e-005**		**8.1000e-004**	**8.1000e-004**		**8.1000e-004**	**8.1000e-004**	**0.0000**	**2.9362**	**2.9362**	**1.8000e-004**	**0.0000**	**2.9406**

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	2.0000e-005	8.4000e-004	3.4000e-004	0.0000	1.4000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	5.0000e-005	0.0000	0.4122	0.4122	2.0000e-005	6.0000e-005	0.4305
Worker	1.0000e-004	7.0000e-005	1.0000e-003	0.0000	3.8000e-004	0.0000	3.8000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2880	0.2880	1.0000e-005	1.0000e-005	0.2902
Total	**1.2000e-004**	**9.1000e-004**	**1.3400e-003**	**0.0000**	**5.2000e-004**	**0.0000**	**5.3000e-004**	**1.4000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.7002**	**0.7002**	**3.0000e-005**	**7.0000e-005**	**0.7207**

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0854	0.1022	0.9314	2.2400e-003	0.2490	1.5200e-003	0.2505	0.0665	1.4100e-003	0.0679	0.0000	207.1999	207.1999	0.0120	8.4200e-003	210.0088
Unmitigated	0.0854	0.1022	0.9314	2.2400e-003	0.2490	1.5200e-003	0.2505	0.0665	1.4100e-003	0.0679	0.0000	207.1999	207.1999	0.0120	8.4200e-003	210.0088

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	130.35	52.30	131.40	528,509	528,509
General Office Building	54.35	12.33	3.91	132,533	132,533
Total	184.70	64.63	135.31	661,042	661,042

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	59.00	28.00	13.00	92	5	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4

4.4 Fleet Mix

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

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.546200	0.059546	0.185910	0.127866	0.024295	0.006605	0.014499	0.004906	0.000657	0.000381	0.024552	0.000713	0.003869
General Office Building	0.546200	0.059546	0.185910	0.127866	0.024295	0.006605	0.014499	0.004906	0.000657	0.000381	0.024552	0.000713	0.003869

5.0 Energy Detail

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	78.1591	78.1591	4.3800e-003	5.3000e-004	78.4268
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	78.1591	78.1591	4.3800e-003	5.3000e-004	78.4268
NaturalGas Mitigated	3.2100e-003	0.0292	0.0245	1.8000e-004		2.2200e-003	2.2200e-003		2.2200e-003	2.2200e-003	0.0000	31.8085	31.8085	6.1000e-004	5.8000e-004	31.9975
NaturalGas Unmitigated	3.2100e-003	0.0292	0.0245	1.8000e-004		2.2200e-003	2.2200e-003		2.2200e-003	2.2200e-003	0.0000	31.8085	31.8085	6.1000e-004	5.8000e-004	31.9975

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	545614	2.9400e-003	0.0268	0.0225	1.6000e-004		2.0300e-003	2.0300e-003		2.0300e-003	2.0300e-003	0.0000	29.1161	29.1161	5.6000e-004	5.3000e-004	29.2891
General Office Building	50453.8	2.7000e-004	2.4700e-003	2.0800e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	2.6924	2.6924	5.0000e-005	5.0000e-005	2.7084
Total		**3.2100e-003**	**0.0292**	**0.0246**	**1.7000e-004**		**2.2200e-003**	**2.2200e-003**		**2.2200e-003**	**2.2200e-003**	**0.0000**	**31.8085**	**31.8085**	**6.1000e-004**	**5.8000e-004**	**31.9975**

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	545614	2.9400e-003	0.0268	0.0225	1.6000e-004		2.0300e-003	2.0300e-003		2.0300e-003	2.0300e-003	0.0000	29.1161	29.1161	5.6000e-004	5.3000e-004	29.2891
General Office Building	50453.8	2.7000e-004	2.4700e-003	2.0800e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	2.6924	2.6924	5.0000e-005	5.0000e-005	2.7084
Total		**3.2100e-003**	**0.0292**	**0.0246**	**1.7000e-004**		**2.2200e-003**	**2.2200e-003**		**2.2200e-003**	**2.2200e-003**	**0.0000**	**31.8085**	**31.8085**	**6.1000e-004**	**5.8000e-004**	**31.9975**

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	217352	58.0671	3.2500e-003	3.9000e-004	58.2660
General Office Building	75206.8	20.0920	1.1300e-003	1.4000e-004	20.1608
Total		**78.1591**	**4.3800e-003**	**5.3000e-004**	**78.4268**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	217352	58.0671	3.2500e-003	3.9000e-004	58.2660
General Office Building	75206.8	20.0920	1.1300e-003	1.4000e-004	20.1608
Total		**78.1591**	**4.3800e-003**	**5.3000e-004**	**78.4268**

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	0.1299	0.0000	4.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.9000e-004	7.9000e-004	0.0000	0.0000	8.4000e-004
Unmitigated	0.1299	0.0000	4.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.9000e-004	7.9000e-004	0.0000	0.0000	8.4000e-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	0.0148					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1151					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	4.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.9000e-004	7.9000e-004	0.0000	0.0000	8.4000e-004
Total	**0.1299**	**0.0000**	**4.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**7.9000e-004**	**7.9000e-004**	**0.0000**	**0.0000**	**8.4000e-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	0.0148					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1151					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	4.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.9000e-004	7.9000e-004	0.0000	0.0000	8.4000e-004
Total	**0.1299**	**0.0000**	**4.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**7.9000e-004**	**7.9000e-004**	**0.0000**	**0.0000**	**8.4000e-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	28.6374	0.2318	5.6200e-003	36.1072
Unmitigated	28.6374	0.2318	5.6200e-003	36.1072

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	6.07725 / 0	23.0687	0.1992	4.8200e-003	29.4851
General Office Building	0.991754 / 0.607849	5.5688	0.0326	8.0000e-004	6.6221
Total		**28.6374**	**0.2318**	**5.6200e-003**	**36.1072**

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	6.07725 / 0	23.0687	0.1992	4.8200e-003	29.4851
General Office Building	0.991754 / 0.607849	5.5688	0.0326	8.0000e-004	6.6221
Total		**28.6374**	**0.2318**	**5.6200e-003**	**36.1072**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	7.6690	0.4532	0.0000	18.9996
Unmitigated	7.6690	0.4532	0.0000	18.9996

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	32.59	6.6155	0.3910	0.0000	16.3896
General Office Building	5.19	1.0535	0.0623	0.0000	2.6101
Total		**7.6690**	**0.4532**	**0.0000**	**18.9996**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	32.59	6.6155	0.3910	0.0000	16.3896
General Office Building	5.19	1.0535	0.0623	0.0000	2.6101
Total		**7.6690**	**0.4532**	**0.0000**	**18.9996**

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

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

Oso Creek WRP

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	5.58	1000sqft	1.00	5,575.00	0
General Light Industry	26.28	1000sqft	4.00	26,282.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2024
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	588.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 5 acre site to be conservative

Construction Phase - Schedule for 18 months

Off-road Equipment - defaults

Off-road Equipment - defaults

Off-road Equipment - defaults

Off-road Equipment - defaults

Off-road Equipment - defaults

Off-road Equipment - defaults

Trips and VMT - defaults and grading haul trips estimated from amount of excavation

Demolition - existing SF as measured by GIS

Oso Creek WRP - Orange County, Summer

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

Grading - Material exported estimated based on sq footage of proposed buildings/structures and depths

Construction Off-road Equipment Mitigation - water 3x day per SCAQMD

Architectural Coating - defaults

Fleet Mix -

Vehicle Trips - mobile calculated outside caleemod

Road Dust - defaults

Consumer Products - defaults

Area Coating - defaults

Landscape Equipment - defaults

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Parking	0.00	100.00
tblAreaCoating	Area_Nonresidential_Exterior	0	15929
tblAreaCoating	Area_Nonresidential_Interior	0	47786
tblConstructionPhase	NumDays	18.00	23.00
tblConstructionPhase	NumDays	230.00	266.00
tblConstructionPhase	NumDays	20.00	26.00
tblConstructionPhase	NumDays	8.00	40.00
tblConstructionPhase	NumDays	18.00	23.00
tblConstructionPhase	NumDays	5.00	6.00
tblConsumerProducts	ROG_EF	0	1.98E-05
tblConsumerProducts	ROG_EF_Degreaser	0	3.542E-07
tblConsumerProducts	ROG_EF_PesticidesFertilizers	0	5.152E-08
tblGrading	MaterialExported	0.00	10,923.00
tblLandscapeEquipment	NumberSummerDays	0	250
tblRoadDust	MaterialMoistureContent	0	0.5
tblRoadDust	MaterialSiltContent	0	4.3
tblRoadDust	MeanVehicleSpeed	0	40
tblRoadDust	MobileAverageVehicleWeight	0	2.4

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

tblRoadDust	RoadPercentPave	0	100
tblRoadDust	RoadSiltLoading	0	0.1
tblTripsAndVMT	HaulingTripNumber	0.00	4.00
tblTripsAndVMT	HaulingTripNumber	1,080.00	1,365.00
tblTripsAndVMT	HaulingTripNumber	0.00	4.00

2.0 Emissions Summary

Oso Creek WRP - 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					
2021	3.9550	40.7659	22.3235	0.0526	19.8826	2.0487	21.9313	10.1627	1.8849	12.0476	0.0000	5,441.1418	5,441.1418	1.2033	0.3895	5,586.0825
2022	2.1353	26.2882	17.2899	0.0519	7.8582	0.9828	8.8410	3.6359	0.9057	4.5416	0.0000	5,368.4037	5,368.4037	1.1547	0.3788	5,510.1488
2023	13.0421	14.7606	16.7869	0.0300	0.2363	0.7023	0.9118	0.0630	0.6608	0.7178	0.0000	2,877.5581	2,877.5581	0.6224	0.0312	2,902.4048
Maximum	**13.0421**	**40.7659**	**22.3235**	**0.0526**	**19.8826**	**2.0487**	**21.9313**	**10.1627**	**1.8849**	**12.0476**	**0.0000**	**5,441.1418**	**5,441.1418**	**1.2033**	**0.3895**	**5,586.0825**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	3.9550	40.7659	22.3235	0.0526	7.8919	2.0487	9.9406	4.0002	1.8849	5.8851	0.0000	5,441.1418	5,441.1418	1.2033	0.3895	5,586.0825
2022	2.1353	26.2882	17.2899	0.0519	3.5378	0.9828	4.5207	1.5468	0.9057	2.4525	0.0000	5,368.4037	5,368.4037	1.1547	0.3788	5,510.1488
2023	13.0421	14.7606	16.7869	0.0300	0.2363	0.7023	0.9118	0.0630	0.6608	0.7178	0.0000	2,877.5581	2,877.5581	0.6224	0.0312	2,902.4048
Maximum	**13.0421**	**40.7659**	**22.3235**	**0.0526**	**7.8919**	**2.0487**	**9.9406**	**4.0002**	**1.8849**	**5.8851**	**0.0000**	**5,441.1418**	**5,441.1418**	**1.2033**	**0.3895**	**5,586.0825**

Oso Creek WRP - 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**	**58.30**	**0.00**	**51.48**	**59.53**	**0.00**	**47.68**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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	0.7120	3.0000e-005	3.2500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.9700e-003	6.9700e-003	2.0000e-005		7.4300e-003
Energy	0.0176	0.1601	0.1345	9.6000e-004		0.0122	0.0122		0.0122	0.0122		192.1251	192.1251	3.6800e-003	3.5200e-003	193.2668
Mobile	0.5532	0.5907	5.9254	0.0145	1.5950	9.5700e-003	1.6046	0.4251	8.9000e-003	0.4340		1,480.3153	1,480.3153	0.0818	0.0558	1,498.9967
Total	**1.2828**	**0.7508**	**6.0631**	**0.0155**	**1.5950**	**0.0218**	**1.6168**	**0.4251**	**0.0211**	**0.4462**		**1,672.4474**	**1,672.4474**	**0.0855**	**0.0594**	**1,692.2709**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.7120	3.0000e-005	3.2500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.9700e-003	6.9700e-003	2.0000e-005		7.4300e-003
Energy	0.0176	0.1601	0.1345	9.6000e-004		0.0122	0.0122		0.0122	0.0122		192.1251	192.1251	3.6800e-003	3.5200e-003	193.2668
Mobile	0.5532	0.5907	5.9254	0.0145	1.5950	9.5700e-003	1.6046	0.4251	8.9000e-003	0.4340		1,480.3153	1,480.3153	0.0818	0.0558	1,498.9967
Total	**1.2828**	**0.7508**	**6.0631**	**0.0155**	**1.5950**	**0.0218**	**1.6168**	**0.4251**	**0.0211**	**0.4462**		**1,672.4474**	**1,672.4474**	**0.0855**	**0.0594**	**1,692.2709**

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	10/1/2021	11/5/2021	5	26	
2	Site Preparation	Site Preparation	11/6/2021	11/15/2021	5	6	
3	Grading	Grading	11/16/2021	1/10/2022	5	40	
4	Building Construction	Building Construction	1/11/2022	1/17/2023	5	266	
5	Paving	Paving	1/18/2023	2/17/2023	5	23	
6	Architectural Coating	Architectural Coating	2/18/2023	3/22/2023	5	23	

Acres of Grading (Site Preparation Phase): 9

Acres of Grading (Grading Phase): 40

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 47,786; Non-Residential Outdoor: 15,929; Striped Parking Area: 0 (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	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37

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

Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	2.00	101.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	2.00	4.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	2.00	1,365.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	13.00	10.00	4.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

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

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.8392	0.0000	0.8392	0.1271	0.0000	0.1271			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**0.8392**	**1.5513**	**2.3905**	**0.1271**	**1.4411**	**1.5682**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

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	0.0237	0.7067	0.1889	2.4000e-003	0.0678	8.6900e-003	0.0764	0.0186	8.3100e-003	0.0269		270.2629	270.2629	0.0250	0.0432	283.7727
Vendor	4.7100e-003	0.1065	0.0358	3.9000e-004	0.0128	1.6100e-003	0.0144	3.6800e-003	1.5400e-003	5.2200e-003		42.6685	42.6685	2.4000e-003	6.1000e-003	44.5450
Worker	0.0484	0.0342	0.5337	1.5100e-003	0.1677	9.6000e-004	0.1686	0.0445	8.8000e-004	0.0454		152.3792	152.3792	3.8500e-003	3.5800e-003	153.5434
Total	**0.0767**	**0.8474**	**0.7585**	**4.3000e-003**	**0.2482**	**0.0113**	**0.2595**	**0.0667**	**0.0107**	**0.0774**		**465.3106**	**465.3106**	**0.0312**	**0.0529**	**481.8610**

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

3.2 Demolition - 2021

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					0.3273	0.0000	0.3273	0.0496	0.0000	0.0496			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**0.3273**	**1.5513**	**1.8786**	**0.0496**	**1.4411**	**1.4906**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

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	0.0237	0.7067	0.1889	2.4000e-003	0.0678	8.6900e-003	0.0764	0.0186	8.3100e-003	0.0269		270.2629	270.2629	0.0250	0.0432	283.7727
Vendor	4.7100e-003	0.1065	0.0358	3.9000e-004	0.0128	1.6100e-003	0.0144	3.6800e-003	1.5400e-003	5.2200e-003		42.6685	42.6685	2.4000e-003	6.1000e-003	44.5450
Worker	0.0484	0.0342	0.5337	1.5100e-003	0.1677	9.6000e-004	0.1686	0.0445	8.8000e-004	0.0454		152.3792	152.3792	3.8500e-003	3.5800e-003	153.5434
Total	**0.0767**	**0.8474**	**0.7585**	**4.3000e-003**	**0.2482**	**0.0113**	**0.2595**	**0.0667**	**0.0107**	**0.0774**		**465.3106**	**465.3106**	**0.0312**	**0.0529**	**481.8610**

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

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**19.6570**	**2.0445**	**21.7015**	**10.1025**	**1.8809**	**11.9834**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

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	4.0600e-003	0.1213	0.0324	4.1000e-004	0.0116	1.4900e-003	0.0131	3.1800e-003	1.4300e-003	4.6100e-003		46.3818	46.3818	4.2800e-003	7.4200e-003	48.7003
Vendor	4.7100e-003	0.1065	0.0358	3.9000e-004	0.0128	1.6100e-003	0.0144	3.6800e-003	1.5400e-003	5.2200e-003		42.6685	42.6685	2.4000e-003	6.1000e-003	44.5450
Worker	0.0580	0.0410	0.6405	1.8100e-003	0.2012	1.1500e-003	0.2024	0.0534	1.0600e-003	0.0544		182.8551	182.8551	4.6200e-003	4.3000e-003	184.2521
Total	**0.0668**	**0.2688**	**0.7087**	**2.6100e-003**	**0.2256**	**4.2500e-003**	**0.2299**	**0.0602**	**4.0300e-003**	**0.0643**		**271.9053**	**271.9053**	**0.0113**	**0.0178**	**277.4973**

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

3.3 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.6662	0.0000	7.6662	3.9400	0.0000	3.9400			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**7.6662**	**2.0445**	**9.7107**	**3.9400**	**1.8809**	**5.8209**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

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	4.0600e-003	0.1213	0.0324	4.1000e-004	0.0116	1.4900e-003	0.0131	3.1800e-003	1.4300e-003	4.6100e-003		46.3818	46.3818	4.2800e-003	7.4200e-003	48.7003
Vendor	4.7100e-003	0.1065	0.0358	3.9000e-004	0.0128	1.6100e-003	0.0144	3.6800e-003	1.5400e-003	5.2200e-003		42.6685	42.6685	2.4000e-003	6.1000e-003	44.5450
Worker	0.0580	0.0410	0.6405	1.8100e-003	0.2012	1.1500e-003	0.2024	0.0534	1.0600e-003	0.0544		182.8551	182.8551	4.6200e-003	4.3000e-003	184.2521
Total	**0.0668**	**0.2688**	**0.7087**	**2.6100e-003**	**0.2256**	**4.2500e-003**	**0.2299**	**0.0602**	**4.0300e-003**	**0.0643**		**271.9053**	**271.9053**	**0.0113**	**0.0178**	**277.4973**

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

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	2.2903	24.7367	15.8575	0.0296		1.1599	1.1599		1.0671	1.0671		2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**2.2903**	**24.7367**	**15.8575**	**0.0296**	**7.0826**	**1.1599**	**8.2425**	**3.4247**	**1.0671**	**4.4919**		**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

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	0.2079	6.2085	1.6595	0.0210	0.5952	0.0764	0.6715	0.1630	0.0730	0.2360		2,374.1656	2,374.1656	0.2193	0.3799	2,492.8447
Vendor	4.7100e-003	0.1065	0.0358	3.9000e-004	0.0128	1.6100e-003	0.0144	3.6800e-003	1.5400e-003	5.2200e-003		42.6685	42.6685	2.4000e-003	6.1000e-003	44.5450
Worker	0.0484	0.0342	0.5337	1.5100e-003	0.1677	9.6000e-004	0.1686	0.0445	8.8000e-004	0.0454		152.3792	152.3792	3.8500e-003	3.5800e-003	153.5434
Total	**0.2610**	**6.3492**	**2.2290**	**0.0229**	**0.7756**	**0.0789**	**0.8546**	**0.2111**	**0.0755**	**0.2866**		**2,569.2133**	**2,569.2133**	**0.2255**	**0.3895**	**2,690.9330**

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

3.4 Grading - 2021

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					2.7622	0.0000	2.7622	1.3357	0.0000	1.3357			0.0000			0.0000
Off-Road	2.2903	24.7367	15.8575	0.0296		1.1599	1.1599		1.0671	1.0671	0.0000	2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**2.2903**	**24.7367**	**15.8575**	**0.0296**	**2.7622**	**1.1599**	**3.9221**	**1.3357**	**1.0671**	**2.4028**	**0.0000**	**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

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	0.2079	6.2085	1.6595	0.0210	0.5952	0.0764	0.6715	0.1630	0.0730	0.2360		2,374.1656	2,374.1656	0.2193	0.3799	2,492.8447
Vendor	4.7100e-003	0.1065	0.0358	3.9000e-004	0.0128	1.6100e-003	0.0144	3.6800e-003	1.5400e-003	5.2200e-003		42.6685	42.6685	2.4000e-003	6.1000e-003	44.5450
Worker	0.0484	0.0342	0.5337	1.5100e-003	0.1677	9.6000e-004	0.1686	0.0445	8.8000e-004	0.0454		152.3792	152.3792	3.8500e-003	3.5800e-003	153.5434
Total	**0.2610**	**6.3492**	**2.2290**	**0.0229**	**0.7756**	**0.0789**	**0.8546**	**0.2111**	**0.0755**	**0.2866**		**2,569.2133**	**2,569.2133**	**0.2255**	**0.3895**	**2,690.9330**

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

3.4 Grading - 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					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.9486	20.8551	15.2727	0.0297		0.9409	0.9409		0.8656	0.8656		2,872.0464	2,872.0464	0.9289		2,895.2684
Total	**1.9486**	**20.8551**	**15.2727**	**0.0297**	**7.0826**	**0.9409**	**8.0234**	**3.4247**	**0.8656**	**4.2903**		**2,872.0464**	**2,872.0464**	**0.9289**		**2,895.2684**

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	0.1382	5.3130	1.4924	0.0204	0.5952	0.0402	0.6354	0.1630	0.0385	0.2014		2,307.1790	2,307.1790	0.2199	0.3695	2,422.7957
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	0.0451	0.0303	0.4930	1.4600e-003	0.1677	9.0000e-004	0.1686	0.0445	8.3000e-004	0.0453		147.7067	147.7067	3.4700e-003	3.3200e-003	148.7828
Total	**0.1867**	**5.4330**	**2.0172**	**0.0222**	**0.7756**	**0.0420**	**0.8176**	**0.2111**	**0.0401**	**0.2513**		**2,496.3572**	**2,496.3572**	**0.2258**	**0.3788**	**2,614.8805**

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

3.4 Grading - 2022

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					2.7622	0.0000	2.7622	1.3357	0.0000	1.3357			0.0000			0.0000
Off-Road	1.9486	20.8551	15.2727	0.0297		0.9409	0.9409		0.8656	0.8656	0.0000	2,872.0464	2,872.0464	0.9289		2,895.2684
Total	**1.9486**	**20.8551**	**15.2727**	**0.0297**	**2.7622**	**0.9409**	**3.7031**	**1.3357**	**0.8656**	**2.2012**	**0.0000**	**2,872.0464**	**2,872.0464**	**0.9289**		**2,895.2684**

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	0.1382	5.3130	1.4924	0.0204	0.5952	0.0402	0.6354	0.1630	0.0385	0.2014		2,307.1790	2,307.1790	0.2199	0.3695	2,422.7957
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	0.0451	0.0303	0.4930	1.4600e-003	0.1677	9.0000e-004	0.1686	0.0445	8.3000e-004	0.0453		147.7067	147.7067	3.4700e-003	3.3200e-003	148.7828
Total	**0.1867**	**5.4330**	**2.0172**	**0.0222**	**0.7756**	**0.0420**	**0.8176**	**0.2111**	**0.0401**	**0.2513**		**2,496.3572**	**2,496.3572**	**0.2258**	**0.3788**	**2,614.8805**

Oso Creek WRP - 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 - 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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

