

DRAFT

# CITY OF TEHACHAPI GROUNDWATER SUSTAINABILITY PROJECT

Initial Study/Mitigated Negative Declaration

Prepared for  
City of Tehachapi

November 2021





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626 Wilshire Boulevard  
Suite 1100  
Los Angeles, CA 90017  
213.599.4300  
esassoc.com



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Appendix ENERGY	Project Energy Calculations
Appendix GHG	Project Greenhouse Gas Emissions Calculations
Appendix NOI	Project Noise Calculations

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# SECTION 1

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## Project Description

### 1.1 Introduction

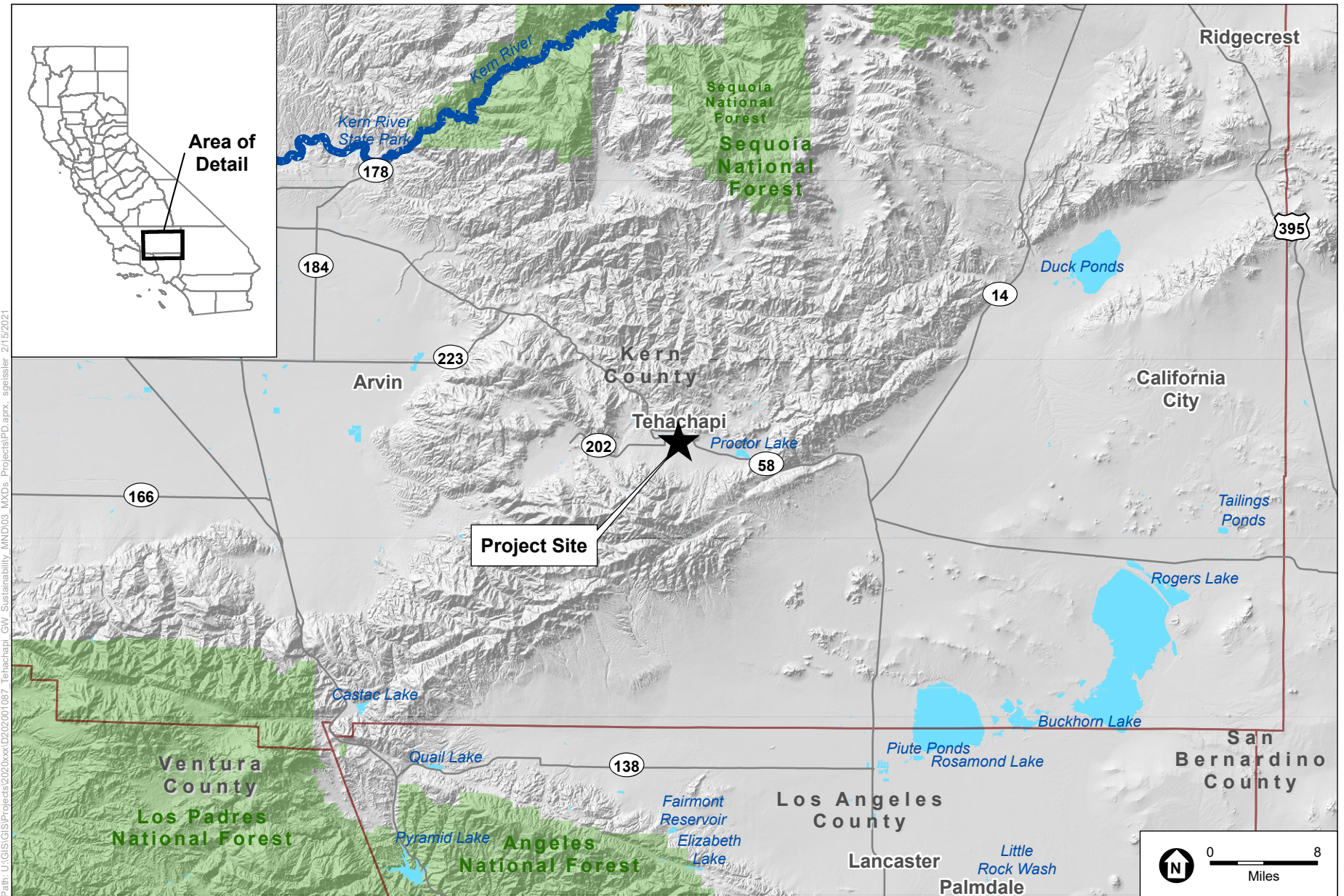
The City of Tehachapi (City) as lead agency under the California Environmental Quality Act (CEQA) is proposing to implement the Groundwater Sustainability Project (GSP; proposed project), an Indirect Potable Reuse (IPR) project that would allow the City to increase local water supply, maximize recycled water use, improve water quality to support higher levels of recycled water, and decrease reliance on imported water. The GSP would construct new facilities at the City's existing Tehachapi Wastewater Treatment Plant (WWTP) to produce tertiary-treated recycled water, upgrade the effluent pump station at the WWTP, construct a new pump station at the Borrow Pit, construct a new pipeline to convey recycled water from the Borrow Pit to Blackburn Dam, and construct new spreading grounds at Blackburn Dam to allow for recharge of the tertiary-treated recycled water into the local Tehachapi Groundwater Basin. The recharged water would be extracted at existing domestic supply wells at a later date.

### 1.2 Project Location

The proposed project is located both within the jurisdiction of the City of Tehachapi, as well as unincorporated Kern County, located in southeastern Kern County as shown on **Figure 1-1**. The City is approximately 35 miles southeast of the City of Bakersfield and 50 miles northwest of the City of Lancaster. The City lies in a mountainous area between the San Joaquin Valley and the Mojave Desert, at an elevation of approximately 3,970 feet above mean sea level (AMSL). It is surrounded by prominent hills and ridgelines to the north, west, and south.

### 1.3 Project Background

The City's water supply portfolio is comprised of groundwater, recycled water, and imported State Water Project (SWP) water provided by Tehachapi-Cummings County Water District (TCCWD) that is used to recharge the groundwater basin. The Tehachapi Groundwater Basin was adjudicated in 1966 after significant overdraft conditions due to groundwater pumping from agricultural use that caused the basin to become nearly depleted. The 1966 adjudication also appointed TCCWD as the Watermaster granting them the responsibility for overall management of the Groundwater Basin and authority to enforce the adjudication. Each year the City is allocated up to 1,847 acre-feet per year (AFY) of groundwater supply while the overall safe yield of the basin including the City and other pumpers is approximately 5,524 AFY. In 1974, conveyance facilities were built to deliver up to 10,000 AF of surface water from the State Water Project (SWP). Existing contracts include 5,000 AFY for agricultural uses and up to 15,000 AFY for municipal/industrial. Together, the groundwater safe yield limitations and delivery of SWP water have allowed groundwater levels to recover substantially.