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	6.0000e-005	2.3400e-003	6.6000e-004	1.0000e-005	2.6000e-004	2.0000e-005	2.8000e-004	7.0000e-005	2.0000e-005	9.0000e-005		1.0167	1.0167	1.0000e-004	1.6000e-004	1.0676
Vendor	0.0166	0.4487	0.1593	1.8900e-003	0.0639	4.3600e-003	0.0683	0.0184	4.1800e-003	0.0226		207.3576	207.3576	0.0119	0.0297	216.5100
Worker	0.0391	0.0263	0.4272	1.2700e-003	0.1453	7.8000e-004	0.1461	0.0385	7.2000e-004	0.0393		128.0125	128.0125	3.0100e-003	2.8800e-003	128.9451
Total	**0.0558**	**0.4773**	**0.5872**	**3.1700e-003**	**0.2095**	**5.1600e-003**	**0.2147**	**0.0570**	**4.9200e-003**	**0.0619**		**336.3868**	**336.3868**	**0.0150**	**0.0328**	**346.5227**

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

3.5 Building Construction - 2022

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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

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	6.0000e-005	2.3400e-003	6.6000e-004	1.0000e-005	2.6000e-004	2.0000e-005	2.8000e-004	7.0000e-005	2.0000e-005	9.0000e-005		1.0167	1.0167	1.0000e-004	1.6000e-004	1.0676
Vendor	0.0166	0.4487	0.1593	1.8900e-003	0.0639	4.3600e-003	0.0683	0.0184	4.1800e-003	0.0226		207.3576	207.3576	0.0119	0.0297	216.5100
Worker	0.0391	0.0263	0.4272	1.2700e-003	0.1453	7.8000e-004	0.1461	0.0385	7.2000e-004	0.0393		128.0125	128.0125	3.0100e-003	2.8800e-003	128.9451
Total	**0.0558**	**0.4773**	**0.5872**	**3.1700e-003**	**0.2095**	**5.1600e-003**	**0.2147**	**0.0570**	**4.9200e-003**	**0.0619**		**336.3868**	**336.3868**	**0.0150**	**0.0328**	**346.5227**

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

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.0000e-005	1.7900e-003	6.1000e-004	1.0000e-005	2.6000e-004	1.0000e-005	2.7000e-004	7.0000e-005	1.0000e-005	8.0000e-005		0.9617	0.9617	1.0000e-004	1.5000e-004	1.0101
Vendor	0.0101	0.3505	0.1453	1.8000e-003	0.0639	1.8000e-003	0.0657	0.0184	1.7200e-003	0.0201		197.4494	197.4494	0.0117	0.0283	206.1857
Worker	0.0366	0.0234	0.3970	1.2300e-003	0.1453	7.4000e-004	0.1461	0.0385	6.8000e-004	0.0392		123.9370	123.9370	2.7200e-003	2.6800e-003	124.8030
Total	**0.0467**	**0.3757**	**0.5429**	**3.0400e-003**	**0.2095**	**2.5500e-003**	**0.2121**	**0.0570**	**2.4100e-003**	**0.0594**		**322.3481**	**322.3481**	**0.0146**	**0.0312**	**331.9988**

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

3.5 Building Construction - 2023

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	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.0000e-005	1.7900e-003	6.1000e-004	1.0000e-005	2.6000e-004	1.0000e-005	2.7000e-004	7.0000e-005	1.0000e-005	8.0000e-005		0.9617	0.9617	1.0000e-004	1.5000e-004	1.0101
Vendor	0.0101	0.3505	0.1453	1.8000e-003	0.0639	1.8000e-003	0.0657	0.0184	1.7200e-003	0.0201		197.4494	197.4494	0.0117	0.0283	206.1857
Worker	0.0366	0.0234	0.3970	1.2300e-003	0.1453	7.4000e-004	0.1461	0.0385	6.8000e-004	0.0392		123.9370	123.9370	2.7200e-003	2.6800e-003	124.8030
Total	**0.0467**	**0.3757**	**0.5429**	**3.0400e-003**	**0.2095**	**2.5500e-003**	**0.2121**	**0.0570**	**2.4100e-003**	**0.0594**		**322.3481**	**322.3481**	**0.0146**	**0.0312**	**331.9988**

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

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9181	8.7903	12.1905	0.0189		0.4357	0.4357		0.4025	0.4025		1,805.4304	1,805.4304	0.5673		1,819.6122
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9181**	**8.7903**	**12.1905**	**0.0189**		**0.4357**	**0.4357**		**0.4025**	**0.4025**		**1,805.4304**	**1,805.4304**	**0.5673**		**1,819.6122**

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	0.0563	0.0360	0.6108	1.8900e-003	0.2236	1.1400e-003	0.2247	0.0593	1.0500e-003	0.0603		190.6723	190.6723	4.1900e-003	4.1200e-003	192.0046
Total	**0.0583**	**0.1061**	**0.6398**	**2.2500e-003**	**0.2363**	**1.5000e-003**	**0.2378**	**0.0630**	**1.3900e-003**	**0.0644**		**230.1622**	**230.1622**	**6.5400e-003**	**9.7900e-003**	**233.2417**

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

3.6 Paving - 2023

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	0.9181	8.7903	12.1905	0.0189		0.4357	0.4357		0.4025	0.4025	0.0000	1,805.4304	1,805.4304	0.5673		1,819.6122
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9181**	**8.7903**	**12.1905**	**0.0189**		**0.4357**	**0.4357**		**0.4025**	**0.4025**	**0.0000**	**1,805.4304**	**1,805.4304**	**0.5673**		**1,819.6122**

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	0.0563	0.0360	0.6108	1.8900e-003	0.2236	1.1400e-003	0.2247	0.0593	1.0500e-003	0.0603		190.6723	190.6723	4.1900e-003	4.1200e-003	192.0046
Total	**0.0583**	**0.1061**	**0.6398**	**2.2500e-003**	**0.2363**	**1.5000e-003**	**0.2378**	**0.0630**	**1.3900e-003**	**0.0644**		**230.1622**	**230.1622**	**6.5400e-003**	**9.7900e-003**	**233.2417**

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

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	12.8400					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	**13.0316**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

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	8.4500e-003	5.4000e-003	0.0916	2.8000e-004	0.0335	1.7000e-004	0.0337	8.8900e-003	1.6000e-004	9.0500e-003		28.6009	28.6009	6.3000e-004	6.2000e-004	28.8007
Total	**0.0105**	**0.0755**	**0.1207**	**6.4000e-004**	**0.0463**	**5.3000e-004**	**0.0469**	**0.0126**	**5.0000e-004**	**0.0131**		**68.0907**	**68.0907**	**2.9800e-003**	**6.2900e-003**	**70.0378**

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

3.7 Architectural Coating - 2023

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	12.8400					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	**13.0316**	**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**

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	8.4500e-003	5.4000e-003	0.0916	2.8000e-004	0.0335	1.7000e-004	0.0337	8.8900e-003	1.6000e-004	9.0500e-003		28.6009	28.6009	6.3000e-004	6.2000e-004	28.8007
Total	**0.0105**	**0.0755**	**0.1207**	**6.4000e-004**	**0.0463**	**5.3000e-004**	**0.0469**	**0.0126**	**5.0000e-004**	**0.0131**		**68.0907**	**68.0907**	**2.9800e-003**	**6.2900e-003**	**70.0378**

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5532	0.5907	5.9254	0.0145	1.5950	9.5700e-003	1.6046	0.4251	8.9000e-003	0.4340		1,480.3153	1,480.3153	0.0818	0.0558	1,498.9967
Unmitigated	0.5532	0.5907	5.9254	0.0145	1.5950	9.5700e-003	1.6046	0.4251	8.9000e-003	0.4340		1,480.3153	1,480.3153	0.0818	0.0558	1,498.9967

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	130.35	52.30	131.40	528,509	528,509
General Office Building	54.35	12.33	3.91	132,533	132,533
Total	184.70	64.63	135.31	661,042	661,042

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	59.00	28.00	13.00	92	5	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4

4.4 Fleet Mix

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

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.546200	0.059546	0.185910	0.127866	0.024295	0.006605	0.014499	0.004906	0.000657	0.000381	0.024552	0.000713	0.003869
General Office Building	0.546200	0.059546	0.185910	0.127866	0.024295	0.006605	0.014499	0.004906	0.000657	0.000381	0.024552	0.000713	0.003869

5.0 Energy Detail

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	0.0176	0.1601	0.1345	9.6000e-004		0.0122	0.0122		0.0122	0.0122		192.1251	192.1251	3.6800e-003	3.5200e-003	193.2668
NaturalGas Unmitigated	0.0176	0.1601	0.1345	9.6000e-004		0.0122	0.0122		0.0122	0.0122		192.1251	192.1251	3.6800e-003	3.5200e-003	193.2668

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	lb/day										lb/day					
General Light Industry	1494.83	0.0161	0.1466	0.1231	8.8000e-004		0.0111	0.0111		0.0111	0.0111		175.8628	175.8628	3.3700e-003	3.2200e-003	176.9079
General Office Building	138.229	1.4900e-003	0.0136	0.0114	8.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003		16.2623	16.2623	3.1000e-004	3.0000e-004	16.3589
Total		**0.0176**	**0.1601**	**0.1345**	**9.6000e-004**		**0.0122**	**0.0122**		**0.0122**	**0.0122**		**192.1251**	**192.1251**	**3.6800e-003**	**3.5200e-003**	**193.2668**

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	1.49483	0.0161	0.1466	0.1231	8.8000e-004		0.0111	0.0111		0.0111	0.0111		175.8628	175.8628	3.3700e-003	3.2200e-003	176.9079
General Office Building	0.138229	1.4900e-003	0.0136	0.0114	8.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003		16.2623	16.2623	3.1000e-004	3.0000e-004	16.3589
Total		**0.0176**	**0.1601**	**0.1345**	**9.6000e-004**		**0.0122**	**0.0122**		**0.0122**	**0.0122**		**192.1251**	**192.1251**	**3.6800e-003**	**3.5200e-003**	**193.2668**

6.0 Area Detail

Oso Creek WRP - Orange County, Summer

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	lb/day										lb/day					
Mitigated	0.7120	3.0000e-005	3.2500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.9700e-003	6.9700e-003	2.0000e-005		7.4300e-003
Unmitigated	0.7120	3.0000e-005	3.2500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.9700e-003	6.9700e-003	2.0000e-005		7.4300e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0809					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6308					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-004	3.0000e-005	3.2500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.9700e-003	6.9700e-003	2.0000e-005		7.4300e-003
Total	**0.7120**	**3.0000e-005**	**3.2500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.9700e-003**	**6.9700e-003**	**2.0000e-005**		**7.4300e-003**

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	0.0809					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6308					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-004	3.0000e-005	3.2500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.9700e-003	6.9700e-003	2.0000e-005		7.4300e-003
Total	**0.7120**	**3.0000e-005**	**3.2500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.9700e-003**	**6.9700e-003**	**2.0000e-005**		**7.4300e-003**

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

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

Oso Creek WRP

Orange County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	5.58	1000sqft	1.00	5,575.00	0
General Light Industry	26.28	1000sqft	4.00	26,282.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2024
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	588.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 5 acre site to be conservative

Construction Phase - Schedule for 18 months

Off-road Equipment - defaults

Off-road Equipment - defaults

Off-road Equipment - defaults

Off-road Equipment - defaults

Off-road Equipment - defaults

Off-road Equipment - defaults

Trips and VMT - defaults and grading haul trips estimated from amount of excavation

Demolition - existing SF as measured by GIS

Oso Creek WRP - Orange County, Winter

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

Grading - Material exported estimated based on sq footage of proposed buildings/structures and depths

Construction Off-road Equipment Mitigation - water 3x day per SCAQMD

Architectural Coating - defaults

Fleet Mix -

Vehicle Trips - mobile calculated outside caleemod

Road Dust - defaults

Consumer Products - defaults

Area Coating - defaults

Landscape Equipment - defaults

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Parking	0.00	100.00
tblAreaCoating	Area_Nonresidential_Exterior	0	15929
tblAreaCoating	Area_Nonresidential_Interior	0	47786
tblConstructionPhase	NumDays	18.00	23.00
tblConstructionPhase	NumDays	230.00	266.00
tblConstructionPhase	NumDays	20.00	26.00
tblConstructionPhase	NumDays	8.00	40.00
tblConstructionPhase	NumDays	18.00	23.00
tblConstructionPhase	NumDays	5.00	6.00
tblConsumerProducts	ROG_EF	0	1.98E-05
tblConsumerProducts	ROG_EF_Degreaser	0	3.542E-07
tblConsumerProducts	ROG_EF_PesticidesFertilizers	0	5.152E-08
tblGrading	MaterialExported	0.00	10,923.00
tblLandscapeEquipment	NumberSummerDays	0	250
tblRoadDust	MaterialMoistureContent	0	0.5
tblRoadDust	MaterialSiltContent	0	4.3
tblRoadDust	MeanVehicleSpeed	0	40
tblRoadDust	MobileAverageVehicleWeight	0	2.4

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

tblRoadDust	RoadPercentPave	0	100
tblRoadDust	RoadSiltLoading	0	0.1
tblTripsAndVMT	HaulingTripNumber	0.00	4.00
tblTripsAndVMT	HaulingTripNumber	1,080.00	1,365.00
tblTripsAndVMT	HaulingTripNumber	0.00	4.00

2.0 Emissions Summary

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					
2021	3.9598	40.7786	22.2898	0.0525	19.8826	2.0487	21.9314	10.1627	1.8849	12.0476	0.0000	5,433.9644	5,433.9644	1.2034	0.3898	5,578.9834
2022	2.1359	26.5034	17.2787	0.0518	7.8582	0.9829	8.8411	3.6359	0.9058	4.5417	0.0000	5,361.8833	5,361.8833	1.1545	0.3791	5,503.7197
2023	13.0428	14.7786	16.7644	0.0299	0.2363	0.7023	0.9118	0.0630	0.6609	0.7179	0.0000	2,871.9240	2,871.9240	0.6225	0.0314	2,896.8418
Maximum	**13.0428**	**40.7786**	**22.2898**	**0.0525**	**19.8826**	**2.0487**	**21.9314**	**10.1627**	**1.8849**	**12.0476**	**0.0000**	**5,433.9644**	**5,433.9644**	**1.2034**	**0.3898**	**5,578.9834**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	3.9598	40.7786	22.2898	0.0525	7.8919	2.0487	9.9406	4.0002	1.8849	5.8851	0.0000	5,433.9644	5,433.9644	1.2034	0.3898	5,578.9834
2022	2.1359	26.5034	17.2787	0.0518	3.5378	0.9829	4.5207	1.5468	0.9058	2.4526	0.0000	5,361.8833	5,361.8833	1.1545	0.3791	5,503.7197
2023	13.0428	14.7786	16.7644	0.0299	0.2363	0.7023	0.9118	0.0630	0.6609	0.7179	0.0000	2,871.9240	2,871.9240	0.6225	0.0314	2,896.8418
Maximum	**13.0428**	**40.7786**	**22.2898**	**0.0525**	**7.8919**	**2.0487**	**9.9406**	**4.0002**	**1.8849**	**5.8851**	**0.0000**	**5,433.9644**	**5,433.9644**	**1.2034**	**0.3898**	**5,578.9834**

Oso Creek WRP - 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**	**58.30**	**0.00**	**51.48**	**59.53**	**0.00**	**47.68**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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	0.7120	3.0000e-005	3.2500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.9700e-003	6.9700e-003	2.0000e-005		7.4300e-003
Energy	0.0176	0.1601	0.1345	9.6000e-004		0.0122	0.0122		0.0122	0.0122		192.1251	192.1251	3.6800e-003	3.5200e-003	193.2668
Mobile	0.5508	0.6343	5.8237	0.0140	1.5950	9.5800e-003	1.6046	0.4251	8.9000e-003	0.4340		1,423.7214	1,423.7214	0.0840	0.0581	1,443.1379
Total	**1.2803**	**0.7945**	**5.9615**	**0.0149**	**1.5950**	**0.0218**	**1.6168**	**0.4251**	**0.0211**	**0.4462**		**1,615.8534**	**1,615.8534**	**0.0877**	**0.0616**	**1,636.4121**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.7120	3.0000e-005	3.2500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.9700e-003	6.9700e-003	2.0000e-005		7.4300e-003
Energy	0.0176	0.1601	0.1345	9.6000e-004		0.0122	0.0122		0.0122	0.0122		192.1251	192.1251	3.6800e-003	3.5200e-003	193.2668
Mobile	0.5508	0.6343	5.8237	0.0140	1.5950	9.5800e-003	1.6046	0.4251	8.9000e-003	0.4340		1,423.7214	1,423.7214	0.0840	0.0581	1,443.1379
Total	**1.2803**	**0.7945**	**5.9615**	**0.0149**	**1.5950**	**0.0218**	**1.6168**	**0.4251**	**0.0211**	**0.4462**		**1,615.8534**	**1,615.8534**	**0.0877**	**0.0616**	**1,636.4121**

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	10/1/2021	11/5/2021	5	26	
2	Site Preparation	Site Preparation	11/6/2021	11/15/2021	5	6	
3	Grading	Grading	11/16/2021	1/10/2022	5	40	
4	Building Construction	Building Construction	1/11/2022	1/17/2023	5	266	
5	Paving	Paving	1/18/2023	2/17/2023	5	23	
6	Architectural Coating	Architectural Coating	2/18/2023	3/22/2023	5	23	

Acres of Grading (Site Preparation Phase): 9

Acres of Grading (Grading Phase): 40

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 47,786; Non-Residential Outdoor: 15,929; Striped Parking Area: 0 (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	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37

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

Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	2.00	101.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	2.00	4.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	2.00	1,365.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	13.00	10.00	4.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

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

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.8392	0.0000	0.8392	0.1271	0.0000	0.1271			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**0.8392**	**1.5513**	**2.3905**	**0.1271**	**1.4411**	**1.5682**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

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	0.0233	0.7338	0.1917	2.4000e-003	0.0678	8.7000e-003	0.0765	0.0186	8.3300e-003	0.0269		270.2801	270.2801	0.0249	0.0433	283.7906
Vendor	4.6800e-003	0.1105	0.0371	3.9000e-004	0.0128	1.6200e-003	0.0144	3.6800e-003	1.5500e-003	5.2300e-003		42.6679	42.6679	2.4000e-003	6.1000e-003	44.5456
Worker	0.0525	0.0376	0.4960	1.4400e-003	0.1677	9.6000e-004	0.1686	0.0445	8.8000e-004	0.0454		145.0512	145.0512	3.9300e-003	3.8100e-003	146.2863
Total	**0.0805**	**0.8819**	**0.7248**	**4.2300e-003**	**0.2482**	**0.0113**	**0.2595**	**0.0667**	**0.0108**	**0.0775**		**457.9992**	**457.9992**	**0.0313**	**0.0532**	**474.6225**

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

3.2 Demolition - 2021

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					0.3273	0.0000	0.3273	0.0496	0.0000	0.0496			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**0.3273**	**1.5513**	**1.8786**	**0.0496**	**1.4411**	**1.4906**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

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	0.0233	0.7338	0.1917	2.4000e-003	0.0678	8.7000e-003	0.0765	0.0186	8.3300e-003	0.0269		270.2801	270.2801	0.0249	0.0433	283.7906
Vendor	4.6800e-003	0.1105	0.0371	3.9000e-004	0.0128	1.6200e-003	0.0144	3.6800e-003	1.5500e-003	5.2300e-003		42.6679	42.6679	2.4000e-003	6.1000e-003	44.5456
Worker	0.0525	0.0376	0.4960	1.4400e-003	0.1677	9.6000e-004	0.1686	0.0445	8.8000e-004	0.0454		145.0512	145.0512	3.9300e-003	3.8100e-003	146.2863
Total	**0.0805**	**0.8819**	**0.7248**	**4.2300e-003**	**0.2482**	**0.0113**	**0.2595**	**0.0667**	**0.0108**	**0.0775**		**457.9992**	**457.9992**	**0.0313**	**0.0532**	**474.6225**

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

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**19.6570**	**2.0445**	**21.7015**	**10.1025**	**1.8809**	**11.9834**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

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	4.0000e-003	0.1259	0.0329	4.1000e-004	0.0116	1.4900e-003	0.0131	3.1800e-003	1.4300e-003	4.6100e-003		46.3847	46.3847	4.2800e-003	7.4200e-003	48.7033
Vendor	4.6800e-003	0.1105	0.0371	3.9000e-004	0.0128	1.6200e-003	0.0144	3.6800e-003	1.5500e-003	5.2300e-003		42.6679	42.6679	2.4000e-003	6.1000e-003	44.5456
Worker	0.0630	0.0451	0.5952	1.7200e-003	0.2012	1.1500e-003	0.2024	0.0534	1.0600e-003	0.0544		174.0614	174.0614	4.7200e-003	4.5800e-003	175.5436
Total	**0.0717**	**0.2815**	**0.6652**	**2.5200e-003**	**0.2256**	**4.2600e-003**	**0.2299**	**0.0602**	**4.0400e-003**	**0.0643**		**263.1141**	**263.1141**	**0.0114**	**0.0181**	**268.7925**

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

3.3 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.6662	0.0000	7.6662	3.9400	0.0000	3.9400			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**7.6662**	**2.0445**	**9.7107**	**3.9400**	**1.8809**	**5.8209**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

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	4.0000e-003	0.1259	0.0329	4.1000e-004	0.0116	1.4900e-003	0.0131	3.1800e-003	1.4300e-003	4.6100e-003		46.3847	46.3847	4.2800e-003	7.4200e-003	48.7033
Vendor	4.6800e-003	0.1105	0.0371	3.9000e-004	0.0128	1.6200e-003	0.0144	3.6800e-003	1.5500e-003	5.2300e-003		42.6679	42.6679	2.4000e-003	6.1000e-003	44.5456
Worker	0.0630	0.0451	0.5952	1.7200e-003	0.2012	1.1500e-003	0.2024	0.0534	1.0600e-003	0.0544		174.0614	174.0614	4.7200e-003	4.5800e-003	175.5436
Total	**0.0717**	**0.2815**	**0.6652**	**2.5200e-003**	**0.2256**	**4.2600e-003**	**0.2299**	**0.0602**	**4.0400e-003**	**0.0643**		**263.1141**	**263.1141**	**0.0114**	**0.0181**	**268.7925**

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

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	2.2903	24.7367	15.8575	0.0296		1.1599	1.1599		1.0671	1.0671		2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**2.2903**	**24.7367**	**15.8575**	**0.0296**	**7.0826**	**1.1599**	**8.2425**	**3.4247**	**1.0671**	**4.4919**		**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

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	0.2050	6.4464	1.6837	0.0210	0.5952	0.0765	0.6717	0.1630	0.0732	0.2362		2,374.3168	2,374.3168	0.2191	0.3799	2,493.0019
Vendor	4.6800e-003	0.1105	0.0371	3.9000e-004	0.0128	1.6200e-003	0.0144	3.6800e-003	1.5500e-003	5.2300e-003		42.6679	42.6679	2.4000e-003	6.1000e-003	44.5456
Worker	0.0525	0.0376	0.4960	1.4400e-003	0.1677	9.6000e-004	0.1686	0.0445	8.8000e-004	0.0454		145.0512	145.0512	3.9300e-003	3.8100e-003	146.2863
Total	**0.2621**	**6.5945**	**2.2168**	**0.0229**	**0.7756**	**0.0791**	**0.8547**	**0.2111**	**0.0756**	**0.2867**		**2,562.0359**	**2,562.0359**	**0.2254**	**0.3898**	**2,683.8339**

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

3.4 Grading - 2021

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					2.7622	0.0000	2.7622	1.3357	0.0000	1.3357			0.0000			0.0000
Off-Road	2.2903	24.7367	15.8575	0.0296		1.1599	1.1599		1.0671	1.0671	0.0000	2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**2.2903**	**24.7367**	**15.8575**	**0.0296**	**2.7622**	**1.1599**	**3.9221**	**1.3357**	**1.0671**	**2.4028**	**0.0000**	**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

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	0.2050	6.4464	1.6837	0.0210	0.5952	0.0765	0.6717	0.1630	0.0732	0.2362		2,374.3168	2,374.3168	0.2191	0.3799	2,493.0019
Vendor	4.6800e-003	0.1105	0.0371	3.9000e-004	0.0128	1.6200e-003	0.0144	3.6800e-003	1.5500e-003	5.2300e-003		42.6679	42.6679	2.4000e-003	6.1000e-003	44.5456
Worker	0.0525	0.0376	0.4960	1.4400e-003	0.1677	9.6000e-004	0.1686	0.0445	8.8000e-004	0.0454		145.0512	145.0512	3.9300e-003	3.8100e-003	146.2863
Total	**0.2621**	**6.5945**	**2.2168**	**0.0229**	**0.7756**	**0.0791**	**0.8547**	**0.2111**	**0.0756**	**0.2867**		**2,562.0359**	**2,562.0359**	**0.2254**	**0.3898**	**2,683.8339**

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

3.4 Grading - 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					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.9486	20.8551	15.2727	0.0297		0.9409	0.9409		0.8656	0.8656		2,872.0464	2,872.0464	0.9289		2,895.2684
Total	**1.9486**	**20.8551**	**15.2727**	**0.0297**	**7.0826**	**0.9409**	**8.0234**	**3.4247**	**0.8656**	**4.2903**		**2,872.0464**	**2,872.0464**	**0.9289**		**2,895.2684**

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	0.1349	5.5217	1.5142	0.0204	0.5952	0.0403	0.6355	0.1630	0.0385	0.2015		2,307.7272	2,307.7272	0.2197	0.3696	2,423.3679
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	0.0491	0.0333	0.4587	1.3900e-003	0.1677	9.0000e-004	0.1686	0.0445	8.3000e-004	0.0453		140.6252	140.6252	3.5500e-003	3.5300e-003	141.7667
Total	**0.1873**	**5.6482**	**2.0059**	**0.0221**	**0.7756**	**0.0421**	**0.8177**	**0.2111**	**0.0402**	**0.2514**		**2,489.8369**	**2,489.8369**	**0.2256**	**0.3791**	**2,608.4513**

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

3.4 Grading - 2022

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					2.7622	0.0000	2.7622	1.3357	0.0000	1.3357			0.0000			0.0000
Off-Road	1.9486	20.8551	15.2727	0.0297		0.9409	0.9409		0.8656	0.8656	0.0000	2,872.0464	2,872.0464	0.9289		2,895.2684
Total	**1.9486**	**20.8551**	**15.2727**	**0.0297**	**2.7622**	**0.9409**	**3.7031**	**1.3357**	**0.8656**	**2.2012**	**0.0000**	**2,872.0464**	**2,872.0464**	**0.9289**		**2,895.2684**

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	0.1349	5.5217	1.5142	0.0204	0.5952	0.0403	0.6355	0.1630	0.0385	0.2015		2,307.7272	2,307.7272	0.2197	0.3696	2,423.3679
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	0.0491	0.0333	0.4587	1.3900e-003	0.1677	9.0000e-004	0.1686	0.0445	8.3000e-004	0.0453		140.6252	140.6252	3.5500e-003	3.5300e-003	141.7667
Total	**0.1873**	**5.6482**	**2.0059**	**0.0221**	**0.7756**	**0.0421**	**0.8177**	**0.2111**	**0.0402**	**0.2514**		**2,489.8369**	**2,489.8369**	**0.2256**	**0.3791**	**2,608.4513**

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

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

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	6.0000e-005	2.4300e-003	6.7000e-004	1.0000e-005	2.6000e-004	2.0000e-005	2.8000e-004	7.0000e-005	2.0000e-005	9.0000e-005		1.0169	1.0169	1.0000e-004	1.6000e-004	1.0679
Vendor	0.0164	0.4663	0.1650	1.8900e-003	0.0639	4.3800e-003	0.0683	0.0184	4.1900e-003	0.0226		207.4226	207.4226	0.0119	0.0298	216.5836
Worker	0.0426	0.0289	0.3976	1.2100e-003	0.1453	7.8000e-004	0.1461	0.0385	7.2000e-004	0.0393		121.8751	121.8751	3.0800e-003	3.0600e-003	122.8645
Total	**0.0591**	**0.4976**	**0.5633**	**3.1100e-003**	**0.2095**	**5.1800e-003**	**0.2147**	**0.0570**	**4.9300e-003**	**0.0619**		**330.3147**	**330.3147**	**0.0150**	**0.0330**	**340.5159**

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

3.5 Building Construction - 2022

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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

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	6.0000e-005	2.4300e-003	6.7000e-004	1.0000e-005	2.6000e-004	2.0000e-005	2.8000e-004	7.0000e-005	2.0000e-005	9.0000e-005		1.0169	1.0169	1.0000e-004	1.6000e-004	1.0679
Vendor	0.0164	0.4663	0.1650	1.8900e-003	0.0639	4.3800e-003	0.0683	0.0184	4.1900e-003	0.0226		207.4226	207.4226	0.0119	0.0298	216.5836
Worker	0.0426	0.0289	0.3976	1.2100e-003	0.1453	7.8000e-004	0.1461	0.0385	7.2000e-004	0.0393		121.8751	121.8751	3.0800e-003	3.0600e-003	122.8645
Total	**0.0591**	**0.4976**	**0.5633**	**3.1100e-003**	**0.2095**	**5.1800e-003**	**0.2147**	**0.0570**	**4.9300e-003**	**0.0619**		**330.3147**	**330.3147**	**0.0150**	**0.0330**	**340.5159**

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

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.0000e-005	1.8700e-003	6.2000e-004	1.0000e-005	2.6000e-004	1.0000e-005	2.7000e-004	7.0000e-005	1.0000e-005	8.0000e-005		0.9626	0.9626	1.0000e-004	1.5000e-004	1.0110
Vendor	9.7500e-003	0.3661	0.1499	1.8000e-003	0.0639	1.8100e-003	0.0658	0.0184	1.7300e-003	0.0201		197.7398	197.7398	0.0117	0.0284	206.4945
Worker	0.0400	0.0257	0.3698	1.1700e-003	0.1453	7.4000e-004	0.1461	0.0385	6.8000e-004	0.0392		118.0117	118.0117	2.7900e-003	2.8500e-003	118.9303
Total	**0.0498**	**0.3937**	**0.5204**	**2.9800e-003**	**0.2095**	**2.5600e-003**	**0.2121**	**0.0570**	**2.4200e-003**	**0.0594**		**316.7140**	**316.7140**	**0.0146**	**0.0314**	**326.4358**

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

3.5 Building Construction - 2023

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	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.0000e-005	1.8700e-003	6.2000e-004	1.0000e-005	2.6000e-004	1.0000e-005	2.7000e-004	7.0000e-005	1.0000e-005	8.0000e-005		0.9626	0.9626	1.0000e-004	1.5000e-004	1.0110
Vendor	9.7500e-003	0.3661	0.1499	1.8000e-003	0.0639	1.8100e-003	0.0658	0.0184	1.7300e-003	0.0201		197.7398	197.7398	0.0117	0.0284	206.4945
Worker	0.0400	0.0257	0.3698	1.1700e-003	0.1453	7.4000e-004	0.1461	0.0385	6.8000e-004	0.0392		118.0117	118.0117	2.7900e-003	2.8500e-003	118.9303
Total	**0.0498**	**0.3937**	**0.5204**	**2.9800e-003**	**0.2095**	**2.5600e-003**	**0.2121**	**0.0570**	**2.4200e-003**	**0.0594**		**316.7140**	**316.7140**	**0.0146**	**0.0314**	**326.4358**

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

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9181	8.7903	12.1905	0.0189		0.4357	0.4357		0.4025	0.4025		1,805.4304	1,805.4304	0.5673		1,819.6122
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9181**	**8.7903**	**12.1905**	**0.0189**		**0.4357**	**0.4357**		**0.4025**	**0.4025**		**1,805.4304**	**1,805.4304**	**0.5673**		**1,819.6122**

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	0.0616	0.0396	0.5690	1.8000e-003	0.2236	1.1400e-003	0.2247	0.0593	1.0500e-003	0.0603		181.5564	181.5564	4.2900e-003	4.3800e-003	182.9697
Total	**0.0635**	**0.1128**	**0.5990**	**2.1600e-003**	**0.2363**	**1.5000e-003**	**0.2378**	**0.0630**	**1.4000e-003**	**0.0644**		**221.1043**	**221.1043**	**6.6300e-003**	**0.0101**	**224.2685**

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

3.6 Paving - 2023

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	0.9181	8.7903	12.1905	0.0189		0.4357	0.4357		0.4025	0.4025	0.0000	1,805.4304	1,805.4304	0.5673		1,819.6122
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9181**	**8.7903**	**12.1905**	**0.0189**		**0.4357**	**0.4357**		**0.4025**	**0.4025**	**0.0000**	**1,805.4304**	**1,805.4304**	**0.5673**		**1,819.6122**

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	0.0616	0.0396	0.5690	1.8000e-003	0.2236	1.1400e-003	0.2247	0.0593	1.0500e-003	0.0603		181.5564	181.5564	4.2900e-003	4.3800e-003	182.9697
Total	**0.0635**	**0.1128**	**0.5990**	**2.1600e-003**	**0.2363**	**1.5000e-003**	**0.2378**	**0.0630**	**1.4000e-003**	**0.0644**		**221.1043**	**221.1043**	**6.6300e-003**	**0.0101**	**224.2685**

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

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	12.8400					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	**13.0316**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

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	9.2300e-003	5.9300e-003	0.0853	2.7000e-004	0.0335	1.7000e-004	0.0337	8.8900e-003	1.6000e-004	9.0500e-003		27.2335	27.2335	6.4000e-004	6.6000e-004	27.4455
Total	**0.0112**	**0.0792**	**0.1153**	**6.3000e-004**	**0.0463**	**5.3000e-004**	**0.0469**	**0.0126**	**5.1000e-004**	**0.0131**		**66.7814**	**66.7814**	**2.9800e-003**	**6.3400e-003**	**68.7443**

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

3.7 Architectural Coating - 2023

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	12.8400					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	**13.0316**	**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**

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	9.2300e-003	5.9300e-003	0.0853	2.7000e-004	0.0335	1.7000e-004	0.0337	8.8900e-003	1.6000e-004	9.0500e-003		27.2335	27.2335	6.4000e-004	6.6000e-004	27.4455
Total	**0.0112**	**0.0792**	**0.1153**	**6.3000e-004**	**0.0463**	**5.3000e-004**	**0.0469**	**0.0126**	**5.1000e-004**	**0.0131**		**66.7814**	**66.7814**	**2.9800e-003**	**6.3400e-003**	**68.7443**

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5508	0.6343	5.8237	0.0140	1.5950	9.5800e-003	1.6046	0.4251	8.9000e-003	0.4340		1,423.7214	1,423.7214	0.0840	0.0581	1,443.1379
Unmitigated	0.5508	0.6343	5.8237	0.0140	1.5950	9.5800e-003	1.6046	0.4251	8.9000e-003	0.4340		1,423.7214	1,423.7214	0.0840	0.0581	1,443.1379

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	130.35	52.30	131.40	528,509	528,509
General Office Building	54.35	12.33	3.91	132,533	132,533
Total	184.70	64.63	135.31	661,042	661,042

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	59.00	28.00	13.00	92	5	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4

4.4 Fleet Mix

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

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.546200	0.059546	0.185910	0.127866	0.024295	0.006605	0.014499	0.004906	0.000657	0.000381	0.024552	0.000713	0.003869
General Office Building	0.546200	0.059546	0.185910	0.127866	0.024295	0.006605	0.014499	0.004906	0.000657	0.000381	0.024552	0.000713	0.003869

5.0 Energy Detail

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	0.0176	0.1601	0.1345	9.6000e-004		0.0122	0.0122		0.0122	0.0122		192.1251	192.1251	3.6800e-003	3.5200e-003	193.2668
NaturalGas Unmitigated	0.0176	0.1601	0.1345	9.6000e-004		0.0122	0.0122		0.0122	0.0122		192.1251	192.1251	3.6800e-003	3.5200e-003	193.2668

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	lb/day										lb/day					
General Light Industry	1494.83	0.0161	0.1466	0.1231	8.8000e-004		0.0111	0.0111		0.0111	0.0111		175.8628	175.8628	3.3700e-003	3.2200e-003	176.9079
General Office Building	138.229	1.4900e-003	0.0136	0.0114	8.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003		16.2623	16.2623	3.1000e-004	3.0000e-004	16.3589
Total		**0.0176**	**0.1601**	**0.1345**	**9.6000e-004**		**0.0122**	**0.0122**		**0.0122**	**0.0122**		**192.1251**	**192.1251**	**3.6800e-003**	**3.5200e-003**	**193.2668**

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	1.49483	0.0161	0.1466	0.1231	8.8000e-004		0.0111	0.0111		0.0111	0.0111		175.8628	175.8628	3.3700e-003	3.2200e-003	176.9079
General Office Building	0.138229	1.4900e-003	0.0136	0.0114	8.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003		16.2623	16.2623	3.1000e-004	3.0000e-004	16.3589
Total		**0.0176**	**0.1601**	**0.1345**	**9.6000e-004**		**0.0122**	**0.0122**		**0.0122**	**0.0122**		**192.1251**	**192.1251**	**3.6800e-003**	**3.5200e-003**	**193.2668**

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	lb/day										lb/day					
Mitigated	0.7120	3.0000e-005	3.2500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.9700e-003	6.9700e-003	2.0000e-005		7.4300e-003
Unmitigated	0.7120	3.0000e-005	3.2500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.9700e-003	6.9700e-003	2.0000e-005		7.4300e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0809					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6308					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-004	3.0000e-005	3.2500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.9700e-003	6.9700e-003	2.0000e-005		7.4300e-003
Total	**0.7120**	**3.0000e-005**	**3.2500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.9700e-003**	**6.9700e-003**	**2.0000e-005**		**7.4300e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0809					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6308					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-004	3.0000e-005	3.2500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.9700e-003	6.9700e-003	2.0000e-005		7.4300e-003
Total	**0.7120**	**3.0000e-005**	**3.2500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.9700e-003**	**6.9700e-003**	**2.0000e-005**		**7.4300e-003**

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

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

Oso Creek WRP construction office

Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1.00	1000sqft	0.02	1,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2024
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	588.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - construction office building

Construction Phase - no construction in this run

Table Name	Column Name	Default Value	New Value

2.0 Emissions Summary

Oso Creek WRP construction office - Orange County, Annual

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					
2021	0.0263	0.2663	0.2407	3.9000e-004	6.2400e-003	0.0147	0.0209	2.7700e-003	0.0136	0.0164	0.0000	33.9303	33.9303	0.0101	1.0000e-005	34.1871
2022	0.0230	0.1835	0.1916	3.1000e-004	4.9000e-004	9.6900e-003	0.0102	1.3000e-004	8.9400e-003	9.0700e-003	0.0000	26.9102	26.9102	8.3500e-003	1.0000e-005	27.1217
Maximum	**0.0263**	**0.2663**	**0.2407**	**3.9000e-004**	**6.2400e-003**	**0.0147**	**0.0209**	**2.7700e-003**	**0.0136**	**0.0164**	**0.0000**	**33.9303**	**33.9303**	**0.0101**	**1.0000e-005**	**34.1871**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0263	0.2663	0.2407	3.9000e-004	6.2400e-003	0.0147	0.0209	2.7700e-003	0.0136	0.0164	0.0000	33.9303	33.9303	0.0101	1.0000e-005	34.1870
2022	0.0230	0.1835	0.1916	3.1000e-004	4.9000e-004	9.6900e-003	0.0102	1.3000e-004	8.9400e-003	9.0700e-003	0.0000	26.9101	26.9101	8.3500e-003	1.0000e-005	27.1217
Maximum	**0.0263**	**0.2663**	**0.2407**	**3.9000e-004**	**6.2400e-003**	**0.0147**	**0.0209**	**2.7700e-003**	**0.0136**	**0.0164**	**0.0000**	**33.9303**	**33.9303**	**0.0101**	**1.0000e-005**	**34.1870**

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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**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**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	**10-1-2021**	**12-31-2021**	0.2943	0.2943
2	**1-1-2022**	**3-31-2022**	0.2099	0.2099
		Highest	0.2943	0.2943

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	4.0800e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	5.0000e-005	4.4000e-004	3.7000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	4.0869	4.0869	2.1000e-004	3.0000e-005	4.1021
Mobile	3.4300e-003	3.8400e-003	0.0349	8.0000e-005	8.9500e-003	6.0000e-005	9.0000e-003	2.3900e-003	5.0000e-005	2.4400e-003	0.0000	7.4803	7.4803	4.6000e-004	3.2000e-004	7.5863
Waste						0.0000	0.0000		0.0000	0.0000	0.1888	0.0000	0.1888	0.0112	0.0000	0.4677
Water						0.0000	0.0000		0.0000	0.0000	0.0564	0.9416	0.9980	5.8400e-003	1.4000e-004	1.1868
Total	**7.5600e-003**	**4.2800e-003**	**0.0353**	**8.0000e-005**	**8.9500e-003**	**9.0000e-005**	**9.0300e-003**	**2.3900e-003**	**8.0000e-005**	**2.4700e-003**	**0.2452**	**12.5088**	**12.7539**	**0.0177**	**4.9000e-004**	**13.3429**

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	4.0800e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	5.0000e-005	4.4000e-004	3.7000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	4.0869	4.0869	2.1000e-004	3.0000e-005	4.1021
Mobile	3.4300e-003	3.8400e-003	0.0349	8.0000e-005	8.9500e-003	6.0000e-005	9.0000e-003	2.3900e-003	5.0000e-005	2.4400e-003	0.0000	7.4803	7.4803	4.6000e-004	3.2000e-004	7.5863
Waste						0.0000	0.0000		0.0000	0.0000	0.1888	0.0000	0.1888	0.0112	0.0000	0.4677
Water						0.0000	0.0000		0.0000	0.0000	0.0564	0.9416	0.9980	5.8400e-003	1.4000e-004	1.1868
Total	**7.5600e-003**	**4.2800e-003**	**0.0353**	**8.0000e-005**	**8.9500e-003**	**9.0000e-005**	**9.0300e-003**	**2.3900e-003**	**8.0000e-005**	**2.4700e-003**	**0.2452**	**12.5088**	**12.7539**	**0.0177**	**4.9000e-004**	**13.3429**

	ROG	NOx	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	10/1/2021	10/14/2021	5	10	
2	Site Preparation	Site Preparation	10/15/2021	10/15/2021	5	1	
3	Grading	Grading	10/16/2021	10/19/2021	5	2	

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

4	Building Construction	Building Construction	10/20/2021	3/8/2022	5	100	
5	Paving	Paving	3/9/2022	3/15/2022	5	5	
6	Architectural Coating	Architectural Coating	3/16/2022	3/22/2022	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,500; Non-Residential Outdoor: 500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Grading	Graders	1	6.00	187	0.41
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

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

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	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.9800e-003	0.0363	0.0379	6.0000e-005		2.0400e-003	2.0400e-003		1.9400e-003	1.9400e-003	0.0000	5.2047	5.2047	9.7000e-004	0.0000	5.2289
Total	**3.9800e-003**	**0.0363**	**0.0379**	**6.0000e-005**		**2.0400e-003**	**2.0400e-003**		**1.9400e-003**	**1.9400e-003**	**0.0000**	**5.2047**	**5.2047**	**9.7000e-004**	**0.0000**	**5.2289**

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

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.3000e-004	1.6900e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4446	0.4446	1.0000e-005	1.0000e-005	0.4484
Total	**1.6000e-004**	**1.3000e-004**	**1.6900e-003**	**0.0000**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4446**	**0.4446**	**1.0000e-005**	**1.0000e-005**	**0.4484**

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	3.9800e-003	0.0363	0.0379	6.0000e-005		2.0400e-003	2.0400e-003		1.9400e-003	1.9400e-003	0.0000	5.2047	5.2047	9.7000e-004	0.0000	5.2289
Total	**3.9800e-003**	**0.0363**	**0.0379**	**6.0000e-005**		**2.0400e-003**	**2.0400e-003**		**1.9400e-003**	**1.9400e-003**	**0.0000**	**5.2047**	**5.2047**	**9.7000e-004**	**0.0000**	**5.2289**

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

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.3000e-004	1.6900e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4446	0.4446	1.0000e-005	1.0000e-005	0.4484
Total	**1.6000e-004**	**1.3000e-004**	**1.6900e-003**	**0.0000**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4446**	**0.4446**	**1.0000e-005**	**1.0000e-005**	**0.4484**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2000e-004	3.9100e-003	2.0100e-003	0.0000		1.5000e-004	1.5000e-004		1.4000e-004	1.4000e-004	0.0000	0.4276	0.4276	1.4000e-004	0.0000	0.4310
Total	**3.2000e-004**	**3.9100e-003**	**2.0100e-003**	**0.0000**	**2.7000e-004**	**1.5000e-004**	**4.2000e-004**	**3.0000e-005**	**1.4000e-004**	**1.7000e-004**	**0.0000**	**0.4276**	**0.4276**	**1.4000e-004**	**0.0000**	**0.4310**

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

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	8.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0222	0.0222	0.0000	0.0000	0.0224
Total	**1.0000e-005**	**1.0000e-005**	**8.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0222**	**0.0222**	**0.0000**	**0.0000**	**0.0224**

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					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2000e-004	3.9100e-003	2.0100e-003	0.0000		1.5000e-004	1.5000e-004		1.4000e-004	1.4000e-004	0.0000	0.4276	0.4276	1.4000e-004	0.0000	0.4310
Total	**3.2000e-004**	**3.9100e-003**	**2.0100e-003**	**0.0000**	**2.7000e-004**	**1.5000e-004**	**4.2000e-004**	**3.0000e-005**	**1.4000e-004**	**1.7000e-004**	**0.0000**	**0.4276**	**0.4276**	**1.4000e-004**	**0.0000**	**0.4310**

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

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	8.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0222	0.0222	0.0000	0.0000	0.0224
Total	**1.0000e-005**	**1.0000e-005**	**8.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0222**	**0.0222**	**0.0000**	**0.0000**	**0.0224**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					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	1.2900e-003	0.0143	6.3300e-003	1.0000e-005		6.4000e-004	6.4000e-004		5.9000e-004	5.9000e-004	0.0000	1.2384	1.2384	4.0000e-004	0.0000	1.2484
Total	**1.2900e-003**	**0.0143**	**6.3300e-003**	**1.0000e-005**	**5.3100e-003**	**6.4000e-004**	**5.9500e-003**	**2.5700e-003**	**5.9000e-004**	**3.1600e-003**	**0.0000**	**1.2384**	**1.2384**	**4.0000e-004**	**0.0000**	**1.2484**