SOURCE: ESRI; National Hydrography Dataset; DWR

Tehachapi Groundwater Sustainability Project MND

**Figure 1-1**  
Regional Location

Currently, if demands for water exceed the City's annual pumping allocation, the City purchases imported water from the SWP through TCCWD for groundwater basin recharge. Between 2011 to 2015, the City's annual purchases of imported water from TCCWD ranged between 0 and 540 AFY (AECOM 2017). While the City's groundwater pumping allocation is expected to remain at 1,847 AF, drought conditions could result in a loss of SWP supply for the City (AECOM 2017). Water scarcity as a result of drought conditions is a point of vulnerability to the City which could lead to numerous direct and indirect economic, environmental and social impacts (AECOM 2017).

IPR is a practice that involves treatment of wastewater to produce high quality non-potable water that is then percolated or injected into a groundwater aquifer. The IPR process is a multiple-barrier process involving treatment, disinfection, dilution, and the natural process of soil-aquifer treatment (SAT) all being implemented upstream of use and in excess of a stipulated retention time as the water moves underground in the basin. The water can then be extracted from the aquifer for beneficial use. As water demand increases and SWP water supplies become less reliable, the City's ability to utilize a diversified portfolio of water sources will be critical to meet its water demands. As an IPR project, the proposed GSP would allow the City to diversify its water supply through increased use of recycled water to become less reliant on imported water.

## 1.4 Project Objectives

The objectives of the proposed project are as follows:

- Diversify and increase the City's water supply through IPR to become less reliant on imported water;
- Maximize use of recycled water produced at the Tehachapi WWTP; and
- Improve water quality by producing disinfected tertiary effluent at the Tehachapi WWTP.

## 1.5 Project Description

The proposed project would construct new facilities at the City's existing Tehachapi WWTP to produce tertiary-treated recycled water, construct new pump stations and pipelines to convey recycled water from the WWTP to the existing Borrow Pit and Blackburn Dam, and construct new spreading grounds at Blackburn Dam to allow for recharge of the tertiary-treated recycled water to the local Tehachapi Groundwater Basin. The water would be extracted at existing domestic supply wells at a future date. The main components are described below and shown on **Figure 1-2**.

As an IPR project, the GSP would be a Groundwater Recharge Reuse Project (GRRP), which would require adherence to all California Water Code Title 22 Recycled Water Regulations, and preparation and submittal of a Title 22 Engineering Report to the State Division of Drinking Water (DDW) and the Central Valley Regional Water Quality Control Board (RWQCB).

### 1.5.1 Treatment Facilities

The City owns and operates the existing Tehachapi WWTP which receives, treats, and disposes of wastewater by land application, either by discharging effluent to irrigate farmland (reclamation



areas) north of Tehachapi Municipal Airport or by discharging effluent to storage ponds onsite at the WWTP or to the Borrow Pit. Treatment at the WWTP consists of primary treatment and secondary treatment provided by way of the head works, an oxidation ditch, a secondary clarifier, sludge drying beds, sludge dewatering facilities, and storage ponds. The WWTP design capacity is 1.25 million gallons per day (MGD), and the plant is currently operating at an average daily flow of approximately 0.66 MGD (2020).

As part of the proposed project, the City would upgrade the Tehachapi WWTP processes to produce disinfected tertiary recycled water for groundwater recharge, which is filtered and disinfected wastewater. The recycled water would meet the requirements of California Water Code Title 22 Recycled Water Regulations. All proposed upgrades would occur within the existing property boundaries of the WWTP. The proposed WWTP improvements required to produce the tertiary effluent and operate the plant at full 1.25 MGD capacity would be located in the area shown in **Figure 1-2a** and are listed below:

- Cloth disk filters with polymer feed, flocculation tank and shelter;
- In-vessel ultraviolet light disinfection system with shelter;
- Chlorine storage and feed facilities for residual disinfection of recycled water;
- Ancillary plant water, drain, and solids handling improvements to support the treatment process improvements; and
- Other plant improvements (such as aeration in the oxidation ditch).

## 1.5.2 Recharge Facilities

The proposed project would augment the City's existing groundwater supply by recharging up to 1,400 AFY of tertiary-treated recycled water into the Tehachapi Groundwater Basin. The proposed project includes surface spreading at the proposed spreading grounds to be constructed behind the existing Blackburn Dam. Blackburn Dam is owned and operated by TCCWD and was completed in 1990 as part of the Tehachapi Flood Control Project (AECOM 2017). At Blackburn Dam, recharge basins would be installed within the inner limits of the dam, as shown in **Figure 1-2b**.