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

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.7000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0711	0.0711	0.0000	0.0000	0.0717
Total	**3.0000e-005**	**2.0000e-005**	**2.7000e-004**	**0.0000**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0711**	**0.0711**	**0.0000**	**0.0000**	**0.0717**

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					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	1.2900e-003	0.0143	6.3300e-003	1.0000e-005		6.4000e-004	6.4000e-004		5.9000e-004	5.9000e-004	0.0000	1.2384	1.2384	4.0000e-004	0.0000	1.2484
Total	**1.2900e-003**	**0.0143**	**6.3300e-003**	**1.0000e-005**	**5.3100e-003**	**6.4000e-004**	**5.9500e-003**	**2.5700e-003**	**5.9000e-004**	**3.1600e-003**	**0.0000**	**1.2384**	**1.2384**	**4.0000e-004**	**0.0000**	**1.2484**

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

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.7000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0711	0.0711	0.0000	0.0000	0.0717
Total	**3.0000e-005**	**2.0000e-005**	**2.7000e-004**	**0.0000**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0711**	**0.0711**	**0.0000**	**0.0000**	**0.0717**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0205	0.2116	0.1925	3.0000e-004		0.0119	0.0119		0.0109	0.0109	0.0000	26.5217	26.5217	8.5800e-003	0.0000	26.7362
Total	**0.0205**	**0.2116**	**0.1925**	**3.0000e-004**		**0.0119**	**0.0119**		**0.0109**	**0.0109**	**0.0000**	**26.5217**	**26.5217**	**8.5800e-003**	**0.0000**	**26.7362**

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

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	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	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.0205	0.2116	0.1925	3.0000e-004		0.0119	0.0119		0.0109	0.0109	0.0000	26.5217	26.5217	8.5800e-003	0.0000	26.7362
Total	**0.0205**	**0.2116**	**0.1925**	**3.0000e-004**		**0.0119**	**0.0119**		**0.0109**	**0.0109**	**0.0000**	**26.5217**	**26.5217**	**8.5800e-003**	**0.0000**	**26.7362**

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

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	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	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0161	0.1651	0.1681	2.7000e-004		8.7400e-003	8.7400e-003		8.0400e-003	8.0400e-003	0.0000	23.5347	23.5347	7.6100e-003	0.0000	23.7250
Total	**0.0161**	**0.1651**	**0.1681**	**2.7000e-004**		**8.7400e-003**	**8.7400e-003**		**8.0400e-003**	**8.0400e-003**	**0.0000**	**23.5347**	**23.5347**	**7.6100e-003**	**0.0000**	**23.7250**

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

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	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	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.0161	0.1651	0.1681	2.7000e-004		8.7400e-003	8.7400e-003		8.0400e-003	8.0400e-003	0.0000	23.5347	23.5347	7.6100e-003	0.0000	23.7250
Total	**0.0161**	**0.1651**	**0.1681**	**2.7000e-004**		**8.7400e-003**	**8.7400e-003**		**8.0400e-003**	**8.0400e-003**	**0.0000**	**23.5347**	**23.5347**	**7.6100e-003**	**0.0000**	**23.7250**

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

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	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	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 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	1.6200e-003	0.0148	0.0176	3.0000e-005		7.4000e-004	7.4000e-004		6.9000e-004	6.9000e-004	0.0000	2.3492	2.3492	6.8000e-004	0.0000	2.3663
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.6200e-003**	**0.0148**	**0.0176**	**3.0000e-005**		**7.4000e-004**	**7.4000e-004**		**6.9000e-004**	**6.9000e-004**	**0.0000**	**2.3492**	**2.3492**	**6.8000e-004**	**0.0000**	**2.3663**

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

3.6 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	1.0000e-004	1.4100e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3879	0.3879	1.0000e-005	1.0000e-005	0.3911
Total	**1.4000e-004**	**1.0000e-004**	**1.4100e-003**	**0.0000**	**4.9000e-004**	**0.0000**	**5.0000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.3879**	**0.3879**	**1.0000e-005**	**1.0000e-005**	**0.3911**

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	1.6200e-003	0.0148	0.0176	3.0000e-005		7.4000e-004	7.4000e-004		6.9000e-004	6.9000e-004	0.0000	2.3492	2.3492	6.8000e-004	0.0000	2.3663
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.6200e-003**	**0.0148**	**0.0176**	**3.0000e-005**		**7.4000e-004**	**7.4000e-004**		**6.9000e-004**	**6.9000e-004**	**0.0000**	**2.3492**	**2.3492**	**6.8000e-004**	**0.0000**	**2.3663**

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

3.6 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	1.0000e-004	1.4100e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3879	0.3879	1.0000e-005	1.0000e-005	0.3911
Total	**1.4000e-004**	**1.0000e-004**	**1.4100e-003**	**0.0000**	**4.9000e-004**	**0.0000**	**5.0000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.3879**	**0.3879**	**1.0000e-005**	**1.0000e-005**	**0.3911**

3.7 Architectural Coating - 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					
Archit. Coating	4.6300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.1000e-004	3.5200e-003	4.5300e-003	1.0000e-005		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6394
Total	**5.1400e-003**	**3.5200e-003**	**4.5300e-003**	**1.0000e-005**		**2.0000e-004**	**2.0000e-004**		**2.0000e-004**	**2.0000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6394**

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

3.7 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	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	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	4.6300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.1000e-004	3.5200e-003	4.5300e-003	1.0000e-005		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6394
Total	**5.1400e-003**	**3.5200e-003**	**4.5300e-003**	**1.0000e-005**		**2.0000e-004**	**2.0000e-004**		**2.0000e-004**	**2.0000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6394**

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

3.7 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	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	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.4300e-003	3.8400e-003	0.0349	8.0000e-005	8.9500e-003	6.0000e-005	9.0000e-003	2.3900e-003	5.0000e-005	2.4400e-003	0.0000	7.4803	7.4803	4.6000e-004	3.2000e-004	7.5863
Unmitigated	3.4300e-003	3.8400e-003	0.0349	8.0000e-005	8.9500e-003	6.0000e-005	9.0000e-003	2.3900e-003	5.0000e-005	2.4400e-003	0.0000	7.4803	7.4803	4.6000e-004	3.2000e-004	7.5863

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	9.74	2.21	0.70	23,751	23,751
Total	9.74	2.21	0.70	23,751	23,751

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 Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.546200	0.059546	0.185910	0.127866	0.024295	0.006605	0.014499	0.004906	0.000657	0.000381	0.024552	0.000713	0.003869

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

5.0 Energy Detail

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	3.6040	3.6040	2.0000e-004	2.0000e-005	3.6163
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3.6040	3.6040	2.0000e-004	2.0000e-005	3.6163
NaturalGas Mitigated	5.0000e-005	4.4000e-004	3.7000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4829	0.4829	1.0000e-005	1.0000e-005	0.4858
NaturalGas Unmitigated	5.0000e-005	4.4000e-004	3.7000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4829	0.4829	1.0000e-005	1.0000e-005	0.4858

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 Office Building	9050	5.0000e-005	4.4000e-004	3.7000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4829	0.4829	1.0000e-005	1.0000e-005	0.4858
Total		**5.0000e-005**	**4.4000e-004**	**3.7000e-004**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.4829**	**0.4829**	**1.0000e-005**	**1.0000e-005**	**0.4858**

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 Office Building	9050	5.0000e-005	4.4000e-004	3.7000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4829	0.4829	1.0000e-005	1.0000e-005	0.4858
Total		**5.0000e-005**	**4.4000e-004**	**3.7000e-004**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.4829**	**0.4829**	**1.0000e-005**	**1.0000e-005**	**0.4858**

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 Office Building	13490	3.6040	2.0000e-004	2.0000e-005	3.6163
Total		**3.6040**	**2.0000e-004**	**2.0000e-005**	**3.6163**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	13490	3.6040	2.0000e-004	2.0000e-005	3.6163
Total		**3.6040**	**2.0000e-004**	**2.0000e-005**	**3.6163**

6.0 Area Detail

6.1 Mitigation Measures Area

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	4.0800e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	4.0800e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005

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	4.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.6100e-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	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**4.0700e-003**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

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	4.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.6100e-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	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**4.0700e-003**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

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	0.9980	5.8400e-003	1.4000e-004	1.1868
Unmitigated	0.9980	5.8400e-003	1.4000e-004	1.1868

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	0.177734 / 0.108934	0.9980	5.8400e-003	1.4000e-004	1.1868
Total		**0.9980**	**5.8400e-003**	**1.4000e-004**	**1.1868**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	0.177734 / 0.108934	0.9980	5.8400e-003	1.4000e-004	1.1868
Total		**0.9980**	**5.8400e-003**	**1.4000e-004**	**1.1868**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.1888	0.0112	0.0000	0.4677
Unmitigated	0.1888	0.0112	0.0000	0.4677

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 Office Building	0.93	0.1888	0.0112	0.0000	0.4677
Total		**0.1888**	**0.0112**	**0.0000**	**0.4677**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	0.93	0.1888	0.0112	0.0000	0.4677
Total		**0.1888**	**0.0112**	**0.0000**	**0.4677**

9.0 Operational Offroad

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

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

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

Oso Creek Reclamation Plant
IS/MND
Construction Health Risk Assessment

Off-Road Heavy-Duty Constuction Equipment Emission Rates

Construction Activity	Equipment Type	Work Days by Activity (days)	Work Hours per Day (hours/day)	Daily DPM Emissions [a] (pounds/day)	Emissions Rate during Work Period (grams/second)
I. Demolition	Off-Road Heavy-Duty	26	9.0	1.5513	2.17E-02
II. Site Preparation	Off-Road Heavy-Duty	6	9.0	2.0445	2.86E-02
III. Grading	Off-Road Heavy-Duty	34	9.0	1.1599	1.62E-02
III. Grading	Off-Road Heavy-Duty	6	9.0	0.9409	1.32E-02
IV. Building Construction	Off-Road Heavy-Duty	254	9.0	0.8090	1.13E-02
IV. Building Construction	Off-Road Heavy-Duty	12	9.0	0.6997	9.80E-03
V. Paving	Off-Road Heavy-Duty	23	9.0	0.4357	6.10E-03
VI. Architectural Coating	Off-Road Heavy-Duty	23	9.0	0.0708	9.91E-04
VII.					
VIII.					
IX.					
X.					
XI.					
XII.					
Maximum 12-Month Emissions (for Chronic HI analysis)	*Off-Road Heavy-Duty*	*261*	*9.0*	*0.9601*	*1.34E-02*
				Average Emissions Rate:	*1.34E-02*

Notes:
a. California Air Resources Board, California Emissions Estimator Model (CalEEMod). Exhaust PM10 emissions from off-road construction equipment including off-highway trucks.
Source: ESA 2018

Travel On-Road Construction Haul, Concrete, and Vendor Truck Emission Rates

Construction Activity	Equipment Type	Work Days per Year (days/year)	Work Hours per Day (hours/day)	Construction Activity Year	Total One-Way Truck Trips	One-Way Trip Distance per Day [a] (miles)	Haul Truck DPM Running Emissions Per Day [b] (lbs/day)	Vendor DPM Running Emissions Per Day [b] (lbs/day)	DPM Running Emissions Per Day [b] (lbs/day)	Emissions Rate during Work Period (grams/second)
I. Demolition	Hauling/Vendor	26	9.0	Year 1	105.00	0.32	0.006	0.002	0.0077	1.07E-04
II. Site Preparation	Hauling/Vendor	6	9.0	Year 1	16.00	0.32	0.003	0.002	0.0046	6.43E-05
III. Grading	Hauling/Vendor	34	9.0	Year 1	1,164.00	0.32	0.054	0.002	0.0553	7.74E-04
III. Grading	Hauling/Vendor	6	9.0	Year 2	209.00	0.32	0.040	0.001	0.0411	5.76E-04
IV. Building Construction	Hauling/Vendor	254	9.0	Year 2	24.00	0.32	0.001	0.006	0.0069	9.69E-05
IV. Building Construction	Hauling/Vendor	12	9.0	Year 2	20.00	0.32	-	0.005	0.0052	7.30E-05
V. Paving	Hauling/Vendor	23	9.0	Year 3	4.00	0.32	-	0.001	0.0010	1.46E-05
VI. Architectural Coating	Hauling/Vendor	23	9.0	Year 3	4.00	0.32	-	0.001	0.0010	1.46E-05
Maximum 12-Month Emissions (for Chronic HI analysis) *0* *0*	Hauling/Vendor	*261*	*9*	*Year 1*	*1,494*	*0.32*			*0.0140*	1.96E-04
								Average Emissions Rate:		*1.96E-04*

Notes:
a. The portion of the on-road trip length within a 1/4 mile of the Project Site.
b. California Air Resources Board, EMFAC2021 on-road vehicle emissions model.
Source: ESA 2018

Idling On-Road Construction Haul, Concrete, and Vendor Truck Emission Rates

Construction Activity		Work Days per Year (days/year)	Work Hours per Day (hours/day)	Construction Activity Year	Total Number of Trucks	Idling Time per Truck (minutes)	Haul Truck DPM Idling Emissions Per Day [b] (lbs/day)	Vendor DPM Idling Emissions Per Day [b] (lbs/day)	DPM Idling Emissions Per Day [b] (lbs/day)	Emissions Rate during Work Period (grams/second)
I. Demolition	Hauling/Vendor	26	9	Year 1	105	15	0.0003	0.0003	5.90E-04	8.26E-06
II. Site Preparation	Hauling/Vendor	6	9	Year 1	16	15	0.0002	0.0003	4.23E-04	5.92E-06
III. Grading	Hauling/Vendor	34	9	Year 1	1,164	15	0.0029	0.0003	3.18E-03	4.46E-05
III. Grading	Hauling/Vendor	6	9	Year 2	209	15	0.0018	0.0002	1.93E-03	2.70E-05
IV. Building Construction	Hauling/Vendor	254	9	Year 2	24	15	0.0001	0.0009	9.15E-04	1.28E-05
IV. Building Construction	Hauling/Vendor	12	9	Year 2	20	15	-	0.0008	7.58E-04	1.06E-05
V. Paving	Hauling/Vendor	23	9	Year 3	4	15	-	0.0002	1.52E-04	2.12E-06
VI. Architectural Coating	Hauling/Vendor	23	9	Year 3	4	15	-	0.0002	1.52E-04	2.12E-06
Maximum 12-Month Emissions (for Chronic HI analysis) *IV.* *0*	Hauling/Vendor	*261*	*9*	*Year 1*	*1,494*	-			5.28E-04	7.4E-06
								Average Emissions Rate:		*7.39E-06*

Notes:
a. California Air Resources Board, EMFAC2021 on-road vehicle emissions model.
Source: ESA 2021

Oso Creek Reclamation Plant
IS/MND
Construction Health Risk Assessment

AERMOD Source Characteristics

Emission Source	Source Type	Number of Sources	Length of Line (m)	Source Group Unitized Emission Rate (g/s)	Release Height (m)	Length of Side X (m)	Length of Side Y (m)	Initial Lateral (m)	Initial Vertical (m)	Plume Height (m)	Plume Width (m)	Exit Temp (°F)	Inside Diameter (ft)	Exit Flow Rate (ft^3/s)
Source Group 1														
Off-Road Heavy-Duty Construction Equipment	Volume	40	n/a	0.0250	5	20	20	4.65	1.40	n/a	n/a	n/a	n/a	n/a
Source Group 2														
On-Road Haul and Vendor Trucks (La Paz Rd to Project Site)	Line-Volume	1	510.6	0.4899	3.66	12	12	n/a	n/a	10.2	18.0	n/a	n/a	n/a
On-Road Haul and Vendor Trucks (Project Site to La Paz Rd)	Line-Volume	1	531.6	0.5101	3.66	12	12	n/a	n/a	10.2	18.0	n/a	n/a	n/a
Source Group 3														
Idling Haul and Vendor Trucks 3	Volume	2	n/a	0.5000	3.66	25	25	5.81	3.40	n/a	n/a	n/a	n/a	n/a

Source: ESA 2021

Oso Creek Reclamation Plant
IS/MND
Construction Health Risk Assessment

AERMOD Results

Emission Source	Source Type	Source Group Unitized Max AERMOD Concentration ($\mu g/m^3$)	
		South: Residential	Northeast: School
Source Group 1 *Off-Road Heavy-Duty Construction Equipment*	*Volume*	1.65	0.64
Source Group 2 *On-Road Haul and Vendor Trucks 1*	*Line-Volume*	1.40	0.81
Source Group 3 *Idling Haul and Vendor Trucks 3*	*Volume*	0.14	0.49

Source: Lakes Environmental, AERMOD View, 2021; ESA 2021

Oso Creek Reclamation Plant
IS/MND
Construction Health Risk Assessment

Maximum Individual Cancer Risk Calculations - Sensitive Receptors (Maximum Impacted Residential located South of the Project Site)

Concentrations by Age Bin

		Age Bin		
	Construction Phase/Equipment	**3rd Trimester**	**0 < 2**	**2<16**
Days	Demolition	26		
CONC	Off-Road Equipment	3.58E-02		
	On-Road Trucks	1.50E-04		
	Idling Trucks	1.16E-06		
Days	Site Preparation	6		
CONC	Off-Road Equipment	4.72E-02		
	On-Road Trucks	9.00E-05		
	Idling Trucks	8.28E-07		
Days	Grading	34		
CONC	Off-Road Equipment	2.68E-02		
	On-Road Trucks	1.08E-03		
	Idling Trucks	6.24E-06		
Days	Grading		6	
CONC	Off-Road Equipment		2.17E-02	
	On-Road Trucks		8.06E-04	
	Idling Trucks		3.79E-06	
Days	Building Construction		254	
CONC	Off-Road Equipment		1.01E-02	
	On-Road Trucks		1.36E-04	
	Idling Trucks		1.79E-06	
Days	Building Construction		12	
CONC	Off-Road Equipment		1.64E-03	
	On-Road Trucks		1.02E-04	
	Idling Trucks		1.49E-06	
Days	Paving		23	
CONC	Off-Road Equipment		0.00E+00	
	On-Road Trucks		2.04E-05	
	Idling Trucks		2.97E-07	
Days	Architectural Coating		23	
CONC	Off-Road Equipment		0.00E+00	
	On-Road Trucks		2.04E-05	
	Idling Trucks		2.97E-07	
Days	0			
CONC	Off-Road Equipment			
	On-Road Trucks			
	Idling Trucks			
Days	0			
CONC	Off-Road Equipment			
	On-Road Trucks			
	Idling Trucks			
Days	0			
CONC	Off-Road Equipment			
	On-Road Trucks			
	Idling Trucks			
Days	0			
CONC	Off-Road Equipment			
	On-Road Trucks			
	Idling Trucks			

Work Days in Age Bin (6 work days/week)	66	318	0
Average Annual Concentration over Age Bin	2.38E-02	3.76E-03	0.00E+00

Source: ESA 2018

Cancer Risk Calculations

		Age Bin				Age Bin	
	Parameter	**3rd Trimester**	**0 < 2**	**2 < 16**	**Total**	**31 < 70**	**Total 70 Year Exposure**
DBR	Daily Breathing Rate (L/kg (body weight) per day)	361	1090	631		261	
A	Inhalation absorption factor (default = 1).	1	1	1		1	
EF	Exposure Frequency (days/year)	350	350	350		350	
ED	Exposure Duration (years)	0.25	2	14		16	
FAH	Fraction of Time at Home	1	1	1		0.73	
AT	Averaged Exposure Time Period (days)	25550	25550	25550		25550	
ASF	Age Sensitvity Factor	10	10	3		1	
CONC	Toxic Air Contaminant Concentration (µg/m^3)	2.38E-02	3.76E-03	0.00E+00		0	
DOSE	*[= CONC × DBR × A × EF × ED × FAH / AT]* (mg/kg-d)	2.94E-02	1.12E-01	0.00E+00		0.00E+00	
CPF	Cancer Potency Factor (mg/kg-d)$^{-1}$						
	Diesel Particulate Matter	1.1	1.1	1.1		1.1	
RISK	Cancer Risk (in one million) *[= DOSE × CPF × ASF]*	0.32	1.24	0.00	**1.56**	0.00	**1.56**

Sources:

SCAQMD, Risk Assessment Procedures for Rules 1401 and 212, Appendix N, Version 8.1, 2017.

ESA 2018

Oso Creek Reclamation Plant
IS/MND
Construction Health Risk Assessment
Maximum Individual Non-Cancer Impact Calculations - Sensitive Receptors (Maximum Impacted Senior Residential Receptor) (IMPACT AT ALL OTHER LOCATIONS ON THE PROJECT SITE WOULD BE LESS THAN SHOWN)

Maximum Non-cancer Chronic Hazards / Toxicological Endpoints*

Receptor Group	Pollutant	CREL[1]	CONC	WFrac	$CONC_{WF}$	HI		ALIM	BN	CVS	DEV	ENDC	EYE	HEM	IMMUN	KIDN	NS	REPRO	RESP	SK
Project:																				
MEI - Max	DPM	5.00E+00	2.25E-02	1.00E+00	2.25E-02	4.49E-03		-	-	-	-	-	-	-	-	-	-	-	4.49E-03	-
							Total Risk												0.004	
							Threshold												1.00	
							Over?												NO	

Notes:

1. California Air Resources Board, "Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values," "OEHHA/ARB Approved Chronic Reference Exposure Levels and Target Organs," "OEHHA/ARB Approved Acute Reference Exposure Levels and Target Organs," https://ww2.arb.ca.gov/sites/default/files/classic//toxics/healthval/contable.pdf. Tables last updated: September 19, 2019.

2 Concentration based on annual max emissions from sources over construction period.

Source: ESA, 2021

Where:

$CONC_{WF}$	Pollutant Concentration ($\mu g/m^3$) multiplied by the weight fraction
CREL	Chronic Reference Exposure Level
HI	Hazard Index
MEI	Maximally Exposed Individual
WFrac	Weight fraction of speciated component

* Key to Toxicological Endpoints

ALIM	Alimentary Tract	EYE	Eye	NS	Nervous System
BN	Bone	HEM	Hematologic System	REPRO	Reproductive System
CVS	Cardiovascular System	IMMUN	Immune System	RESP	Respiratory System
DEV	Developmental System	KIDN	Kidney	SK	Skin
ENDC	Endocrine System				

Appendix B

Biological Resources Memorandum

ESA

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memorandum

date	August 12, 2021
to	Don Bunts, Deputy General Manager, Santa Margarita Water District
from	Scott Holbrook, Principal Ecologist; Ryan Gilmore, Senior Biologist
subject	Oso Creek Water Reclamation Plant Improvement Project - Biological Resources Technical Memorandum

Environmental Science Associates (ESA) is pleased to present this Biological Resources Technical Memorandum for the Oso Creek Water Reclamation Improvement Project (Proposed Project) located in the City of Mission Viejo, California. The Santa Margarita Water District (District) is proposing to upgrade the Oso Creek Water Reclamation Plant (WRP) which includes the new Oso Barrier Urban Return Water Treatment Plant (URWTP). The District is the lead agency responsible for compliance with the California Environmental Quality Act (CEQA). This memorandum includes a brief description of the proposed project, the methods and results of the biological resources investigation at the Project Site by ESA biologists, and describes potential project-related impacts to biological resources along with determinations regarding whether such impacts are deemed significant in accordance with CEQA Guidelines.

1. Project Location and Background

The Project Site is located at 27402 La Paz Road in the City of Mission Viejo, California (Figure 1 - Regional Map, Figure 2 – Local Vicinity Map). A small commercial plaza is situated just north of the existing WRP (which contains the proposed Project Site) and undeveloped open space on a relatively steep slope occurs to the south and east. Oso Creek flows from north to south below and to the west of the existing WRP. Access to this District property is available via Oso Creek Road from La Paz Road. The Project Site is located within Section 6 of Township 7 South, Range 7 West on the U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle for San Juan Capistrano, California. This biological study includes the Project Site and an additional buffer extending out approximately 300 feet from the maximum disturbance limits associated with the Proposed Project which is referred to as the biological study area (BSA).

2. Project Description

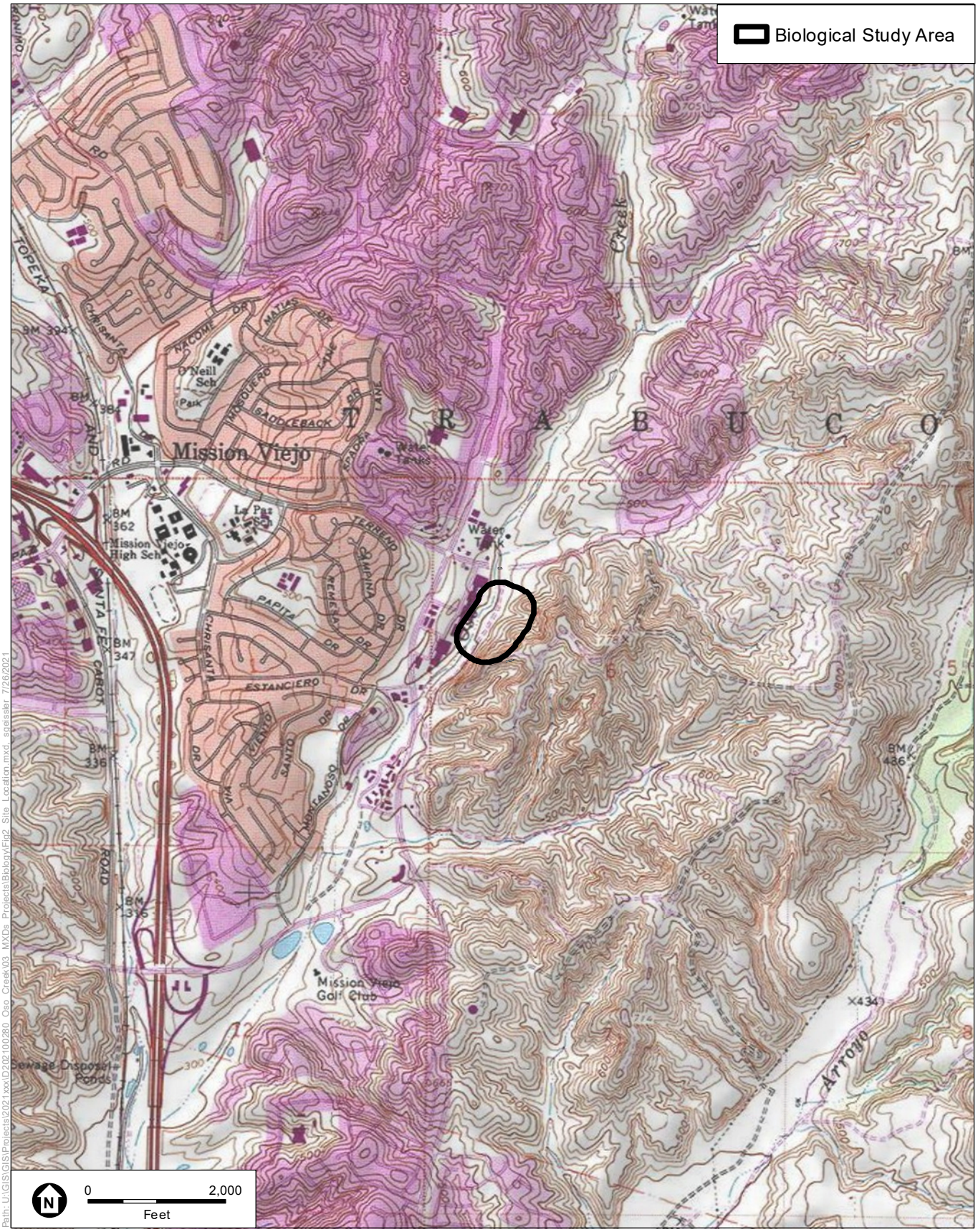
The District is proposing to upgrade the Oso Creek Water Reclamation Plant (WRP) a new, more technologically advanced WRP as well as provide replacement administration office, warehousing space and parking. The WRP currently needs technological upgrades to comply with current water quality standards. The project will be capable of treating 3.3 million gallons per day (MGD) of wastewater and processing up to 1.0 MGD worth of urban return flows which would be diverted into the SMWD's recycled water system for irrigation, source water for lake fill and ultimately for either indirect or direct potable reuse.

SOURCE: ESRI

Oso Creek Water Reclamation Plant Improvement Project

Figure 1
Regional Location

ESA



SOURCE: USGS Topoquad San Juan Capistrano.

Oso Creek Water Reclamation Plant Improvement Project

Figure 2
Site Location

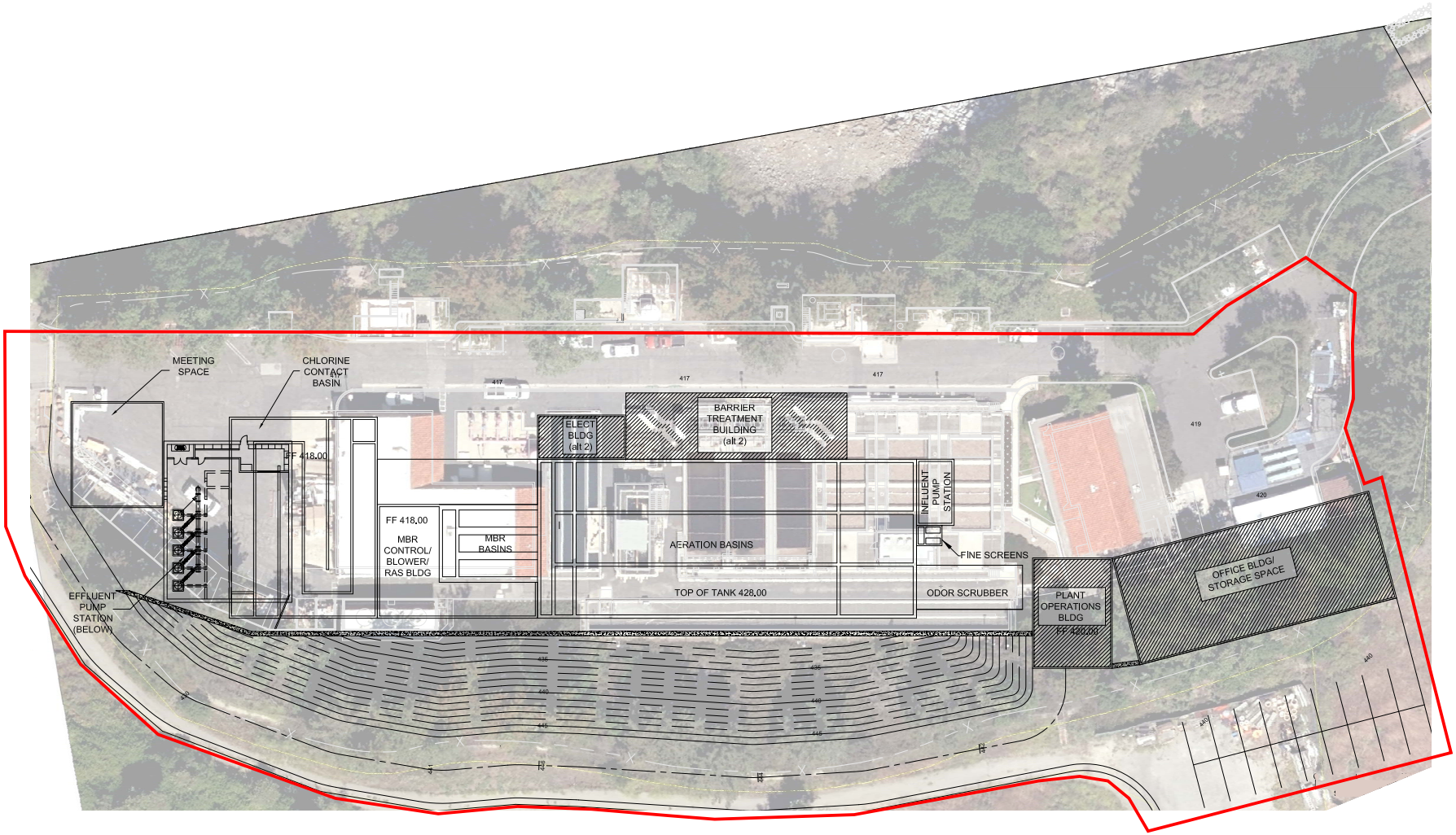
ESA

The proposed project will consist of demolishing the existing Oso Creek WRP office and warehousing buildings and constructing a new WRP that is able to treat 3.3 MGD, an advanced water treatment facility to treat the captured and returned Oso Barrier urban return water as well as provide a replacement office and warehousing space. The Oso Barrier URWTP will be capable of processing up to 1.0 MGD worth of urban return flows and introduce these into the District's recycled water system for irrigation, source water for lake fill and ultimately for either indirect or direct potable reuse.

The proposed Oso Creek WRP will use wastewater generated within the District and produce tertiary-treated water that meets State of California Title 22 recycled water requirements for unrestricted reuse. The wastewater is generally domestic in origin with a very small industrial and/or commercial component. The proposed facilities will include an influent pump station, influent screens, aeration basins, membrane biologic reactor tanks (MBR's), disinfection using either pasteurization, UV irradiation or chlorine disinfection and effluent pumping. The effluent pump station will also receive recycled water from other facilities including the proposed Oso Barrier URWTP and pump to higher elevations within the District for use and/or storage. The wastewater flows will be conveyed to the WRP through existing gravity lines and through a force main that is a repurposed line running from the southwest. The treated effluent and other combined recycled water flows being pumped from the effluent pump station will connect to existing recycled water lines within the treatment plant site. The backwash water and the biological solids that are removed from the process will be discharged to the sewer for treatment at downstream wastewater treatment facilities. The layout of the proposed treatment facilities including the wastewater feed and effluent transmission pipelines is shown in Figure 3 - Proposed Project Layout.

The Oso URWTP will produce water that will be treated to a relative purified level that allows for blending into the District's existing recycled water distribution system. The barrier water is currently being captured and conveyed through the 20-inch diameter Oso Barrier transmission main from a location near the Oso Parkway bridge over Oso Creek to the southwest of the treatment plant. This water is not currently treated other than some filtration and minor chlorine addition for disinfection. The proposed treatment for this water will consist of prescreening cartridge filters, ultrafiltration membranes followed by reverse osmosis membranes with the permeate then being disinfected using UV irradiation. The brine from the system will be discharged to an existing sewer for treatment and disposal at downstream wastewater treatment facilities. It is contemplated that a dedicated brine line will be constructed to allow for the ultimate bypassing of the downstream wastewater treatment facilities. The effluent will be blended with the effluent from the Oso Creek WRP and introduced into the District's recycled water distribution system as described above.

The location of the proposed facilities within the limits of the existing Oso Creek WRP footprint are identified in Figure 3. As indicated on Figure 3, the limits of the work planned to be performed to upgrade the WRP and to construct the associated buildings and provide additional parking is expected to be almost entirely limited to the area within the limits of the existing WRP footprint and will only exceed the existing WRP's footprint in a small area at the northeast corner where additional parking is proposed.



0 80
Feet

Maximum Project Work Area Limits

D202100280.00 - Oso Creek Reclamation Plant MND\05 Graphics-GIS-Modeling

SOURCE: SMWD, 2021

Oso Creek Water Reclamation Plant Improvement Project

Figure 3
Proposed Project Layout

ESA

3. Methods

a. Literature Review

Prior to performing a field survey of the Project site and adjacent study area, ESA reviewed aerial maps and databases to identify biological resources potentially occurring within the BSA and in the local vicinity of the proposed project disturbance limits. Recent and historical aerial imagery was reviewed, as well as the USGS 7.5-minute topographic quadrangle maps. A list of sensitive plant and wildlife species and their habitats known to occur near the proposed project was compiled primarily from the California Department of Fish and Wildlife (CDFW), California Natural Diversity Database (CNDDB), and California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants. ESA queried CNDDB and CNPS records for the following USGS 7.5-minute topographic quadrangle maps: Canada Gobernadora, Dana Point, El Toro, Laguna Beach, San Clemente, San Juan Capistrano, Santiago Peak, and Tustin. Other data sources reviewed included the United States Department of Agriculture Natural Resources Conservation Service (NRCS) soils mapping (USDA 2021), U.S. Fish and Wildlife Service (USFWS) critical habitat maps (USFWS 2021a), the Information for Planning and Consultation (IPaC) (USFWS 2021B), and the National Wetlands Inventory (NWI) mapping (USFWS 2021c).

b. Field Survey

ESA biologists conducted a reconnaissance-level survey to identify, characterize, and map vegetation types on the property containing the Proposed Project, and in the BSA (extending out at least 300 feet from the Proposed Project) and to evaluate the potential for special status biological resources (e.g., special status or regulated habitats, or plant or wildlife species) to occur at the Project Site. The reconnaissance-level survey was conducted by ESA biologists Florence Chan and Ryan Gilmore on April 27, 2021. The survey effort involved pedestrian access over the entire site. All species of plant and animals observed, including sign (e.g., presence of scat) as well as any audible detections, were noted during the site visit. Wildlife observations and other features were mapped utilizing Collector for ArcGIS and representative photographs were taken.

The database search results, literature review, and survey results identifying biological resources provide sufficient information to evaluate the potential presence and possible project effects on regulated and/or significant biological resources as the result of implementing the Proposed Project. These results provide the basis for recommending measures to avoid, minimize, or mitigate potential effects, if needed.

c. Regulatory Framework

For the purpose of this report, potential impacts to biological resources were also evaluated with reference to and with consideration of the following regulations, policies and statutes, as applicable (See Appendix A – Regulatory Framework for information regarding the relevant regulations noted below):

- California Environmental Quality Act (CEQA)
- Federal Endangered Species Act (ESA)
- California Endangered Species Act (CESA)
- Federal Clean Water Act (CWA)
- California Fish and Game Code (CFGC)
- Migratory Bird Treaty Act (MBTA)

- Porter-Cologne Water Quality Control Act (Porter-Cologne Act)
- City of Mission Viejo Municipal Code (City)

4. Results

a. General Site Description

The Project Site is almost entirely contained within the area currently occupied by the existing WRP, and is situated in an area in the City of Mission Viejo that includes both commercial and residential development and open space. The property is situated near the lowest part of a valley next to Oso Creek which flows to the south through this valley roughly parallel to Marguerite Parkway and just west of the Project Site. The City of Mission Viejo General Plan land use designation attributed to the existing wastewater reclamation plant is Community Facility. Surrounding designated land uses are both Recreation/Open Space and Commercial Community areas just to the north along La Paz Road and on the far side of Oso Creek from the site to the west. The BSA buffer outside the Proposed Project overlaps both developed property and undeveloped open space.

As depicted on Figure 4 – Vegetation and Land Cover Types, the perimeter of the existing WRP is occupied by a narrow band of non-native ornamental trees, presumably planted decades ago when the WRP was constructed. Open space containing native scrub habitat and ruderal (weedy) vegetation occurs east of the site on a relatively steep slope that leads uphill towards suburban residential development. There is substantial daytime activity by personnel, equipment, and vehicles on the Project Site related to ongoing operations and maintenance activities.

b. Soils

The soils within the BSA show evidence of previous disturbances including grading and compaction related primarily to urban development. The soils that were identified and mapped are mapped within the BSA include five types including: Alo clay, Botella loan and Botella clay loam, Cieneba sandy loam, and riverwash (USDA 2021). However, soils within the anticipated project disturbance limit are compacted or covered by hardscape associated with the existing WRP facility and associated infrastructure.

c. Vegetation Types and Land Cover

The natural communities and land use types that occur observed on the Project Site were mapped in the field and generally characterized according to the Holland classification scheme (Holland 1986). The location and configuration of various types of vegetation are presented on Figure 4 – Vegetation and Land Cover Types. Representative photographs of the plant communities found on-site are included in Appendix B – Site Photographs.

(1) Southern Willow Scrub (Disturbed)

Southern willow scrub is a form of riparian woodland, which are typically characterizes by a moderately dense woodland dominated by small trees or shrubs, with scattered taller riparian trees. Riparian woodland communities are generally associated with rivers, streams and their tributaries where water is present for sufficient time to support woody hydrophytic (water-dependent, or water “loving”) vegetation. As this vegetation is dependent on the presence of water, it has a rather limited distribution in Southern California. It is also often subject to flooding and scour events. Certain special status species, including several avian species, are partly or completely dependent on woody riparian vegetation in this region.

SOURCE: NearMap, 2021.

Oso Creek Water Reclamation Plant Improvement Project

Figure 4
Vegetation and Land Cover Types

ESA

The southern willow scrub vegetation that occurs in the BSA just west of the existing WRP is situated in and along the banks of Oso Creek, which is a channelized feature through this part of Mission Viejo. In the study area the willow scrub vegetation type is dominated by red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), and scattered mulefat (*Baccharis salicifolia*). This vegetation type is considered to be "disturbed" partly because it occurs within a channelized part of the Creek that contains considerable amounts of rip rap and debris, and which is subject to occasional maintenance as a flood control water way. Additionally, non-natives species are frequently present and are common to co-dominant with native vegetation, including tree tobacco (*Nicotiana glauca*), castor bean (*Ricinus communis*), and Mexican fan palm (*Washingtonia robusta*). This community is restricted to the Oso Creek drainage and does not overlap the existing WRP or occur anywhere within the limits of the Proposed Project.

(2) Coastal Sage Scrub

Coastal sage scrub (CSS) typically contains a variety of aromatic, drought-deciduous perennial shrubs and subshrubs that average about 1-meter-high, with a diverse understory of herbaceous species and annual and perennial grasses. It is usually located on dry, south-facing slopes and intermingles with chaparral, non-native grassland, and other local vegetation communities. It had been widely distributed in the region in the past but has been widely displaced and destroyed over much of its historic range as the result of residential development and agricultural conversion.

Coastal sage scrub (CSS) occurs on the undeveloped steep natural slope overlooking the existing WRP from the east. In the study area CSS shows evidence of historic disturbance based on the widespread presence of invasive exotic vegetation. In the BSA, this patch of CSS is dominated by California sagebrush (*Artemisia californica*) and black sage (*Salvia mellifera*) as the dominant species in the shrub layer, and with laurel sumac (Malosma laurina) and blue elderberry (Sambucus nigra) also present in small numbers. The sumac and elderberry are taller, evergreen, arborescent shrubs that would otherwise be representative of Southern chaparral if they were dominant. Non-native ruderal (weedy) species are also present at high density and include black mustard (*Brassica nigra*) and short-podded mustard (*Hirschfeldia incana*). Lastly, poison oak (*Toxicodendron diversilobum*) occurs in dense patches throughout the central and southern areas of this habitat patch in the BSA. Although CSS occurs in the BSA, no CSS vegetation occurs within the limits of the Proposed Project

(3) Ruderal

An area dominated by ruderal (weedy) vegetation occurs in the area northwest of the existing WRP and a small fragment of this vegetation type overlaps inside the limits of the Proposed Project where additional parking is proposed. In the study area, this vegetation type is dominated by a sparse cover of some weedy species, such as short-podded mustard and Russian thistle (*Salsola tragus*) along with patches of bare ground and is considered to be of very low value to most wildlife.

(4) Ornamental Landscaping (Non-Native Trees)

Ornamental landscaping consisting mainly of non-native trees surround the existing facility and occur elsewhere in the BSA in association with development. Ornamental tree species identified include: eucalyptus (*Eucalyptus* sp.), silk oak (*Grevillea robusta*), Brisbane box (*Lophostemon confertus*), Afghan pine (*Pinus eldarica*), London plane tree (*Platanus hispanica*), and Peruvian pepper (*Schinus molle*). Although the vegetation is not native to the region, it still provides value as foraging and nesting habitat to some avian species.

(5) Developed

The entire WRP facility, except the major ornamental landscapes areas, is mapped as "developed". These areas encompass the "footprint" of the existing facility and include the paved roads, parking lots, water treatment infrastructure, and all buildings. For the most part, developed areas are barren, paved, or otherwise "hardscape" areas. However, small patches of ornamental shrubs and a few non-native trees are located in the developed areas. Common ornamental shrubs observed include bank catclaw (*Acacia redolens*) and lantana (*Lantana* sp.).

d. Wildlife Observations

Although the Project Site is generally developed the BSA contains vegetation that supports foraging and potential nesting by common avian wildlife species. Common avian species observed included the following: mallard (*Anas platyrhynchos*), western scrub-jay (*Aphelocoma californica*), Anna's hummingbird (*Calypte anna*), lesser goldfinch (*Carduelis psaltria*), wrentit (*Chamaea fasciata*), American crow (*Corvus brachyrhynchos*), American kestrel (*Falco sparverius*), common yellowthroat (*Geothlypis trichas*), house finch (*Haemorhous mexicanus*), song sparrow (*Melospiza melodia*), California towhee (*Melozone crissalis*), northern mockingbird (*Mimus polyglottos*), Nuttall's woodpecker (*Picoides nuttallii*), spotted towhee (*Pipilo maculatus*), bushtit (*Psaltriparus minimus*), Allen's hummingbird (*Selasphorus sasin*), Bewick's wren (*Thryomanes bewickii*), house wren (*Troglodytes aedon*), and orange-crowned warbler (*Vermivora celata*). Common mammal wildlife observed included coyote (*Canis latrans*) and desert cottontail (*Sylvilagus audubonii*). A compendium of plant and wildlife species observed during the biological reconnaissance survey is provided in Appendix C – Floral and Faunal Compendium.

e. Special Status Natural Communities

Sensitive natural communities and habitats are defined by the CDFW as those natural communities that have a reduced range and/or are imperiled as a result of residential and commercial development, agriculture, energy production and mining, or due to an influx of invasive and other problematic species.

According to the CNDDB there are four sensitive natural communities located within five miles of the BSA. The four sensitive natural communities include: Southern Coast Live Oak Riparian Forest, Southern Cottonwood Willow Riparian Forest, Southern Mixed Riparian Forest, and Southern Sycamore Alder Riparian Forest. According to the CNDDB the closest sensitive natural community that is not extirpated, Southern Sycamore Alder Riparian Forest, is a located approximately 2.8 miles north of the BSA. Although a form of willow riparian vegetation characterized as willow scrub occurs along Oso Creek, this is vegetation type is not diverse or tall enough to be classified as either of the sensitive types of Riparian Forest. Therefore, the BSA does not contain any sensitive natural communities.

f. Aquatic Resources

Oso Creek flows from north to south just west of the Project Site and is recognized and mapped in the National Wetlands Inventory as a freshwater forest/shrub wetland feature. As noted above, it supports a woody riparian scrub dominated by willows and mulefat although it is considered to be disturbed habitat since it occurs along a channelized part of the Creek that contains considerable amounts of rip rap and debris, and is expected to be subject to occasional maintenance as it functions as a flood control waterway. Nevertheless, this feature is presumed to be subject to the regulatory jurisdiction of the United States Army Corps of Engineers (USACE),

Regional Water Quality Control Board (RWQCB), and CDFW. This feature is directly adjacent to the existing WRP but is separated from the facility by a chain-link fence along the boundary.

g. Special-Status Plant Species

Special-status plants include those listed, or candidates for listing, by the USFWS and CDFW, and species considered special-status by the CNPS (particularly Ranks 1A, 1B, 2A, 2B, and 3). Several special-status plant species were reported in the vicinity based on CNDDB and CNPS, totaling 29 species within the nine-quadrangle search (Appendix D – Special-Status Plant Species Considered).