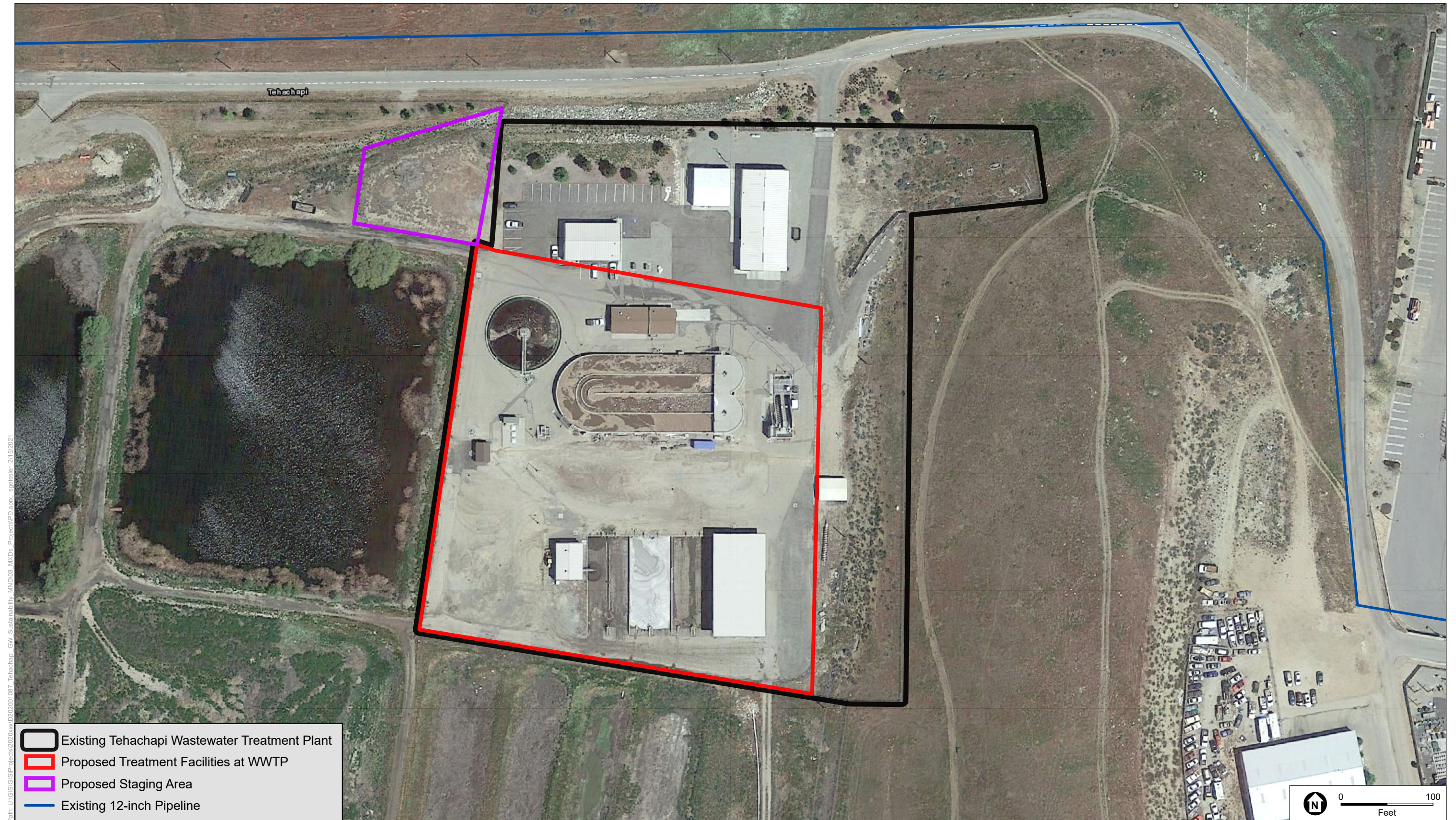
To comply with Title 22 requirements, the City would need to conduct groundwater monitoring and analysis. Results of the groundwater monitoring would be used to understand the seasonal variations in chemicals, contaminants, and characteristics of the groundwater. The City has seven existing wells that monitor the effects of the existing WWTP's discharged effluent on the groundwater. To monitor water quality associated with the recharged tertiary treated project water, construction of up to four new monitoring wells upstream and downstream of the proposed spreading grounds could be required. The monitoring wells would meet the Title 22 requirements for a GRWP and would be implemented in coordination with DDW/RWQCB.





SOURCE: Mapbox/NearMap, 2020; ESA, 2021.

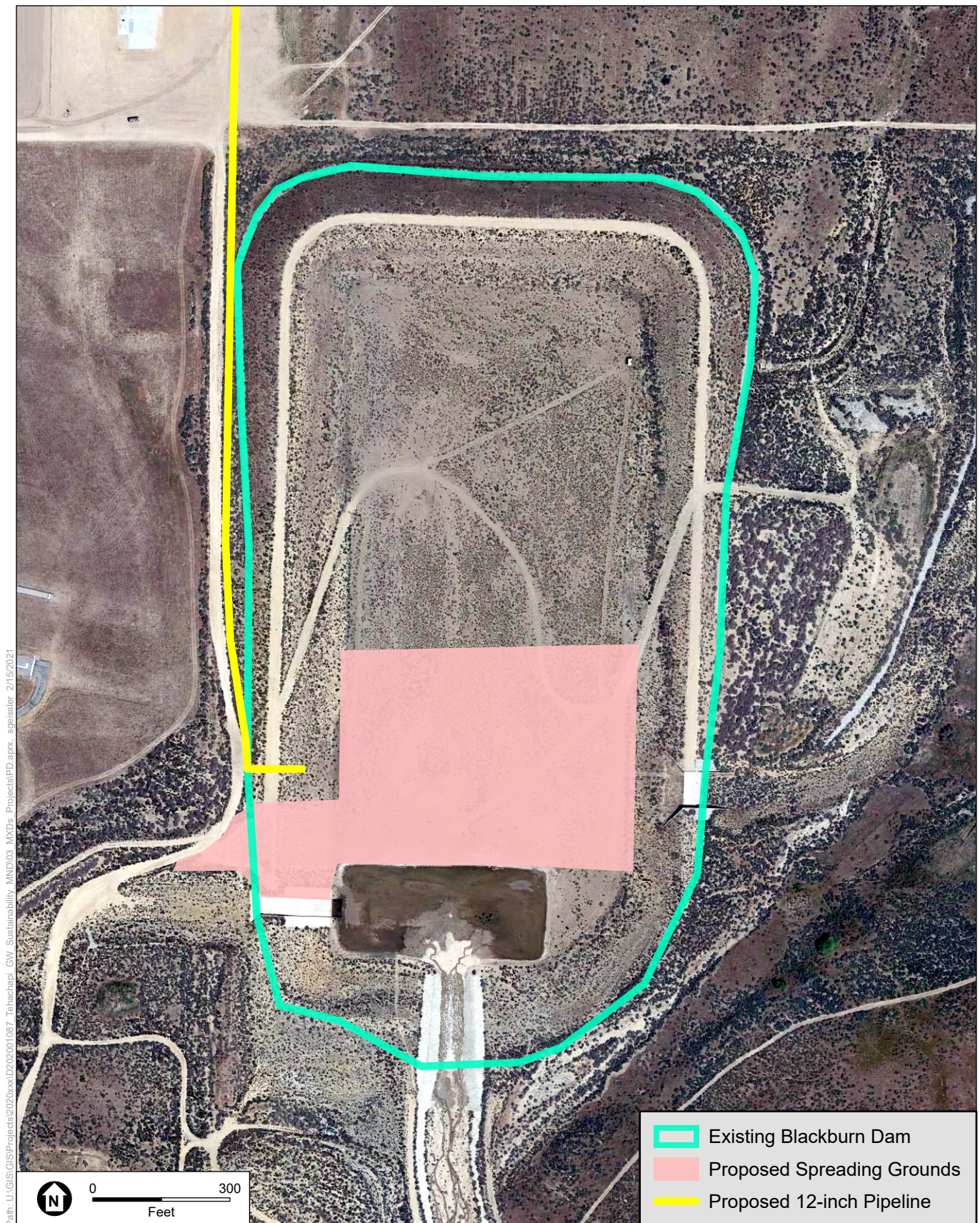




SOURCE: Mapbox/NearMap, 2020; ESA, 2021.

Tehachapi Groundwater Sustainability Project MND  
**Figure 1-2a**  
 Area for Proposed Treatment Facilities





SOURCE: Mapbox/NearMap, 2020; ESA, 2021.

Tehachapi Groundwater Sustainability Project MND

**Figure 1-2b**  
Proposed Recharge Facilities at Blackburn Dam



### 1.5.3 Conveyance Facilities

The City currently conveys secondary treated effluent from the WWTP to the reclamation areas and to the Borrow Pit. As part of the proposed project, the City would convey tertiary-treated recycled water to the new spreading grounds at Blackburn Dam via infrastructure at the Borrow Pit. Secondary effluent would no longer be produced at the Tehachapi WWTP.

To convey recycled water from the Tehachapi WWTP to the Blackburn Dam, the existing effluent pump station west of the Tehachapi WWTP at Pond 13 as shown on **Figure 1-2c** would need to be upgraded or replaced. An existing 12-inch force main would be used to convey the tertiary-treated recycled water to the Borrow Pit area. A new pump station would be installed within the existing boundary of the Borrow Pit as shown in Figure 1-2c. From the Borrow Pit, a new 2-mile transmission pipeline would be needed to convey recycled water to the spreading basins behind the Blackburn Dam.

The upgraded effluent pump station would include three 25-hp pumping units (configured for 2 duty 1 standby operation) mounted over a wet well. The pumps would be fed by the existing 14-inch to 24-inch piping from the ponds and discharge to the existing 12-inch force main to the Borrow Pit. The pump discharges would include minimum 6-inch piping, valving, metering, and appurtenances. The construction would be expected to take place within a 2,500-foot area at the west end of Pond 13. Installation of facilities would involve excavation from the surface to depth of 20-feet bgs.

The Borrow Pit pump station would include three 40-hp pumping units (configured for 2 duty 1 standby operation) mounted over a wet well. The pumps would be fed by 24-inch piping from the pit and discharge to the new 12-inch force main to Blackburn Dam. The pump discharges would include minimum 6-inch piping, valving, metering, and appurtenances. The construction would be expected to take place within a 2,500-foot area at the southeast end of the Borrow Pit. Installation of facilities would involve excavation from the surface to depth of 20-feet bgs.

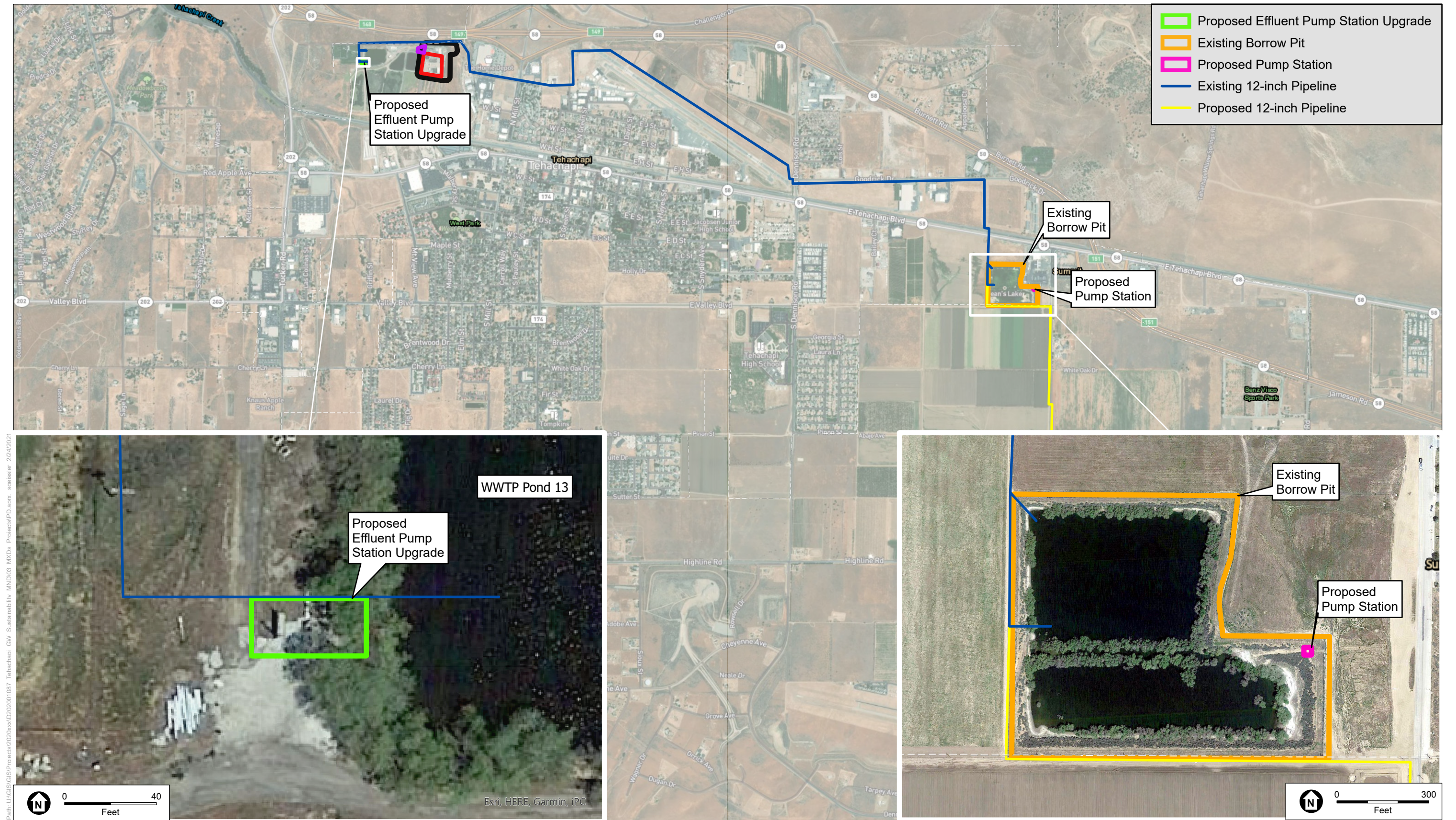
## 1.6 Project Construction

### 1.6.1 Treatment Facilities

Construction of the treatment facilities would occur within the existing boundary of the Tehachapi WWTP. Construction would require use of the following pieces of equipment: backhoe, excavator, loader, crane, dump truck, water truck, pipe trailer, crew vehicles, shoring equipment, and plate compactor. Construction would entail site clearing/preparation, grading, excavation and earth moving, installation of facilities, paving, testing, and start up. Installation of the facilities would involve excavation between the existing ground surface and 20 feet bgs. Facilities could be installed up to 14 feet aboveground.