Based on the absence of suitable habitat, known geographic distribution and/or range restrictions, it was determined that 24 of the 29 special-status plant species do not have any potential to occur within the Project Site. A total of five special-status plant species have low to moderate potential to occur in the study area although none have been reported any closer than two miles from this particular site. Those five special-status species include: Coulter's saltbush (*Atriplex coulteri*), southern tarplant (*Centromadia parryi* ssp. *australis*), many-stemmed dudleya (*Dudleya multicaulis*), thread-leaved brodiaea (*Brodiaea filifolia*), and intermediate mariposa-lily (*Calochortus weedii* var. *intermedius*). Appendix D presents details regarding the special-status plant species considered, their associated habitat preferences and the potential for each to occur in the BSA.

None of the five species considered to have any potential to occur in the study area were observed during the reconnaissance survey. Moreover, none of these species has any reasonable potential to occur within the Project Site or in particular, within the Proposed Project work area limits. The area containing the Proposed Project site is developed or occupied by ornamental landscaping except for a very small patch of ruderal vegetation in the northwest corner of the proposed project area. That small area also exhibits no potential to support special status plant species as it is either compacted or is entirely dominated by non-native mustard which would tend to exclude any rare plant species from occurring.

h. Special Status Wildlife Species

Special-status wildlife include those species listed or designated as candidates for listing as Endangered or Threatened under either the FESA and/or CESA, as well as species designated species of special concern to the CDFW. A total of 17 special-status wildlife species were reported in the CNDDB database within the 5-mile radius search area (Appendix E – Special-Status Wildlife Species Considered).

Based on absence of suitable habitat, known geographic distributions and/or range restrictions, it was determined that 13 of the 17 special-status wildlife species do not have any potential to occur within the BSA. A total of four special-status wildlife species were determined to have low or low to moderate potential to occur although they were not observed during the biological reconnaissance survey. The two wildlife species with low potential to occur include: two-striped garter snake (*Thamnophis hammondii*), which is a Species of Special Concern (CSC), and white-tailed kite (*Elanus leucurus*) which is a Fully Protected species in California (CFP). The two wildlife species with low to moderate potential to occur within the BSA are: coastal California gnatcatcher (*Polioptila californica californica*), which is federally listed as Threatened under FESA and a CSC), and least Bell's vireo (*Vireo belli pusillus*) which is listed as Endangered under both FESA and CESA. Appendix E presents details regarding the special-status animal species considered, their associated habitat preferences and the potential for each to occur in the BSA.

(1) Coastal California Gnatcatcher

The coastal California gnatcatcher is a year-round resident in Southern California and is strongly associated with coastal sage scrub habitat in its various successional stages. The breeding season extends from about February 15 through August 30, with the peak of nesting activity occurring from mid-March through mid-May. This tiny songbird was federally listed as threatened on March 30, 1993 (58 FR 16742) and USFWS designated critical habitat for it in 2000. This species is also designated as a Species of Special Concern by CDFW.

Designated critical habitat occurs in Arroyo Trabuco, roughly 1 mile from the Project Site at its nearest point. This strip of critical habitat lies on the far side of a large, north-south trending ridge which is almost entirely developed as residential housing. In the BSA, the coastal sage scrub vegetation that occurs on the east side of the Project Site may provide at least marginally suitable habitat for this species. Several characteristics may make this area less suitable for the species, however. These factors include the following: 1) the habitat occurs on a relatively steep slope and steep areas are considered less preferable for gnatcatcher; 2) the habitat contains a substantial amount of black sage, which is also not a preferred constituent shrub of CSS for this species, and 3) the particular patch area is somewhat isolated and partly enveloped by urban development which may make it less likely to be used by this species. For these reasons, and also because it is not considered Critical Habitat, the habitat in the project area is not considered vitally important to the species. This species was not detected during the reconnaissance survey for the project. However, the potential for coastal California gnatcatcher to occur and possibly breed in the CSS near the Project Site cannot be ruled out without conducting a focused protocol survey.

(2) Least Bell’s Vireo

The least Bell's vireo is a small migratory songbird that winters in southern Baja, Mexico. It migrates north to spend the spring and summer in habitat consisting of cottonwood-willow forest, shrubby thickets, and dry washes with willow thickets at the edges. The physical and biological habitat features that support feeding, nesting, roosting, and sheltering essential to the conservation of the vireo are described by USFWS as “riparian woodland vegetation that generally contains both canopy and shrub layers, and includes some associated upland habitats.”

A range-wide decline of least Bell’s vireo led to the species’ federal listing as Endangered on May 2, 1986 (51 FR 16474). Critical habitat for the species was designated in 1994. The State of California had earlier listed this tiny songbird as Endangered on June 27, 1980. Population decline was attributed to historically extensive habitat loss and degradation and brood parasitism by brown-headed cowbirds (*Molothrus ater*) which are year-round residents in Southern California.

In the BSA, the willow scrub vegetation associated with Oso Creek just west and adjacent to the Project Site provides potentially suitable habitat for this species. Despite the relatively disturbed condition of this habitat and the widespread presence of exotic plant species, the potential for least Bell’s vireo to occur and possibly breed in in this area next to the Project Site cannot be ruled out without conducting a focused protocol survey.

i. Wildlife Movement

For a great many species of wildlife, movement over the landscape is essential for foraging, breeding and genetic exchange, dispersal of young, migration and for other purposes important to survival of both individuals and populations. Wildlife movement corridors or habitat linkages are linear habitat features that connect blocks of habitat that would otherwise disconnected. Functional wildlife movement corridors are especially important within highly fragmented habitat, such as developed or agricultural areas. Wildlife movement corridors generally

refers to pathways used by terrestrial animals, although the term may also be used in reference to aquatic or avian species, and even encompasses the ability of plants to exchange genetic material by various means involving movement of wildlife. On a regional scale, movement corridors can include avian flyways, mountain ranges, or major river systems. On a more local scale, landscape linkages may include almost any overland or stream connection where open space strips, greenbelts, creeks, parks and wildlife preserves contribute to a network of interconnections between and among large patches of wildlife habitat.

The study area is within the City of Mission Viejo and the Project Site is generally surrounded by development. between the City of Irvine and the foothills of the Santa Ana Mountains. The study area is not identified as a Missing Linkage in the South Coast Missing Linkages report (South Coast Wildlands 2008). However, inspection of aerial photographs of the region show that Oso Creek, which intersects the study area may provide a narrow and somewhat tenuous connection between Trabuco Canyon upstream and inland from the site, to open space on the south side of Interstate 5, downstream. Oso Creek itself is therefore considered a potential wildlife movement corridor. However, it is not an extremely important, vital or particularly significant landscape linkage. Oso Creek winds through a highly urbanized area, under a number of multi-lane arterial roads, and through a large golf course before proceeding under I-5. Therefore, it is likely that only the most urban-adapted species, such as raccoon, possum, striped skunk, and coyote, along with a variety of smaller terrestrial species, use this route to move, which limits its value and makes it less important on the regional level.

j. Nesting Birds

Although the Project Site and BSA are surrounded by residential and commercial development within the City of Mission Viejo, natural habitat areas, ornamental landscape, and even structures on-site and within the BSA provide may provide nesting opportunities for a variety of avian species including song sparrow, mourning dove, black phoebe, barn swallow. Some of the non-native trees may also provide nesting habitat for a few raptor species such as red-shouldered hawk and Cooper's hawk, although no raptor nests were noted during the survey.

k. Legal Protection for Nesting Birds

In California, the active nests and eggs of all native bird species, except certain game birds, are protected under the California Fish and Game Code Section 3503, which states: "It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto." In addition, the federal Migratory Bird Treaty Act (16 U.S. Code [USC] 703–711) makes it unlawful to take or kill individuals of most bird species found in the United States, unless that taking or killing is authorized pursuant to regulation 16 USC 703, 704. The federal definition of "Take" is defined as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect" (50 CFR 10.12). Thus, even if not designated as a special-status or "sensitive" species, most bird species, except exotic birds and game birds, are afforded protection under state and federal laws while they are engaged in breeding activity. However, unless a project may have a substantial adverse effect on a species identified as a candidate, sensitive, or special-status species, impacts involving the loss or destruction of a limited number of nests of non-sensitive species would not normally be categorized as "significant" or regarded as substantially adverse impacts to biological resources, and thus would not warrant mitigation to be imposed and enforced by a lead agency under CEQA.

l. Tree Protection

Trees within the Project Site on the existing facility's property are not subject to protection under the City of Mission Viejo's Tree Ordinance (Municipal Code Chapter 14.30), as they are not on City property or within a right-of-way. Therefore, a tree survey was not conducted for this project. However, it should be noted that trees occur in areas directly adjacent to the Proposed Project work area limits that may be subject to protection under that ordinance where they occur on City property which abuts the Project Site on the east side. In particular, on the east side of the Proposed Project, along the edge of the work area limits depicted on Figure 3 and Figure 4, a few mature blue elderberry trees occur. If the Proposed Project may involve directly cutting back branches or removing any of these trees, or if earthwork may occur that could affect the root systems of any of these trees, a tree removal permit may need to be requested from the City Forester in accordance with the ordinance.

5. Project Effects

This section describes the potential effects of the Proposed Project on biological resources that may occur on or adjacent to the Project Site. A project is generally considered to have a significant effect if it proposes or results in any of the conditions described in the significance thresholds presented below (in *italics*), absent specific evidence to the contrary. Conversely, if a project does not propose or result in any of the following conditions, it would generally not be considered to have a significant effect on biological resources, absent specific evidence of such an effect. These significance thresholds are taken from Appendix G of the 2021 CEQA Guidelines.

Significance Threshold – Issue 1: *Would the proposed project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?*

a. Special-Status Plants

No special-status plants and no native plant communities within the maximum work area limits of the Proposed Project. Various special-status plants have been historically recorded in the region (though none were reported to occur in habitats found in the BSA any closer than 2 or 3 miles), and five special-status plant species were considered to have a low to moderate potential to occur within natural areas in the BSA. However, none of the plant species considered have a potential to occur in areas affected by the Proposed Project. The area within the work area limits is already completely developed or landscaped, except a very small patch of entirely ruderal (weedy) vegetation on the east side of the existing facility where a parking lot is proposed to be placed. The weedy patch area is either on very compacted soils or is too densely vegetated by exotic mustard for any of the special status plants considered to occur.

Therefore, **no impact** related to a substantial adverse effect on any plant species identified as candidate, sensitive, or special-status in local or regional plans, policies, or regulations by CDFW or USFWS would occur as a result of the Proposed Project. No mitigation for special status plants is needed.

b. Special-Status Wildlife

The study area does not occur in or near any designated Critical Habitat for any federally-listed species. Furthermore, the Proposed Project occurs within the existing WRP facility and within a very small patch of

adjacent ruderal habitat and will not directly impact any potentially suitable habitat for special status wildlife. However, the Proposed Project will be implemented in an area that lies between CSS habitat, adjacent to the east side of the Project Site, and willow riparian scrub habitat, in Oso Creek adjacent to the west side of the Project Site. The federally-listed Threatened coastal California gnatcatcher has not been observed or reported, but has a low to moderate potential to occur in CSS habitat on the east side of the Project Site. The State and federally-listed Endangered least Bell's vireo also has a low to moderate potential to occur in the riparian habitat in Oso Creek to the west of the Project Site. Although the Proposed Project will not result in a direct loss of any potentially suitable habitat for special status species, if any breeding pairs of gnatcatcher or vireo happen to nest in the project vicinity, project-related demolition or construction could indirectly affect nesting activity and adversely affect individual birds, if present. Such adverse effects would be potentially significant since these species are protected under both FESA and CESA.

In addition, the same demolition and construction activities that could affect either of the two listed species, if present, could also adversely affect other birds during the nesting season. Therefore, Mitigation Measure BIO-1 is provided to avoid or minimize potential impacts on nesting birds and Mitigation Measure BIO-1(c) will provide for complete avoidance of adverse effects or "take" of listed avian species, so that the effects of the Proposed Project would be less than significant. Therefore, with regard to special status wildlife species protected under FESA and CESA and nesting birds protected under the California Fish and Game Code and the Migratory Bird Treaty Act the Proposed Project is determined to result in a **less-than-significant impact with mitigation** required.

Significance Threshold – Issue 2: *Would the proposed project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?*

No riparian habitat or sensitive natural communities occur on the Project Site. Southern willow scrub habitat occurs within Oso Creek just west of the Project Site and within the BSA. Sensitive coastal sage scrub habitat occurs on the east side of the Project Site and also within the BSA. The Proposed Project will not directly impact any riparian or coastal sage scrub vegetation in these adjacent areas because all planned demolition and construction activities will be contained within the existing limits of the WRP facility except a small area proposed to provide additional parking that would displace only ruderal vegetation. Therefore, **no impact** would occur on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS.

During construction the Proposed Project could indirectly impact wildlife associated with these habitat areas. Such potential impacts are discussed above under Issue 1, or later under Issue 4.

Significance Threshold – Issue 3: *Would the proposed project have a substantial adverse effect on state or federally protected wetlands (including but not limited to marsh, vernal pool, coastal) through direct removal, filling, hydrological interruption, or other means?*

No wetlands or "waters" subject to state or federal regulatory jurisdiction, such as waters of the United States, pursuant to CWA Section 404, or streams or lakes, pursuant to California Fish and Game Code Section 1600 et al., occur on the Project Site. The Project Site does not contain any resources that would be regulated under the

CWA or California Fish and Game Code Section 1600 et al., and there are no potential offsite impacts that could be regulated under the CWA or California Fish and Game Code Section 1600. Therefore, **no impact** would occur with respect to a substantial adverse effect on state or federally protected wetlands (including but not limited to marsh, vernal pool coastal) through direct removal, filling, hydrological interruption, or other means for on-site resources.

Significance Threshold – Issue 4: *Would the proposed project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?*

Oso Creek is likely to function as a route for local, urban-adapted wildlife species to move through this part of the City of Mission Viejo, but is not a regionally important or vital wildlife movement corridor. Furthermore, the Proposed Project would not directly affect this feature, nor would the proposed upgrades of the existing WRP change any conditions that are already present in the vicinity of Oso Creek. The Proposed Project would occur within the limits of the existing WRP facility and would involve demolition of much of the existing facility and construction of a more efficient and technologically superior WRP. During demolition and construction activities, work would be substantially limited to daytime working hours. Since most of local wildlife movement occurs between dusk and dawn, the work would not usually be expected to affect local wildlife movement. However, if nighttime work occurs and requires bright lighting or if construction noise or lighting is much louder or brighter than under typical conditions experienced during normal plant operations, excessive noise or light could indirectly affect wildlife movement in the immediate vicinity by causing animals to avoid the immediate area. It is not likely such adverse conditions would cause potentially significant impacts as the movement pathway itself is not considered an important or significant resource. Nevertheless, implementation of Mitigation Measure BIO-1 will minimize noise and Mitigation Measure BIO-2 will avoid excessive nighttime lighting effects in Oso Creek and assure that the potential impacts are **less than significant with mitigation**.

No known or expected native wildlife nursery sites occur in the project vicinity and no such resources would be affected by the Proposed Project. Therefore, the Proposed Project would have **no impact** that would impede the use of native wildlife nursery sites.

However, the Project Site and study area exhibits riparian scrub, coastal sage scrub, ornamental landscaping with a number of non-native trees, which may be used by various species of nesting birds. Some bird species also nest on existing structures or in construction material and equipment. As discussed above with regard to legal protection for nesting birds, even common native and migratory species and their nests and eggs are protected from unnecessary destruction during breeding.

The California Fish and Game Code (Section 3503) protects the active nests and eggs of all native bird species, except certain game birds, and the federal Migratory Bird Treaty Act (16 USC 703–711) makes it unlawful to take or kill individuals of most native and migratory bird species found in the United States. Therefore, Mitigation Measure BIO-1 would direct compliance with state and federal laws that protect nesting birds by conducting preconstruction surveys and requiring implementation of avoidance measures. Impacts would be **less than significant with implementation mitigation** with regard to potential adverse effects on nesting birds.

Significance Threshold – Issue 5: *Would the proposed project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

Trees within the Project Site that are not on property owned by the City of Mission Viejo or within a public right-of-way are not subject to the City's Tree Protection Ordinance. However, several trees occur within the BSA, including small coast live oak (*Quercus agrifolia*) saplings and several larger blue elderberry specimens, in open space owned by the City of Mission Viejo on the east side of the Project Site where that open space abuts the Project Site. The blue elderberry trees are situated along the eastern access road within the limits of the Proposed Project and one or more overhangs the road and several branches may extend into the Project Site. To the extent that construction may involve work on this access road and because construction traffic is expected to use it, the Proposed Project may incur some potential damage to, involving cutting back branches and/or possible destruction or removal of one or more trees on City-owned property directly adjacent to the Project Site. If such damage may not be avoided, the District may be required to apply for a tree removal permit from the City of Mission Viejo in accordance with Ordinance No. 99-202, § 1, 12-6-99 Sec. 14.30.040. Compliance with the City tree protection ordinance would entirely avoid any conflict with this local ordinance. Mitigation Measure BIO-3 establishes the requirement to conduct a tree survey on City property immediately adjacent to the Project Site prior to construction to determine which trees, if any, may be damaged during demolition or construction and also requires the District to apply for a permit from the City prior to damage or removal that may result due to project implementation. Therefore, the Proposed Project would have a **less than significant impact with mitigation** requiring compliance with the City Ordinance that involves conducting a trees survey and filing an application for a tree removal permit (or waiver) from the City prior to construction.

Significance Threshold – Issue 6: *Would the proposed project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?*

The Proposed Project is not within the boundaries of or in an area addressed under an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. The Project Site is within an existing developed area and will not directly impact any habitat subject to any conservation planning instruments. Therefore, implementation of the Proposed Project will have **no impact** with respect to established conservation plans in the region.

c. Potential Effects on Nesting Birds

As noted previously, although the Project Site supports only non-native grassland vegetation, relatively bare ground, and a few artificial detention/retention basins, such areas may be used by ground nesting birds, some songbirds, and possibly shorebirds, and other non-special-status species. Some bird species may also nest on existing structures or in construction material and equipment. As discussed above with regard to legal protection for nesting birds, even common native and migratory species and their nests and eggs are protected from unnecessary destruction during breeding.

The 2021 Project could harm active nests and breeding birds, if present, in the course of construction. CEQA does not specifically require that limited impacts to a small number of common birds with no special-status should be considered biologically significant or substantially adverse. However, California Fish and Game Code Section 3503 protects the active nests and eggs of all native bird species, except certain game birds, and the

federal Migratory Bird Treaty Act (16 USC 703–711) makes it unlawful to take or kill individuals of most native and migratory bird species found in the United States. Therefore, Mitigation Measure K-1 would ensure compliance with state and federal laws that protect nesting birds by conducting preconstruction surveys and requiring implementation of avoidance measures. Impacts would be **less than significant with implementation of the identified mitigation measure**.

6. Recommended Mitigation Measures

The following mitigation measure are proposed to address potential impacts associated with implementation of the Proposed Project, primarily related to nesting birds and wildlife movement in near adjacent habitat areas and also to assure compliance with the local tree protection ordinance.

a. Nesting Bird Protection

Mitigation Measure BIO-1. Impacts to nesting birds would be avoided by conducting all construction activities outside of the bird nesting season (i.e., from September 1 to February 14 for most birds, from July 1 to January 14 for raptors). However, if construction activities must occur during the nesting season, the following measures shall apply during the time frames indicated:

A. Prior to work during the bird nesting season (February 15 to August 31 for most birds, January 15 to June 31 for raptors), a qualified biologist shall conduct a pre-construction survey of all suitable habitat for the presence of nesting birds no more than 7 days prior to construction activities. The results of the pre-construction survey shall be valid for 7 days; if vegetation removal activities do not commence within 7 days following the survey or if activities cease for more than 7 consecutive days, a new pre-construction nesting bird survey shall be conducted before construction resumes.

B. If any active nests are found during a pre-construction nesting bird survey, a buffer of up to 300 feet for most bird species and 500 feet for raptors, or as determined appropriate by the qualified biologist (based on species-specific tolerances and site-specific conditions), shall be delineated, flagged, and avoided until the nesting cycle is complete (i.e., the qualified biologist determines that the young have fledged or the nest has failed). The qualified biologist may also recommend other measures to minimize disturbances to active nests that may include but are not limited to limiting the duration of certain activities, placing sound barriers (e.g., noise blankets on temporary chain-link fencing), or visual barriers (e.g., straw bales), and/or providing full-time monitoring by a qualified biologist.

C. As a provisional additional mitigation element, in case surveys identify California gnatcatcher or least Bell’s vireo in habitat within 500 feet of the limits of construction, such occurrence shall be documented and both USFWS and CDFW shall be notified. Although it is considered somewhat unlikely that either of these species may nest in the vicinity (due to low habitat quality, proximity to urban land use, and relative isolation from larger natural areas), if an active coastal California gnatcatcher or least Bell’s vireo nest is encountered, a minimum buffer of 500 feet shall be delineated, flagged, and avoided by construction activity until the nesting cycle is complete (i.e., the qualified biologist determines that the young have fledged or the nest has failed). A qualified biologist may recommend other measures as noted in Item B, above. However, USFWS and CDFW will be consulted prior to any reduction of avoidance buffers or implementation of other measures.

b. Wildlife Movement Protection

Mitigation Measure BIO-2. During construction, all equipment maintenance, lighting, and staging shall be located in designated areas. All nighttime lighting and security lighting shall be shielded and/or directed downward and away from natural areas outside the Project Site.

c. Tree Protection

Mitigation Measure BIO-3. If required by the City, the District shall conduct a tree survey on City property immediately adjacent to the Project Site prior to construction to determine which trees, if any, may be damaged during demolition or construction. The results of the survey, identifying the species, location, size, condition, and potential need for branch cutting, root damage, or complete removal shall be provided to the City forester with an application for a tree removal permit, in accordance with Ordinance No. 99-202, § 1, 12-6-99 Sec. 14.30.040.

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Appendix A
Regulatory Framework

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APPENDIX A – REGULATORY FRAMEWORK

1.1 Federal

1.1.1 Endangered Species Act (USC, Title 16, Sections 1531 through 1543)

The federal Endangered Species Act (FESA) and subsequent amendments provides for the conservation and protection of wildlife and plant species that are listed or proposed for listing as endangered or threatened species and the ecosystems upon which they depend. The FESA also provides statutory framework for the conservation and recovery of threatened and endangered species as well as for the conservation of designated critical habitat that USFWS determines is required for the survival and recovery of these listed species.