A total of up to 25 workers would be needed per day for construction activities associated with the facilities at the Tehachapi WWTP.





Tehachapi Groundwater Sustainability Project MND  
**Figure 1-2c**  
 Proposed Conveyance Facilities



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## 1.6.2 Recharge Facilities

Construction of the recharge basins behind Blackburn Dam would occur within the boundaries of the existing dam. No modifications to the existing Blackburn Dam structure would occur. Construction would require use of the following pieces of equipment: backhoe, excavator, loader, scraper, dump truck, water truck, crew vehicles, shoring equipment, and plate compactor. Construction would entail site clearing/preparation, grading, excavation and earth moving. Installation of the facilities would involve excavation between the existing ground surface and 10 feet bgs.

Excavated soils resulting from grading of the recharge basins would be reused onsite to the greatest extent possible to build the embankments surrounding the recharge basins. Small amounts of excess soil may need to be hauled offsite.

A total of up to 8 to 10 workers would be needed per day for construction activities associated with the recharge facilities at Blackburn Dam.

## 1.6.3 Conveyance Facilities

### Pipeline

The proposed transmission pipeline would be installed within the rights-of-way of Valley Blvd and Steuber Road, and an existing dirt road. The construction equipment needed for pipeline installation would include: backhoe, excavator, loader, dump trucks, water trucks, pipe trailers, crew vehicles, shoring equipment, and plate compactor. Construction of the proposed transmission pipeline would involve conventional cut and cover trenching technique. The trenching activities would include saw cutting of the pavement where applicable, trench excavation, shoring, pipe installation, trench backfill and compaction, site restoration/pavement replacement, as applicable, and testing.

The pipelines would require trenching at depths up to 10 feet bgs while the pipeline would be installed at 3 feet bgs. The construction corridor would be wide enough to accommodate the trench and to allow for staging areas and vehicle access. Trenches would be backfilled at the end of each work day or temporarily closed by covering with steel trench plates. Although not expected, localized trench and pipeline dewatering may be required depending on location. Water collected from dewatering would be reused for dust control purposes during construction, as needed.

Excavated soils would be reused as backfill and otherwise disposed of offsite at a local disposal facility. It is estimated that approximately 250 cubic yards of soil may need to be disposed of offsite from installation of the pipeline.

Approximately 5 to 10 workers would be required during various phases of pipeline installation.

Work within roadways would potentially require partial closure of traffic lanes, however full closure of any right-of-way is not anticipated. Traffic control would be necessary during pipeline construction within roadways. Typically, two to four workers would be required for traffic control during pipeline installation. Equipment necessary for traffic control includes changeable message signs, delineators, arrow boards, and K-Rails.

## **Pump Stations and Other Appurtenant Facilities**

Construction/modification of the effluent pump station at Pond 13 west of the WWTP would be located at the same location as the existing effluent pump station shown on Figure 1-2c and would require a footprint of approximately 2,500 square feet and a maximum height of 14 feet aboveground. The location of the pump station at the Borrow Pit is shown on Figure 1-2c but could be installed anywhere within the property boundary of the Borrow Pit. Construction of the pump station at the Borrow Pit would require a footprint of approximately 2,500 square feet and a maximum height of 14 feet aboveground. Construction would require use of the following pieces of equipment: backhoe, excavator, loader, dump trucks, water trucks, pipe trailers, crew vehicles, shoring equipment, and plate compactor. Construction would entail site clearing/preparation, grading, excavation and earth moving, installation of facilities, paving, testing, and start up. Installation of the facilities would involve excavation between the existing surface and 20 feet bgs. The aboveground pump stations would be finished with a non-reflective material and painted with an earth-tone color to blend in with the surrounding landscape and vegetation.

A total of up to 5 to 10 workers would be needed per day for construction activities associated with the pump stations.

### **1.6.4 Construction Staging**

Construction staging areas, including for laydown and soil stockpiling, would be located onsite at the WWTP, within the construction easement along the proposed pipeline route, and within the construction area at Blackburn Dam.

### **1.6.5 Project Construction Schedule**

The proposed project would take 25 months to construct. Construction of the proposed project facilities at the various locations would occur in stages sequentially: the Tehachapi WWTP upgrades would occur first, followed by the recharge and conveyance facilities. Construction of the proposed project is anticipated to begin in January 2022 and conclude in February 2024. Construction would occur between 8 A.M. to 7 P.M. Monday through Friday. Weekend and nighttime construction is not expected.

## **1.7 Operation and Maintenance Activities**

Prior to operating the proposed project, the City would be required to submit an Engineering Report to DDW and RWQCB that indicates how the project would comply with existing Title 22 regulations. The Engineering Report would include an operations plan, that will identify and describe the operations, maintenance, analytical methods, and monitoring of all treatment processes in a manner providing optimal reduction of microbial contaminants, regulated chemicals, and the nitrogen compounds. The Engineering Report would also detail the groundwater monitoring protocol and frequency.

The proposed facilities at the Tehachapi WWTP would require one new permanent employee to operate the GSP facilities. One daily site visit would be conducted to inspect the Borrow Pit and Blackburn Dam facilities. Existing Tehachapi WWTP staff would service the facilities onsite at the WWTP.

Operation of the proposed facilities at the Tehachapi WWTP would involve chemical deliveries and on-site chemical use and storage. Chemicals that would be stored and used at the facility includes Sodium Hypochlorite, Aqueous Ammonia, and polymers. Chemicals would be stored onsite in a tank with secondary containment within an enclosed building. The delivery frequency for chemicals is anticipated to be once per month.