Section 7 of the FESA requires federal agencies, in consultation with and assistance from the Secretary of the Interior or the Secretary of Commerce, as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. The USFWS and National Marine Fisheries Service (NMFS) share responsibilities for administering the FESA. Regulations governing interagency cooperation under Section 7 are found in CCR Title 50, Part 402. The opinion issued at the conclusion of consultation will include a statement authorizing "take" (to harass, harm, pursue, hunt, wound, kill, etc.) that may occur incidental to an otherwise legal activity. Although federal funding is not expected, if the proposed Program were to receive federal funding the funding agency would be required to initiate a consultation with USFWS under Section 7. The consultation process would then lead to issuance of a Biological Opinion from USFWS. In most cases, a Biological Opinion addresses a project's potential to result in "take" of listed species (as defined below), and includes mandatory conditions that would allow for limited incidental take to occur subject to prescribed conditions.

Section 9 lists those actions that are prohibited under the FESA. Although take of a listed species is prohibited, it is allowed when it is incidental to an otherwise legal activity. Section 9 prohibits take of listed species of fish, wildlife, and plants without special exemption. The definition of "harm" includes significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns related to breeding, feeding, or shelter. "Harass" is defined as actions that create the likelihood of injury to listed species by disrupting normal behavioral patterns related to breeding, feeding, and shelter significantly.

Section 10 provides a means whereby a non-federal action with the potential to result in take of a listed species can be allowed under an incidental take permit which may be issued once a HCP is approved. Application procedures are found at 50 CFR 13 and 17 for species under the jurisdiction of USFWS and 50 CFR 217, 220, and 222 for species under the jurisdiction of NMFS.

1.1.2 Migratory Bird Treaty Act (16 USC 703 through 711)

The Migratory Bird Treaty Act (MBTA) is the domestic law that affirms, or implements, a commitment by the U.S. to four international conventions (with Canada, Mexico, Japan, and Russia) for the protection of a shared migratory bird resource. The MBTA makes it unlawful at any time, by any means, or in any manner to pursue, hunt, take, capture, or kill migratory birds. “Migratory bird” means any bird protected by any of the treaties and currently includes 1,027 bird species in the United States (50 CFR 10.13), regardless of whether the particular species actually migrates. The law also applies to the removal of nests occupied by migratory birds during the breeding season. The MBTA makes it unlawful to take, pursue, molest, or disturb these species, their nests, or their eggs anywhere in the United States.

1.1.3 Federal Clean Water Act (33 USC 1251 through 1376)

The USACE regulates “discharge of dredged or fill material” into “waters” of the United States, which includes tidal waters, interstate waters, and “all other waters, interstate lakes, rivers, streams (including excluding ephemeral drainages), mud flats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce or which are tributaries to waters subject to the ebb and flow of the tide” (33 C.F.R. 328.3(a)), pursuant to provisions of Section 404 of the Clean Water Act (CWA). The CWA also excludes certain features from this regulation, including “wastewater recycling facility constructed on dry land” (see 33 CFR Section 230.3 (o)(2)(vii)). Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not considered waters of the United States.

1.2 State

1.2.1 California Endangered Species Act (CFG Code Section 2050 et seq.)

The California Endangered Species Act (CESA) establishes the policy of the state to conserve, protect, restore, and enhance threatened or endangered species and their habitats. The CESA mandates that state agencies should not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. There are no state agency consultation procedures under the CESA. For projects that would affect a listed species under both the CESA and the FESA, compliance with the FESA would satisfy the CESA if CDFW determines that the federal incidental take authorization is “consistent” with the CESA under CFG Code Section 2080.1. For projects that would result in take of a species listed under the CESA only, the project operator would have to apply for a take permit under Section 2081(b).

1.2.2 California Fish and Game Code Section 1600 et seq.

CDFW is responsible for protecting and conserving fish and wildlife resources, and the habitats upon which they depend. Under Section 1600 of the California Fish and Game Code, CDFW administers the Lake and Streambed Alteration (LSA) Program and regulates all substantial diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake (which typically include reservoirs), which supports fish or wildlife.

Applicants proposing changes to such regulated water resources must submit a Lake or Streambed Alteration Notification to CDFW for such projects. CDFW will then determine if the proposed activity may substantially adversely affect an existing fish or wildlife resource and will issue a final agreement for the applicant's signature that includes reasonable measures necessary to protect the resource. Preliminary notification to CDFW, and project review by CDFW may occur during or after the California Environmental Quality Act (CEQA) environmental review process but prior to project implementation.

1.2.3 California Fish and Game Code Sections 2080 and 2081

Section 2080 of the California Fish and Game Code states that "No person shall import into this state [California], export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the Commission [State Fish and Game Commission] determines to be an endangered species or threatened species, or attempt any of those acts, except as otherwise provided in this chapter, or the Native Plant Protection Act, or the California Desert Native Plants Act." Pursuant to Section 2081, CDFW may authorize individuals or public agencies to import, export, take, or possess state-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through Incidental Take permits or Memoranda of Understanding if the take is incidental to an otherwise lawful activity, impacts of the authorized take are minimized and fully mitigated, the permit is consistent with any regulations adopted pursuant to any recovery plan for the species, and the project operator ensures adequate funding to implement the measures required by CDFW, which makes this determination based on available scientific information and considers the ability of the species to survive and reproduce.

1.2.4 California Fish and Game Code Sections 3503, 3503.5, 3513, and 3800

Under these sections of the California Fish and Game Code, a project operator is not allowed to conduct activities that would result in the taking, possessing, or destroying of any birds of prey; the taking or possessing of any migratory nongame bird as designated in the MBTA; the taking, possessing, or needlessly destroying of the nest or eggs of any raptors or nongame birds protected by the MBTA; or the taking of any nongame bird pursuant to California Fish and Game Code Section 3800.

Section 3800 of the CFG Code affords protection to all nongame birds, which are all birds occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds. Section 3513 of the CFG Code upholds the MBTA by prohibiting any take or possession of birds that are designated by the MBTA as migratory nongame birds except as allowed by federal rules and regulations promulgated pursuant to the MBTA.

1.2.5 California Environmental Quality Act Guidelines Section 15380

Although threatened and endangered species are protected by specific federal and state statutes, California Environmental Quality Act (CEQA) Guidelines Section 15380(b) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals. This section is included in CEQA primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on, for example, a candidate species that has not been listed by

either USFWS or CDFW. Thus, CEQA provides an agency with the ability to protect a species from the potential impacts of a project until the respective government agencies have an opportunity to designate the species as protected, if warranted. CEQA also calls for the protection of other locally or regionally significant resources, including natural communities. Although natural communities do not at present have legal protection of any kind, CEQA calls for an assessment of whether any such resources would be affected and requires findings of significance if there would be substantial losses. Natural communities listed by CNDDB as sensitive are considered by CDFW to be significant resources and fall under the State CEQA Guidelines for addressing impacts. Local planning documents such as General Plans often identify these resources as well.

1.2.6 California Water Quality Control Act (Porter-Cologne California Water Code Section 13260)

The State Water Resources Control Board and the RWQCB (together "Boards") are the principal state agencies with primary responsibility for the coordination and control of water quality. The Boards regulate activities pursuant to Section 401(a)(1) of the federal CWA as well as the Porter-Cologne Water Quality Control Act (Porter-Cologne) (Water Code Section 13260). Section 401 of the CWA specifies that certification from the State is required for any applicant requesting a federal license or permit to conduct any activity including but not limited to the construction or operation of facilities that may result in any discharge into navigable waters. The certification shall originate from the State in which the discharge originates or will originate, or, if appropriate, from the interstate water pollution control agency having jurisdiction over the navigable water at the point where the discharge originates or will originate. Any such discharge will comply with the applicable provisions of Sections 301, 302, 303, 306, and 307 of the CWA.

In Porter-Cologne, the Legislature declared that the "State must be prepared to exercise its full power and jurisdiction to protect the quality of the waters in the State from degradation..." (California Water Code Section 13000). Porter-Cologne grants the Boards the authority to implement and enforce the water quality laws, regulations, policies and plans to protect the groundwater and surface waters of the State. It is important to note that enforcement of the State's water quality requirements is not solely the purview of the Boards and their staff. Other agencies (e.g., CDFW) have the ability to enforce certain water quality provisions in state law.

The State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (procedures), adopted by the State Water Resources Control Board on April 2, 2019, became effective May 28, 2020. The Procedures include a definition for wetland waters of the state that include (1) all wetland waters of the U.S.; and (2) aquatic resources that meet both the soils and hydrology criteria for wetland waters of the U.S. but lack vegetation.

1.3 Regional or Local

1.3.1 City of Mission Viejo

Tre Protection Ordinance (No. 99-202, § 1, 12-6-99 Sec. 14.30.040)

Pursuant to the City's Tree Protection ordinance, a tree permit may be required prior to damaging or removing any trees located on City property on in the public right-of-way.

Appendix B
Site Photographs

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APPENDIX B – OSO CREEK WATER RECLAMATION PLANT IMPROVEMENT PROJECT

Representative Site Photographs

Photo 1. Northeast-facing. Coastal sage scrub and southern mixed chaparral habitat adjacent to eastern access road.

Photo 2 (North). North-facing. Non-native woodland habitat within the project limits at the existing WRP facility.

Photo 3. Northeast-facing. Coastal sage scrub habitat, note the substantial ruderal component.

Photo 4. Southwest-facing. Ruderal area within the proposed project limits.

Photo 5. Northeast-facing. Coastal sage scrub and southern mixed chaparral habitat adjacent to eastern access road. Note blue elderberry tree overhanging the access road (red circle).

Photo 6. Southwest facing. Coastal sage scrub and southern mixed chaparral habitat adjacent to eastern access road.

Photo 7. Southwest-facing. Oso Creek and disturbed southern willow scrub habitat. Note dominance of invasive non-native vegetation including yucca and castor bean.

Photo 8. West-facing. Oso Creek and disturbed southern willow scrub habitat. Note invasive non-native vegetation including yucca and castor bean.

Photo 9. North facing. Ornamental landscaping consisting of non-native trees and ground cover within the existing WRP facility.

Photo 10. East facing. Non-native trees (far background) within the existing WRP facility.

Photo 11. Southwest facing. Non-native trees (far background) within the existing WRP facility.

Photo 12. Northwest facing. Ruderal area within the proposed project limits.

Appendix C
Floral and Faunal Compendium

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APPENDIX C – OSO CREEK WATER RECLAMATION PLANT IMPROVEMENT PROJECT

Floral Compendium

Family	Scientific Name	Common Name	Nativity	Status
GYMNOSPERMS				
PINACEAE – PINE FAMILY				
	Pinus eldarica	Afghan pine	cultivated	
ANGIOSPERMS				
DICOTS				
ADOXACEAE – MUSKROOT FAMILY				
	Sambucus nigra ssp. *caerulea*	blue elderberry	native	
ANACARDIACEAE – SUMAC OR CASHEW FAMILY				
	Malosma laurina	laurel sumac	native	
	Rhus integrifolia	lemonade berry	native	
	Rhus ovata	sugar bush	native	
	Schinus molle	Peruvian pepper tree	cultivated, exotic	
	Schinus terebinthifolius	Brazilian pepper	cultivated, exotic	
	Toxicodendron diversilobum	poison oak	native	
APIACEAE – CARROT FAMILY				
	Conium maculatum	poison hemlock	exotic	
ASTERACEAE – SUNFLOWER FAMILY				
	Ambrosia acanthicarpa	annual burweed	native	
	Artemisia californica	California sagebrush	native	
	Baccharis pilularis	coyote brush	native	
	Baccharis salicifolia	mulefat	native	
	Centaurea melitensis	tocalote	exotic	
	Encelia californica	California encelia	native	
	Helianthus annuus	hairy leaved sunflower	native	
	Silybum marianum	blessed milk thistle	exotic	
	Xanthium strumarium	rough cocklebur	native	
BORAGINACEAE – BORAGE FAMILY				
	Amsinckia intermedia	fiddleneck	native	
	Phacelia distans	distant phacelia	native	
BRASSICACEAE – MUSTARD FAMILY				
	Brassica nigra	black mustard	exotic	
	Hirschfeldia incana	short-podded mustard	exotic	
CUCURBITACEAE – GOURD FAMILY				
	Marah macrocarpa	chilicothe	native	
EUPHORBIACEAE – SPURGE FAMILY				
	Ricinus communis	castor bean	exotic	
Fabaceae - Pea Family				
	Acacia redolens	catclaw acacia	cultivated	
FAGACAE – OAK FAMILY				
	Quercus agrifolia	coast live oak	native	

Family	Scientific Name	Common Name	Nativity	Status
LAMIACEAE – MINT FAMILY				
	Salvia apiana	white sage	native	
	Salvia mellifera	black sage	native	
MYRTACACEAE – MYRTLE FAMILY				
	Eucalyptus sp.	gum	cultivated	
	Tristania conferta	Brisbane box	cultivated	
OLEACEAE – OLIVE FAMILY				
	Fraxinus uhdei	Shamel ash	exotic	
	Olea europaea	olive	cultivated	
PLATANACEAE –SYCAMORE FAMILY				
	Platanus hispanica	London plane	cultivated	
PROTEACEAE – PROTEA FAMILY				
	Grevillea robusta	silk oak	cultivated	
SALICACEAE – WILLOW FAMILY				
	Salix laevigata	red willow	native	
	Salix lasiolepis	arroyo willow	native	
SOLANACEAE – SOLANUM FAMILY				
	Datura wrightii	jimsonweed	native	
	Nicotiana glauca	tree tobacco	exotic	
MONOCOTS				
ARECACEAE – PALM FAMILY				
	Washingtonia robusta	Mexican fan palm	exotic	
POACEAE – GRASS FAMILY				
	Avena sp.	wild oat	exotic	
	Cortaderia selloana	Pampas grass	exotic	
	Hordeum murinum	barley	exotic	

APPENDIX C – OSO CREEK WATER RECLAMATION PLANT IMPROVEMENT PROJECT

Faunal Compendium

Class	Family	Family Common Name	Scientific Name	Common Name	Special-status?
BIRDS					
	Aegithalidae	Bushtits	*Psaltriparus minimus*	bushtits	N
	Anatidae	Ducks, Geese, and Waterfowl	*Anas platyrhynchos*	mallard	N
	Corvidae	Crows and Jays	*Aphelocoma californica*	western scrub-jay	N
	Corvidae	Crows and Jays	*Corvus brachyrhynchos*	American crow	N
	Falconidae	Falcons	*Falco sparverius*	American kestrel	N
	Fringillidae	Finches and Allies	*Haemorhous mexicanus*	house finch	N
	Fringillidae	Finches and Allies	*Spinus psaltria*	lesser goldfinch	N
	Mimidae	Mockingbirds and Thrashers	*Mimus polyglotos*	northern mockingbird	N
	Parulidae	New World Warblers	*Geothlypis trichas*	common yellowthroat	N
	Parulidae	New World Warblers	*Leiothlypis celata*	orange-crowned warbler	N
	Passerellidae	New World Sparrows	*Melospiza melodia*	song sparrow	N
	Passerellidae	New World Sparrows	*Melozone crissalis*	California towhee	N
	Passerellidae	New World Sparrows	*Pipilo crissalis*	spotted towhee	N
	Picidae	Woodpeckers	*Dryobates nuttallii*	Nuttall's woodpecker	N
	Sylviidae	Warblers	*Chamaea fasciata*	wrentit	N
	Trochilidae	Hummingbirds	*Calypte anna*	Anna's hummingbird	N
	Trochilidae	Hummingbirds	*Selasphorus sasin*	Allen's hummingbird	N
	Troglodytidae	Wrens	*Thryomanes bewickii*	Bewick's wren	N
	Troglodytidae	Wrens	*Troglodytes aedon*	house wren	N
	Tyrannidae	Tyrant Flycatchers	*Sayornis nigricans*	black phoebe	N
MAMMALS					
	Canidae	Wolves and Coyotes	*Canis latrans*	coyote	N
	Leporidae	Rabbits	*Sylvilagus audubonii*	desert cottontail	N

Appendix D

Special-Status Plant Species Considered

ESA

APPENDIX D SPECIAL-STATUS PLANT SPECIES CONSIDERED

POTENTIAL TO OCCUR IN STUDY AREA

Common Name *Scientific Name*	Flowering Period	Sensitivity Status	Preferred Habitat/Known Elevational Range	Presence/Potential to Occur within Biological Study Area
Dicots				
aphanisma *Aphanisma blitoides*	February - June	--/--/1B.2	Coastal bluff scrub, coastal dunes, and coastal scrub. Typically located in sandy or gravelly soils. Elevation range: 5-1,000 feet (CNPS 2021).	**Not expected.** Limited suitable habitat within the BSA. The closest known CNDDB record is located approximately 10 miles southwest of the BSA and is from 1926 (CNDDB 2021).
Coulter's saltbush *Atriplex coulteri*	March – October	--/--/1B.2	Coastal bluff scrub, coastal dunes, coastal scrub, and valley and foothill grasslands. Typically located in alkali or clay soils. Elevation range: 10-1,510 feet (CNPS 2021).	**Low.** Limited suitable habitat present within the BSA. The most recent CNDDB record is from 2014 is located 5 miles south of the BSA (CNDDB 2021).
Davidson's saltscale *Atriplex serenana* var. *davidsonii*	April - October	--/--/1B.2	Coastal bluff scrub, coastal scrub. Located on alkaline soils. Elevation range: 30 – 650 feet (CNPS 2021).	**Not expected.** Limited suitable habitat within the BSA. Most recent CNDDB record located over 7 miles southwest of BSA (CNDDB 2021).
Lewis' evening-primrose *Camissoniopsis lewisii*	March – June	--/--/3	Coastal bluff scrub, coastal scrub, cismontane woodland, coastal dunes, and valley and foothill grasslands. Located in sandy or clay soils. Elevation range: 0 – 985 feet (CNPS 2021).	**Not expected.** Limited suitable habitat within the BSA. No CNDDB occurrences (CNDDB 2021).
southern tarplant *Centromadia parryi ssp. australis*	May - November	--/--/1B.1	Margins of marshes and swamps, vernal pools, and valley and foothill grasslands. Elevation range: 0 - 1,575 feet (CNPS 2021).	**Low.** Limited suitable habitat present within the BSA. The most recent CNDDB record is from 2013 is located 3.25 miles southeast of the BSA within an alkaline floodplain (CNDDB 2021).
Orcutt's pincushion *Chaenactis glabriuscula var. orcuttiana*	January – August	--/--/1B.1	Sandy coastal bluff scrub and coastal dunes. Elevation range: 0 – 330 feet (CNPS 2021).	**Not expected.** No suitable habitat within the BSA.
summer holly *Comarostaphylis diversifolia* ssp. *diversifolia*	April – June	--/--/1B.2	Chaparral and cismontane woodland. Elevation range: 100 – 2,590 feet.	**Not expected.** No suitable habitat within the BSA.
Small-flowered morning-glory *Convolvulus simulans*	March - July	--/--/4.2	Chaparral, coastal scrub, valley and foothill grassland. Located in openings on wet clay soils and serpentine seeps. Elevation range: 95 – 2,275 feet (CNPS 2021).	**Not expected.** Limited suitable habitat within the BSA. No CNDDB occurrences (CNDDB 2021).
Paniculate tarplant *Deinandra paniculata*	March - December	--/--/4.2	Coastal scrub, valley and foothill grassland, vernal pools. Typically located on vernally mesic sites. Sometimes in vernal pools or on mima mounds near them. Elevation range: 80 – 3,055 feet (CNPS 2021).	**Not expected.** Limited suitable habitat within the BSA. No CNDDB occurrences (CNDDB 2021).
western dichondra *Dichondra occidentalis*	January – July	--/--/4.2	Chaparral, cismontane woodland, valley and foothill grassland, and coastal scrub. Located on sandy loam, clay, and rocky soils. Elevation range: 160 – 1,625 feet (CNPS 2021).	**Not expected.** Limited suitable habitat within the BSA. No CNDDB occurrences (CNDDB 2021).

Common Name ***Scientific Name***	**Flowering Period**	**Sensitivity Status**	**Preferred Habitat/Known Elevational Range**	**Presence/Potential to Occur within Biological Study Area**
Blochman's dudleya *Dudleya blochmaniae ssp. blochmaniae*	April – June	--/--/1B.1	Chaparral, coastal scrub, coastal bluff scrub, and valley and foothill grasslands. Typically located in rocky, clay or serpentinite soils. Elevation range: 50-2,590 feet (CNPS 2021).x	**Not expected.** Limited suitable habitat within the BSA. The closest known CNDDB record from 1987 is located approximately 8 miles southwest of the BSA and is classified as extirpated (CNDDB 2021).
many-stemmed dudleya *Dudleya multicaulis*	April - July	--/--/1B.2	Chaparral, coastal scrub, and valley and foothill grasslands. Often located in clay soils. Elevation range: 50-2,590 feet (CNPS 2021).	**Moderate** Suitable habitat located within the BSA. There are multiple CNDDB records from the 1990s and one from 2013 located 2-5 miles southeast and southwest of the BSA (CNDDB 2021). However, the BSA is highly developed.
Laguna Beach dudleya *Dudleya stolonifera*	May – July	FT/ST/1B.1	Chaparral, cismontane woodland, coastal scrub, and valley and foothill grasslands. Typically in rocky soils. Elevation range: 35 – 855 feet (CNPS 2021).	**Not expected.** Limited suitable habitat within the BSA. The closest known occurrence is located approximately 6 miles west of the BSA (CNDDB 2021).
sticky dudleya *Dudleya viscida*	May – June	--/--/1B.2	Chaparral, coastal scrub, coastal bluff scrub, and cismontane woodland. Often located in rocky soils. Elevation range: 35 – 1,805 feet (CNPS 2021).	**Not expected.** Limited suitable habitat within the BSA. The closest known CNDDB record is located approximately 7 miles southeast of the BSA and is from 1963 (CNDDB 2021).
cliff spurge *Euphorbia misera*	December – October	--/--/2B.2	Coastal bluff scrub, coastal scrub, and Mojavean desert scrub. Typically in rocky soils. Elevation range: 35 – 1,640 feet (CNPS 2021).	**Not expected.** Limited suitable habitat within the BSA. The closest known occurrence is from 1999 and located approximately 10 miles southwest of the BSA along the coast (CNDDB 2021).
Mesa horkelia *Horkelia cuneata* var. *puberula*	February - September	--/--/1B.1	Chaparral, cismontane woodland, coastal scrub. Located on sandy or gravelly sites. Elevation range: 225 – 2,625 feet (CNPS 2021).	**Not expected.** Limited suitable habitat within the BSA. Most recent CNDDB record for 1954 located approximately 6.5 miles southwest of the BSA (CNDDB 2021).
cliff malacothrix *Malacothrix saxatilis var. saxatilis*	March – September	--/--/4.2	Coastal bluff scrub and coastal scrub. Elevation range: 10 – 655 feet (CNPS 2021).	**Not expected.** Limited suitable habitat within the BSA. No CNDDB occurrences (CNDDB 2021).
Mud nama *Nama stenocarpa*	May - October	--/--/2B.2	Marshes and swamps. Located on lake shores, streams banks, and intermittently wet areas. Elevation range: 15 – 1620 feet (CNPS 2021).	**Not expected.** Limited suitable habitat is present as Oso Creek is highly disturbed and partially channelized in the BSA. A single CNDDB record from 2001 located in a vernal pool (CNDDB 2021).
Gambel's watercress *Nasturtium gambelii*	April - October	FE/ST/1B.1	Brackish and freshwater marshes and swamps. Located on lake and stream margins at or immediately above the water line. Elevation range: 15 – 1075 feet (CNPS 2021).	**Not expected.** Limited suitable habitat within the BSA. The closest occurrence is located over 14 miles northwest of the BSA and classified as extirpated (CNDDB 2021).
Prostrate navarretia *Navarretia prostrata*	April - July	--/--/1B.1	Found in mesic conditions within coastal scrub, meadows and seeps, valley and foothill grassland (alkaline), and vernal pools. Elevation range: 45 – 2270 feet (CNPS 2021).	**Not expected.** Limited suitable habitat within the BSA. The closest CNDDB record is located over 6 miles southwest of the BSA and is from 1890 (CNDDB 2021).