## 1.8 Energy Consumption

The proposed project would require operation of facilities such as pump stations and filtration, aeration, disinfection, and chlorination facilities that would require energy to operate. The chlorination facility at the existing Tehachapi WWTP would require injection pumps. Operation of these facilities would require consumption of approximately 1,650,000 kilowatt hours per year (kWh/yr). The proposed project would require use of an existing/upgraded pump station at the Tehachapi WWTP Pond 13 and a new pump station at the Borrow Pit. Operation of these facilities would require consumption of approximately 850,000 kilowatt hours per year (kWh/yr). The total energy consumption of the proposed project would be 2,500,000 kWh/yr.

A new electrical line would be required to service the proposed pump station at the Borrow Pit. Additionally, backup emergency generators requiring consumption of diesel fuel would be required at both the effluent Pump Station at the WWTP and the pump station at the Borrow Pit. It is assumed each emergency generator would be 750 horsepower.

## 1.9 Project Approvals

This Initial Study (IS)/Mitigated Negative Declaration (MND) has been prepared to meet all of the substantive and procedural requirements of CEQA (California Public Resources Code Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations [CCR], Title 14, Section 15000 et seq.). Accordingly, the City is the Lead Agency for the proposed project. **Table 1-1** summarizes the project approvals and permit requirements from Responsible Agencies. This IS/MND may be used for future project approvals from other Responsible or Trustee Agencies.

**TABLE 1-1**  
**APPROVALS AND DISCRETIONARY PERMITS POTENTIALLY REQUIRED**

Agency	Permits and Authorizations Potentially Required
State Water Resources Control Board, Division of Drinking Water	<ul style="list-style-type: none"> <li>California Water Code Title 22 Recycled Water Regulations, and preparation and submittal of a Title 22 Engineering Report</li> </ul>
Central Valley RWQCB	<ul style="list-style-type: none"> <li>Construction General Permit</li> <li>General Stormwater NPDES for Industrial Facilities</li> <li>Discharge requirements during construction</li> </ul>
East Kern Air Pollution Control District	<ul style="list-style-type: none"> <li>Permit to Construct and Operate (standby generators)</li> </ul>
Kern County	<ul style="list-style-type: none"> <li>Encroachment/Building Permit</li> </ul>
City of Tehachapi	<ul style="list-style-type: none"> <li>Building Permit</li> </ul>

## References

AECOM. 2017. Indirect Potable Reuse Conceptual Study Summary Report (IPR Study)

\_\_\_\_\_. 2018. Technical Memorandum – Addendum to the IPR Study (IPR TM).

## SECTION 2

### Environmental Checklist

---

1. **Project Title:** Tehachapi Groundwater Sustainability Project
2. **Lead Agency Name and Address:** City of Tehachapi  
115 S. Robinson Street, Tehachapi, CA 93561
3. **Contact Person and Phone Number:** Don Marsh, Public Works Director  
(661) 822-2200
4. **Project Location:** City of Tehachapi and unincorporated  
Kern County
5. **Project Sponsor's Name and Address:** Same as Lead Agency
6. **General Plan Designation(s):** City of Tehachapi: Light Industrial, Agriculture  
(Wastewater Treatment Plant)  
  
Kern County: Other Facilities (Map Code 3.3)
7. **Zoning:** City of Tehachapi: Light-Industrial (M-1),  
Agriculture (A)  
  
Kern County: Exclusive Agriculture (A)
8. **Description of Project:** (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)

The Groundwater Sustainability Project (GSP; proposed project) is an Indirect Potable Reuse (IPR) project that would allow the City of Tehachapi (City) to increase local water supply, maximize recycled water use, improve water quality to support higher levels of recycled water, and decrease reliance on imported water. The GSP would construct new facilities at the City's existing Tehachapi Wastewater Treatment Plant (WWTP) to produce tertiary-treated recycled water, upgrade the effluent pump station at the WWTP, construct a new pump station at the Borrow Pit, construct a new transmission pipeline to convey recycled water from the Borrow Pit to Blackburn Dam, and construct new spreading grounds at Blackburn Dam to allow for recharge of the tertiary-treated recycled water into the local Tehachapi Groundwater Basin. The recharged water would be extracted at existing domestic supply wells at a later date.

**9. Surrounding Land Uses and Setting.** (Briefly describe the project's surroundings.)

The project components are surrounded by rural agricultural lands in the City of Tehachapi and unincorporated portions of Kern County.

**10. Other public agencies whose approval is required** (e.g., permits, financing approval, or participation agreement.)

The State Water Resources Control Board, Division of Drinking Water, the entity that oversees the California Water Code Title 22 Recycled Water Regulations, will require preparation and submittal of a Title 22 Engineering Report. All other permits and approvals are listed in Table 1-1 in Section 1, *Project Description*.

**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.?**

*Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21080.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.*

No, see Section 2.2.18, *Tribal Cultural Resources*, below.

## 2.1 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist on the following pages.

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Aesthetics                      | <input type="checkbox"/> Agriculture and Forestry Resources | <input type="checkbox"/> Air Quality                                   |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources      | <input type="checkbox"/> Energy  |
| <input checked="" type="checkbox"/> Geology/Soils        | <input type="checkbox"/> Greenhouse Gas Emissions           | <input checked="" type="checkbox"/> Hazards & Hazardous Materials      |
| <input type="checkbox"/> Hydrology/Water Quality         | <input type="checkbox"/> Land Use/Planning                  | <input type="checkbox"/> Mineral Resources                             |
| <input checked="" type="checkbox"/> Noise                | <input type="checkbox"/> Population/Housing                 | <input type="checkbox"/> Public Services                               |
| <input type="checkbox"/> Recreation                      | <input checked="" type="checkbox"/> Transportation          | <input type="checkbox"/> Tribal Cultural Resources                     |
| <input type="checkbox"/> Utilities/Service Systems       | <input checked="" type="checkbox"/> Wildfire                | <input checked="" type="checkbox"/> Mandatory Findings of Significance |

### DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial study:

- ☐ 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

11-23-21  
Date



## 2.2 Environmental Checklist

### 2.2.1 Aesthetics

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>I. AESTHETICS</b> — Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Discussion

- a) **Less Than Significant Impact.** A scenic vista is generally regarded as a viewpoint that provides a distant view of highly valued natural or manmade landscape features for the benefit of the public. Scenic vistas visible from the project area include the Tehachapi Mountains to the south and views of the Sierra Nevada mountain range and the San Emigdio Mountain range to the north. Although there are no scenic vistas listed for the project area in City planning documents, the City of Tehachapi Natural Resources Element includes policies for preservation of “viewsheds” that contribute to the scenic quality of Tehachapi, including public views of surrounding natural environments, such as mountain ranges and agricultural lands, and in-town streetscapes (City of Tehachapi 2012).