Common Name ***Scientific Name***	**Flowering Period**	**Sensitivity Status**	**Preferred Habitat/Known Elevational Range**	**Presence/Potential to Occur within Biological Study Area**
Allen's pentachaeta *Pentachaeta aurea ssp. allenii*	March - June	--/--/1B.1	Valley and foothill grasslands and openings in coastal scrub. Elevation range: 245 – 1,705 feet (CNPS 2021).	**Not expected.** Limited suitable habitat is present in the BSA. A single CNDDB record from 1901 located 3 miles northwest is classified as possibly extirpated (CNDDB 2021).
South coast branching phacelia *Phacelia ramosissima var. austrolitoralis*	March – August	--/--/3.2	Chaparral, coastal dunes, coastal scrub, and coastal salt marshes and swamps. Typically in sandy soils, sometimes in rocky soils. Elevation range: 15 – 985 feet (CNPS 2021).	**Not expected.** Limited suitable habitat within the BSA. No CNDDB occurrences (CNDDB 2021).
White rabbit-tobacco *Pseudognaphalium leucocephalum*	July – December	--/--/2B.2	Riparian woodland, cismontane woodland, coastal scrub, chaparral. Elevation range: 0 – 6,825 feet (CNPS 2021).	**Not expected.** Limited suitable habitat present within the BSA. A single CNDDB record from 2004 located 3 miles southwest of BSA (CNDDB 2021).
Nuttall's scrub oak *Quercus dumosa*	February – April (May – August)	--/--/1B.1	This evergreen shrub blooms from February to August at elevations from 49 to 1,312 feet. It inhabits sandy soils and clay loam in coastal scrub, chaparral, and closed-cone coniferous forests. It can be found along the coasts of Santa Barbara, Orange, and San Diego counties. (CNPS 2021)	**Not expected.** Limited suitable habitat within the BSA. The closest CNDDB record is located over 7 miles south of the BSA and is from 1904.
chaparral ragwort *Senecio aphanactis*	January – May	--/--/2B.2	Chaparral, coastal scrub, and cismontane woodland. Sometimes in alkaline soils. Elevation range: 50 – 2,625 feet (CNPS 2021).	**Not expected.** Limited suitable habitat within the BSA. The closest CNDDB record from 2010 is located approximately 10.5 miles southwest of the BSA and is classified as possibly extirpated (CNDDB 2021).
Salt spring checkerbloom *Sidalcea neomexicana*	March - June	--/--/2B.2	Chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, and playas on alkaline mesic soils. Elevation range: 50 – 5000 feet (CNPS 2021).	**Not expected.** Limited suitable habitat within the BSA. The closest CNDDB record is located approximately 2.5 miles southeast of the BSA within the foothills of the Santa Ana Mountains (CNDDB 2021).
San Bernardino Aster *Symphyotrichum defoliatum*	July - November	--/--/1B.2	Meadows and seeps, marshes and swamps, coastal scrub, cismontane woodland, lower montane coniferous forest, grassland. Located in mesic grassland near ditches, streams, and springs. Elevation range: 5 – 6,630 feet (CNPS 2021).	**Not expected.** Limited suitable habitat within the BSA. The closest CNDDB record is located approximately 12 miles east of the BSA on the east side of the Santa Ana Mountains (CNDDB 2021).
big-leaved crownbeard *Verbesina dissita*	March - July	FT/ST/1B.1	Maritime chaparral and coastal scrub. Elevation range: 150 – 675 feet (CNPS 2021).	**Not expected.** Limited suitable habitat present within the BSA. The closest CNDDB record is located approximately 7 miles southwest of the BSA and is from 2010 (CNDDB 2021).
Monocots				
thread-leaved brodiaea *Brodiaea filifolia*		FT/SE/1B.1	Cismontane woodland, coastal scrub, playas, valley and foothill grasslands, vernal pools, and openings in chaparral. Often in clay soils. Elevation range: 80 – 3,675 feet (CNPS 2021).	**Low.** Limited suitable habitat is present in the BSA. Two CNDDB records from 2013 and 2016 are respectively located 3 and 3.25 miles south of the BSA (CNDDB 2021).

Common Name ***Scientific Name***	**Flowering Period**	**Sensitivity Status**	**Preferred Habitat/Known Elevational Range**	**Presence/Potential to Occur within Biological Study Area**
Catalina mariposa lily *Calochortus catalinae*	February – June	--/--/4.2	Chaparral, cismontane woodland, coastal scrub, and valley and foothill grasslands. Elevation range: 50 – 2,295 feet (CNPS 2021).	**Not expected.** Limited suitable habitat present within the BSA and no listed occurrences by CNDDB (2021).
intermediate mariposa-lily *Calochortus weedii var. intermedius*	May - July	--/--/1B.2	Chaparral, coastal scrub, and valley and foothill grasslands. Typically in rocky, calcareous soils. Elevation range: 345 – 2,805 feet (CNPS 2021).	**Low.** Limited suitable habitat is present in the BSA. Multiple CNDDB records between 1983 to 2013 are located within the foothills of the Santa Ana Mountains east of the BSA with one occurrence west of the BSA listed as being extirpated during construction of State Route 73 (CNDDB 2021).
vernal barley *Hordeum intercedens*	March – June	--/--/3.2	Coastal dunes, coastal scrub, valley and foothill grassland, vernal pools. Located on saline flats and depressions. Elevation range: 15 – 3,240 feet (CNPS 2021).	**Not expected.** Limited suitable habitat present within the BSA and no listed occurrences by CNDDB (2021).
California satintail *Imperata brevifolia*	September - May	--/--/2B.1	Chaparral, coastal scrub, Mojavean desert scrub, meadows and seeps (often alkali), and riparian scrub. Typically in mesic soils. Elevation range: 0 – 3,985 feet (CNPS 2021).	**Not expected.** Limited suitable habitat present within the BSA. The closest CNDDB record is located approximately 5 miles southeast of the BSA and is from 1995 (CNDDB 2021).
chaparral nolina *Nolina cismontana*	March - July	--/--/1B.2	Chaparral and coastal scrub. Typically in sandstone or gabbro soils. Elevation range: 460 – 4,185 feet (CNPS 2021).	**Not expected.** Limited suitable habitat present within the BSA. A single CNDDB record from 2009 located 3 miles north of BSA (CNDDB 2021).

Key:

Federal Listings

FE = Listed as endangered under the FESA

FT = Listed as threatened under the FESA

State Listings

SE = Listed as endangered under the CESA

ST= Listed as threatened under the CESA

SSC = Species of Special Concern (CDFW)

California Rare Plant Rankings

1A: Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere

1B: Plants Rare, Threatened, or Endangered in California and Elsewhere

2A: Plants Presumed Extirpated in California, But Common Elsewhere

2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

3: Plants About Which More Information is Needed - A Review List

4: Plants of Limited Distribution - A Watch List

SOURCE: Calflora, CNDDB, and CNPS

Appendix E

Special-Status Wildlife Species Considered

ESA

APPENDIX E SPECIAL-STATUS WILDLIFE SPECIES CONSIDERED POTENTIAL TO OCCUR WITHIN THE BSA

Common Name *Scientific Name*	Sensitivity Status	Preferred Habitat/Known Elevational Range	Potential to Occur within Biological Study Area
Invertebrates			
San Diego fairy shrimp *Branchinecta sandiegonensis*	FE/--	Known to occur in areas of swales/earth slump basins in grassland, chaparral, and coastal sage scrub.	**Not Expected.** No suitable habitat located in the BSA. There is a single 2010 CNDDB record located 3.3 miles southeast of the BSA.
Riverside fairy shrimp *Streptocephalus woottoni*	FE/--	Endemic to western Riverside, Orange and San Diego Counties in areas of tectonic swales/earth slump basins in grassland and coastal sage scrub. Inhabit seasonally astatic pools filled by winter/spring rains greater than 12 inches in depth. Hatch in warm water later in the season. Typically observed January through March.	**Not Expected.** No suitable habitat located in the BSA. There are three CNDDB records located outside the BSA with the most recent in 2010 located 3.3 miles southeast.
Amphibians			
western spadefoot *Spea hammondii*	--/SSC	Mixed woodland, grasslands, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Prefers washes and other sandy areas with patches of brush and rocks. Rain pools or shallow temporary pools, which do not contain bullfrogs, fish, or crayfish are necessary for breeding. Perennial plants necessary for its major food-termites.	**Not Expected.** No suitable habitat located in the BSA. There are eight CNDDB records located outside the BSA with the most recent in 2017 located 3.3 miles southeast.
Reptiles			
California glossy snake *Arizona elegans occidentalis*	--/SSC	Inhabits arid scrub, rocky washes, and grasslands, and chaparral habitats. Appears to prefer microhabitats of open areas with friable soils for burrowing.	**Not Expected.** Limited to no suitable habitat present within the BSA. The most recent CNDDB record is from 1952 (CNDDB 2021).
western pond turtle *Emys marmorata*	--/SSC	Known to occur in slow-moving permanent or intermittent streams, ponds, small lakes, rivers, streams, marshes and reservoirs with basking sites, and either rocky or muddy bottoms. Adjacent uplands used during winter.	**Not Expected.** No suitable habitat is present within the BSA. The most recent CNDDB record is from 2005 is located 1.75 miles southwest of the BSA (CNDDB 2021).
coast horned lizard *Phrynosoma blainvillii*	--/SSC	Prefers sandy riparian and sage scrub habitats but also occurs in valley-foothill hardwood, conifer, pine-cypress, juniper and annual grassland habitats below 6,000 feet, especially sandy areas, washes, flood plains, and windblown deposits. Requires open areas for sunning, bushes and loose soil for cover and abundant supply of harvester ants.	**Not Expected.** No suitable habitat present within the BSA. The most recent CNDDB record is from 2001 is located 3.3 miles east of the BSA (CNDDB 2021).
two-striped gartersnake *Thamnophis hammondii*	--/SSC	Habitat includes marsh and swamp, riparian scrub, riparian woodland, and wetland. Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	**Low.** Limited suitable habitat present within the BSA. The most recent CNDDB record is from 2005 is located 2.3 miles south of the BSA (CNDDB 2021).
Birds			
tricolored blackbird *Agelaius tricolor*	--/ST	Known to occur in freshwater marsh, marsh, swap, and wetland. Highly colonial species, most numerous in Central Valley and vicinity. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	**Not Expected.** No suitable habitat located within the BSA. The most recent CNDDB records from 2009 located 4.2 miles southwest of the BSA (CNDDB 2021).

Common Name ***Scientific Name***	**Sensitivity Status**	**Preferred Habitat/Known Elevational Range**	**Potential to Occur within Biological Study Area**
long-eared owl *Asio otus*	--/SSC	Roosts in dense vegetation and forage in open grasslands or shrublands; also open confirerous or deciduous woodlands. They occur at elevations ranging from near sea level to above 6,500 feet.	**Not Expected**. No suitable habitat located within the BSA. There are two CNDDB records from 1984 located 4 miles southeast of the BSA (CNDDB 2021).
coastal cactus wren *Campylorhynchus brunneicapillus sandiegensis*	--/SSC	Known to occur in coastal scrub habitats. Nest almost exclusively in prickly pear (*Opuntia littoralis* and *O. oricola*) and coastal cholla (*O. prolifera*).	**Not Expected.** No suitable habitat located within the BSA. The most recent CNDDB record from 2001 located 4.7 miles east of the BSA (CNDDB 2021).
white-tailed kite *Elanus leucurus*	--/FP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes nest to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	**Low.** Limited suitable habitat located within the BSA. The most recent records are from 2009 located within 2 miles of the BSA (CNDDB 2021).
coastal California gnatcatcher *Polioptila californica californica*	FT/ST	Species is an obligate, permanent resident of coastal sage scrub habitats dominated by California sagebrush and flat-topped buckwheat, mainly on cismontane slopes below 1,500 feet in elevation. Low coastal sage scrub in arid washes, on mesas and slopes.	**Low to Moderate.** Suitable habitat of marginal quality occurs in the BSA. The most recent CNDDB record 2017 is located 4.7 miles northwest of the BSA (CNDDB 2021). A 1991 CNDDB record is located .4 miles east of the BSA.
least Bell's vireo *Vireo bellii pusillus*	FE/SE	Known to occur in riparian forest, scrub, and woodland habitats. Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2,000 feet. Highly territorial and nests primarily in willow, mule fat, or mesquite habitats.	**Low to Moderate.** Suitable habitat occurs in the BSA although the area is substantially disturbed and relatively isolated. The most recent CNDDB record 2017 is located 3.9 miles southwest of the BSA (CNDDB 2021).
Fish			
arroyo chub *Gila orcuttii*	--/SSC	Los Angeles Basin south coastal streams. Prefers slow water stream sections with muddy or sandy bottoms. Feeds on aquatic vegetation, insects, and associated invertebrates.	**Not expected.** The most recent detection was in 1998 located 1.3 miles southeast of the BSA (CNDDB 2021).
steelhead - southern California DPS *Oncorhynchus mykiss irideus pop. 10*	FE/--	South coast flowing waters with variable temperatures. Found in streams and rivers with at least 7 inches minimum depth.	**Not expected**. Single 1972 CNDDB record categorized as extirpated (CNDDB 2021).
Mammals			
pallid bat *Antrozous pallidus*	--/SSC	Occurs in a wide variety of habitats including chaparral, coastal scrub, desert wash, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, riparian woodland, Sonoran Desert scrub, upper montane coniferous forest, valley and foothill grasslands. Most common in open, dry habitats with rocky areas for roosting. For roosting, prefers rocky outcrops, cliffs and crevices with access to open habitats for foraging. Roosts must protect species from high temperatures. Very sensitive to disturbance of roosting sites.	**Not expected**. No suitable habitat located in the BSA. There is a single 1997 CNDDB record located 4.1 miles northwest of the BSA (CNDDB 2021).

Common Name ***Scientific Name***	**Sensitivity Status**	**Preferred Habitat/Known Elevational Range**	**Potential to Occur within Biological Study Area**
western mastiff bat *Eumops perotis californicus*	--/SSC	Known to occur in habitat consisting of extensive open areas within dry desert washes, flood plains, chaparral, cismontane oak woodland, coastal scrub, open ponderosa pine forest, and grasslands. Roosts primarily in crevices in rock outcrops and buildings.	**Not expected.** Limited to no roosting habitat including buildings are present within the BSA. The most recent detection was in 1991 located 4 miles northwest of the BSA (CNDDB 2021).

Key:

Federal Listings

FE = Listed as endangered under the FESA

FT = Listed as threatened under the FESA

BCC = Birds of Conservation Concern (USFWS)

State Listings

SE = Listed as endangered under the CESA

ST= Listed as threatened under the CESA

SSC = Species of Special Concern (CDFW)

WL = Watch List (CDFW)

SOURCE: CNDDB

Appendix C
Energy Calculations

ESA

Oso Creek WRP
Construction Energy Analysis

Annual Fuel Summary

	Heavy-Duty Construction Equipment
48,780	Total Project Consumption
33,156	Annual Consumption
	Haul Trucks
4,486	Total Project Consumption
3,049	Annual Consumption
	Vendor Trucks
269	Total Project Consumption
183	Annual Consumption
	Workers
1,190	Total Project Consumption
809	Annual Consumption
4,755	Project Consumption of diesel for Haul Trucks and Vendors
3,232	Annual Consumption
53,535	Total Gallons Diesel
1,190	Total Gallons Gasoline

1.5 Estimated Project Construction Duration (years)

36,388 Annual Average Gallons Diesel
809 Annual Average Gallons Gasoline

Orange County			Percent of Annual Project Compared to Orange County
Source	**Fuel Type**	**Gallons**	
Workers	Gasoline	1,325,000,000	0.0001%
Off-Road/Vendor/Haul Trucks	Diesel	118,644,068	0.031%

Notes:

1 Gasoline and diesel amounts from CEC, 2019. Available: https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-retail-fuel-outlet-annual-reporting

Annual Electricity Summary

Temporary Construction Trailer - Electricity	12,990	kWh/year
Electricity from Water for Dust Control	1,062	kWh/year
Total	**14,052**	**kWh/year**

Oso Creek WRP
Construction Energy Analysis

Off-Road Equipment

Equipment ≤ 100 hp		
ds diesel fuel/hp-hr (lb/hp-hr):[1]	0.408	lb/hp-hr
diesel density (lb/gal):[1]	7.11	lb/gal
diesel gallons/hp-hr:	0.0574	gal/hp-hr
Total <100	565,639	hp-hr
Total diesel gallons:	32,464	gal
Equipment > 100 hp		
ds diesel fuel/hp-hr (lb/hp-hr):[1]	0.367	lb/hp-hr
diesel density (lb/gal):[1]	7.11	lb/gal
diesel gallons/hp-hr:	0.0516	gal/hp-hr
Total >100	316,053	hp-hr
Total diesel gallons:	16,316	gal
el gallons (off-road equipment):	**48,780**	**gal**

1. OFFROAD2017 Emission Factor Documentation

Construction Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Demolition	Concrete/Industrial Saws	1	8	81	0.73	26	12,299
Demolition	Excavators	3	8	158	0.38	26	37,465
Demolition	Rubber Tired Dozers	2	8	247	0.4	26	41,101
Site Preparation	Rubber Tired Dozers	3	8	247	0.4	6	14,227
Site Preparation	Tractors/Loaders/Backhoes	4	8	97	0.37	6	6,891
Grading	Excavators	1	8	158	0.38	40	19,213
Grading	Graders	1	8	187	0.41	40	24,534
Grading	Rubber Tired Dozers	1	8	247	0.4	40	31,616
Grading	Tractors/Loaders/Backhoes	3	8	97	0.37	40	34,454
Building Construction	Cranes	1	7	231	0.29	266	124,735
Building Construction	Forklifts	3	8	89	0.2	266	113,635
Building Construction	Generator Sets	1	8	84	0.74	266	132,276
Building Construction	Tractors/Loaders/Backhoes	3	7	97	0.37	266	200,482
Building Construction	Welders	1	8	46	0.45	266	44,050
Paving	Cement and Mortar Mixers	2	6	9	0.56	23	1,391
Paving	Pavers	1	8	130	0.42	23	10,046
Paving	Paving Equipment	2	6	132	0.36	23	13,116
Paving	Rollers	2	6	80	0.38	23	8,390
Paving	Tractors/Loaders/Backhoes	1	8	97	0.37	23	6,604
Architectural Coating	Air Compressors	1	6	78	0.48	23	5,167
						Total >100	316,053
						Total <100	565,639

Oso Creek WRP
Construction Energy Analysis

Temporary Construction Trailer - Electricity		
Land Use	**Square Feet**	**Energy Use per year (kWh)**
General Office	1,000	12,990
Note: CalEEMod 2016.3.2 used to estimate energy use for temporary construction office		

Oso Creek WRP
Construction Energy

Construction Water Energy Estimates

Source	Acreage/Day	Number of Days	Total Construction Water Use (Mgal)	Electricity Demand from Water Conveyance (MWh)	Annual Electricity Demand from Water Conveyance (MWh)
Grading/Excavation	1.0	40	0.120	1.6	1.1
Total			**0.120**	**1.6**	**1.1**

CalEEMod Water Electricity Factors	Electricity Intensity Factor To Supply (kWh/Mgal)	Electricity Intensity Factor To Treat (kWh/Mgal)	Electricity Intensity Factor To Distribute (kWh/Mgal)	Electricity Intensity Factor For Wastewater Treatment (kWh/Mgal)
	9727	111	1272	1911

Construction Water GHG	Electricity Emission (MT CO2e/MWh)	Electricity Emission (lbs CO2e/MWh)
0.18	0.17	366.20

Sources and Assumptions:
CalEEMod Appendix A, Pg. 8, based on given piece of equipment can pass over in an 8-hour workday
-Electricity Intensity Factors - California Emissions Estimator Model (CalEEMod).
-Estimated construction water use assumed to be generally equivalent to landscape irrigation, based on a factor of 20.94 gallons per year per square foot of landscaped area within the Los Angeles area (Mediterranean climate), which assumes high water demand landscaping materials and an irrigation system efficiency of 85%. Factor is therefore (20.94 GAL/SF/year) x (43,560 SF/acre) / (365 days/year) / (0.85) = 2,940 gallons/acre/day, rounded up to 3,000 gallons/acre/day. (U.S. Department of Energy, Energy Efficiency & Renewable Energy, Federal Energy Management Program. “Guidelines for Estimating Unmetered Landscaping Water Use." July 2010. Page 12, Table 4 - Annual Irrigation Factor – Landscaped Areas with High Water Requirements).
-Demolition areage is an estimate from Google Earth based on the existing structures to be removed on-site
Accounts for both pump stations

Appendix D
Noise Calculations

ESA

Project: Oso Creek

Construction Noise Impact on Sensitive Receptors

Parameters

Construction Hours:	8	Daytime hours (7 am to 7 pm)
	0	Evening hours (7 pm to 10 pm)
	0	Nighttime hours (10 pm to 7 am)
Leq to L10 factor	3	

				Residential South/Southeast				
Construction Phase **Equipment Type**	**No. of Equip.**	**Reference Noise Level at 50ft, Lmax**	**Acoustical Usage Factor**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**
Demolition					***78***	***73***		
Concrete Saw	1	90	20%	300	74	67	70	0
Excavator	1	85	40%	300	69	65	68	0
Excavator	2	85	40%	350	71	67	70	0
Dozer	2	85	40%	350	71	67	70	0
Site Preparation					***75***	***71***		
Dozer	2	85	40%	300	72	68	71	0
Dozer	1	85	40%	350	68	64	67	0
Backhoe	4	80	40%	350	69	65	68	0
Grading					***75***	***71***		
Excavator	1	85	40%	300	69	65	68	0
Grader	1	85	40%	300	69	65	68	0
Dozer	1	85	40%	350	68	64	67	0
Backhoe	3	80	40%	350	68	64	67	0
Building Construction					***76***	***70***		
Crane	1	85	16%	300	69	61	64	0
Forklift	1	85	20%	300	69	62	65	0
Forklift	2	85	20%	350	71	64	67	0
Backhoe	3	80	40%	350	68	64	67	0
Generator	1	82	50%	350	65	62	65	0
Welder	1	73	40%	350	56	52	55	0
Paving					***77***	***73***		
Paver	1	85	50%	300	69	66	69	0
Other Equipment	1	85	50%	300	69	66	69	0
Other Equipment	1	85	50%	350	68	65	68	0
Concrete Mixer Truck	2	85	40%	350	71	67	70	0
Roller	2	85	20%	350	71	64	67	0
Backhoe	1	80	40%	350	63	59	62	0
Architectural Coating					***64***	***60***		
Air Compressor	1	80	40%	300	64	60	63	0
Maximum Noise Level						***73***		

Source for Ref. Noise Levels: FHWA RCNM, 2005