Construction of the proposed project could temporarily disrupt public views of surrounding mountain ranges and agricultural lands due to the presence of construction equipment for approximately 25 months. The construction activities would occur in phases and would not be in one location for the entire construction duration; therefore, impacts would be less than significant. Once operational, the proposed transmission pipeline would be located underground and would not be visible within the surrounding natural environment. The proposed project would involve installation of aboveground facilities such as pump stations that could be installed up to 14 feet above the ground surface. The pump stations would be installed in a rural environment and could impact the “viewsheds” that contribute to the scenic quality of Tehachapi, including nearby agricultural lands and mountain ranges that comprise scenic vistas. Treatment facilities would be installed within the existing WWTP and would not be visible from public rights of way. In order to ensure aboveground pump stations do not impact scenic vistas, the City of Tehachapi would finish these facilities with a non-reflective material and paint

- with an earth-tone color to blend in with the surrounding landscape and vegetation. With implementation of this project design feature, impacts to scenic vistas would be reduced to a less than significant level.
- b) **Less Than Significant Impact.** There are no identified scenic resources, trees, rock outcroppings, or historic buildings on or near the project site. The California Department of Transportation (Caltrans) State Scenic Highway Program has not designated any State Scenic Highways near the proposed project (Caltrans 2021). The City of Tehachapi General Plan states in its Natural Resources Element that the City supports Kern County's efforts to make a segment of State Route 58 (SR-58) that runs east-west north of the project site a scenic highway (City of Tehachapi 2012). However, no scenic designation of SR-58 portions in the project vicinity has been made by Caltrans. As a result, impacts to scenic resources within a state scenic highway would be less than significant.
  - c) **Less Than Significant Impact.** The proposed project is in a rural area characterized by surrounding agricultural fields and public roads. As described above, construction of the proposed project facilities would temporarily be visible during the 25-month construction schedule and from surrounding public roads and vantage points and would not result in a significant impact. Once built and operational, the proposed transmission pipeline would be located underground and would not be visible. Proposed treatment facilities would be installed within the WWTP and would not contrast with the visual character of the site and surrounding area. Proposed aboveground pump stations at the ponds and Borrow Pit would introduce contrasting elements into the visual landscape that could negatively affect visual character or quality given the rural and agricultural. With implementation of the project design feature mentioned above that would finish facilities in a non-reflective material and paint with an earth-tone color, aboveground facilities would blend in with the surrounding area to minimize contrasting features in the visual landscape. With implementation of this project design feature, impacts to visual character and quality would be reduced to a less than significant level.
  - d) **No Impact.** Construction of proposed project would occur between 8 A.M. to 7 P.M. Monday through Friday and would not involve nighttime construction or introduce new sources of light and glare. No permanent lighting would be installed at any of the project facilities that could impact neighboring land uses or substantially contribute to light pollution in the project area. No impact would occur.

## References

- California Department of Transportation (Caltrans). 2021. List of Eligible and Officially Designated State Scenic Highways. <https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways>, accessed April 7, 2021.
- City of Tehachapi. 2015. General Plan. <https://www.liveuptehachapi.com/DocumentCenter/View/3184/Combined-General-Plan-2015-reduced?bidId=>, accessed April 6, 2021.

## 2.2.2 Agriculture and Forestry Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>II. AGRICULTURE AND FORESTRY RESOURCES —</b>				
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Discussion

- a) **No Impact.** According to Important Farmland Maps prepared by the California Department of Conservation's (DOC) Farmland Mapping and Monitoring Program (FMMP), portions of the transmission pipeline proposed along Valley Boulevard, Steuber Road, and an existing dirt road would be located in areas where adjacent land uses include Unique Farmland and Prime Farmland (DOC 2021). However, pipeline construction activities would occur within existing roadway rights-of-way, and construction staging areas would be located within the construction easement along the proposed pipeline route. Thus, installation of the proposed transmission pipeline would not interfere with surrounding agricultural uses. All other project components would occur within Grazing Land or Urban and Built-Up Land (DOC 2021). Therefore, the proposed project would not convert Farmland to non-agricultural use. No impact would occur.
- b) **No Impact.** The City of Tehachapi General Plan identifies Williamson Act Land in the City's Sphere of Influence. No Williamson Act Land exists where the proposed project would be implemented (City of Tehachapi 2012). As described above in *Agriculture and Forestry Resources* Impact (a), adjacent agricultural land uses along the proposed

- pipeline route would not be affected during installation of project facilities. Therefore, no impacts to zoning for agricultural use or Williamson Act contracts would occur.
- c, d) **No Impact.** City of Tehachapi and Kern County zoning maps do not identify forest lands in the vicinity of the proposed project (City of Tehachapi 2015; County of Kern 2021). Therefore, the proposed would not conflict with existing zoning for, or cause rezoning of, forest land nor result in the loss of forest land or conversion of forest land to non-forest use. No impact would occur.
- e) **No Impact.** As described above in *Agriculture and Forestry Resources Impact* (a), adjacent agricultural land uses along the proposed pipeline route would not be affected during installation of project facilities. No impact would occur.

## References

- California Department of Conservation (DOC). 2021. California Important Farmland Finder. <https://maps.conservation.ca.gov/DLRP/CIFF/>, accessed April 5, 2021.
- City of Tehachapi. 2012. General Plan. <https://www.liveuptehachapi.com/DocumentCenter/View/3184/Combined-General-Plan-2015-reduced?bidId=>, accessed April 6, 2021.
- \_\_\_\_\_. 2015. Zone Map. <https://www.liveuptehachapi.com/DocumentCenter/View/2937/X1331-1-ZONE-MAP-overall?bidId=>, accessed April 5, 2021.
- County of Kern. 2021. Kern County Interactive GIS Mapping Tool. <https://kernplanning.com/general-plan-update/interactive-maps/>, accessed April 5, 2021.

## 2.2.3 Air Quality

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>III. AIR QUALITY —</b>				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Discussion

- a) **Less Than Significant Impact.** In general, a project would not interfere with the applicable air quality plan if it would be consistent with growth assumptions used during preparation of the applicable air quality plan and if the project implements all reasonably available and feasible air quality control measures. The consistency of the proposed project with the applicable Air Quality Management Plans (AQMPs) is discussed below. The AQMPs that are applicable to the proposed project include the 2003 East Kern Ozone Attainment Demonstration, Maintenance Plan and Redesignation Request, the 2017 RACT SIP, and the 2017 Ozone Attainment Plan.

The proposed project is located in the Mojave Air Basin (Air Basin) in the jurisdictional region of the Eastern Kern Air Pollution Control District (EKAPCD).

The National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) have been set at levels considered safe to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly with a margin of safety, and to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. As the scientific methods for the study of air pollution health effects have progressed over the past decades, adverse effects have been shown to occur at lower levels of exposure. For some pollutants, no clear thresholds for effects have been demonstrated. New findings over time have, in turn, led to the revision and lowering of NAAQS which, in the judgment of the U.S. Environmental Protection Agency (USEPA), are necessary to protect public health. Under the California Clean Air Act (CCAA) that requires all areas of the state to achieve and maintain the California Ambient Air Quality Standards (CAAQS) by the earliest practicable date, the California Air Resources Board (CARB) is required to designate areas of the State as attainment, non-attainment, or unclassified based on whether or not the state standards have been achieved. An “attainment”

designation for an area signifies that pollutant concentrations did not violate the applicable standard in that area. A “non-attainment” designation indicates that a pollutant concentration violated the applicable standard at least once, excluding occasional violations by exceptional events that are natural or unusual events that can overwhelm existing strategies designed to control man-made pollution such as wildfires (and resulting smoke), high winds and dust, volcanic activities, stratospheric ozone intrusions, and fireworks. The non-attainment designation can be further classified as serious non-attainment, severe non-attainment, or extreme non-attainment, with extreme non-attainment being the most severe of the classifications depending on the frequency and severity of pollutants exceeding applicable standards. An “unclassified” designation signifies that the data does not support either an attainment or non-attainment designation. The CCAA divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category.

The Environmental Protection Agency (EPA) designates areas for ozone, Carbon Monoxide (CO), and Nitrogen Dioxide (NO<sub>2</sub>) as “does not meet the primary standards,” “cannot be classified,” or “better than national standards.” For Sulfur Dioxide (SO<sub>2</sub>), areas are designated as “does not meet the primary standards,” “does not meet the secondary standards,” “cannot be classified,” or “better than national standards” with respect to the NAAQS. However, the CARB terminology of attainment, non-attainment, and unclassified is more frequently used. The EPA uses the same sub-categories for non-attainment status: serious, severe, and extreme. In 1991, EPA assigned new non-attainment designations to areas that had previously been classified as Group I, II, or III for PM<sub>10</sub> based on the likelihood that they would violate national PM<sub>10</sub> standards. All other areas are designated “unclassified.”

The California Ambient Air Quality Standards (CAAQS) and the National Ambient Air Quality Standards (NAAQS) are provided in **Table 2-1** and the attainment status designations pertaining to the EKAPCD are summarized in **Table 2-2**. The EKAPCD portion of the Air Basin is currently designated as a non-attainment area with respect to the CAAQS for the ozone and PM<sub>10</sub>. The Air Basin is in attainment for all other State-regulated criteria pollutants.

**TABLE 2-1  
NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS**

Pollutant	Average Time	California Standards <sup>a</sup>	National Standards <sup>b</sup>	
		Concentration <sup>c</sup>	Primary <sup>c,d</sup>	Secondary <sup>c,e</sup>
O <sub>3</sub> <sup>f</sup>	1 Hour	0.09 ppm (180 µg/m <sup>3</sup> )	—	Same as Primary Standard
	8 Hour	0.070 ppm (137 µg/m <sup>3</sup> )	0.070 ppm (137 µg/m <sup>3</sup> )	
NO <sub>2</sub> <sup>g</sup>	1 Hour	0.18 ppm (339 µg/m <sup>3</sup> )	100 ppb (188 µg/m <sup>3</sup> )	None
	Annual Arithmetic Mean	0.030 ppm (57 µg/m <sup>3</sup> )	53 ppb (100 µg/m <sup>3</sup> )	Same as Primary Standard
CO	1 Hour	20 ppm (23 mg/m <sup>3</sup> )	35 ppm (40 mg/m <sup>3</sup> )	None
	8 Hour	9.0 ppm (10 mg/m <sup>3</sup> )	9 ppm (10 mg/m <sup>3</sup> )	

Pollutant	Average Time	California Standards <sup>a</sup>	National Standards <sup>b</sup>	
		Concentration <sup>c</sup>	Primary <sup>c,d</sup>	Secondary <sup>c,e</sup>
SO <sub>2</sub> <sup>h</sup>	1 Hour	0.25 ppm (655 µg/m <sup>3</sup> )	75 ppb (196 µg/m <sup>3</sup> )	—
	3 Hour	—	—	0.5 ppm (1300 µg/m <sup>3</sup> )
	24 Hour	0.04 ppm (105 µg/m <sup>3</sup> )	0.14 ppm (for certain areas) <sup>h</sup>	—
	Annual Arithmetic Mean	—	0.030 ppm (for certain areas) <sup>h</sup>	—
PM <sub>10</sub> <sup>i</sup>	24 Hour	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	Same as Primary Standard
	Annual Arithmetic Mean	20 µg/m <sup>3</sup>	—	—
PM <sub>2.5</sub> <sup>i</sup>	24 Hour	No Separate State Standard	35 µg/m <sup>3</sup>	Same as Primary Standard
	Annual Arithmetic Mean	12 µg/m <sup>3</sup>	12.0 µg/m <sup>3</sup> <sup>i</sup>	15 µg/m <sup>3</sup>
Lead <sup>j,k</sup>	30 Day Average	1.5 µg/m <sup>3</sup>	—	—
	Calendar Quarter	—	1.5 µg/m <sup>3</sup> (for certain areas) <sup>k</sup>	Same as Primary Standard
	Rolling 3-Month Average <sup>k</sup>	—	0.15 µg/m <sup>3</sup>	—
Visibility Reducing Particles <sup>l</sup>	8 Hour	Extinction coefficient of 0.23 per kilometer — visibility of ten miles or more due to particles when relative humidity is less than 70 percent.	<b>No Federal Standards</b>	
Sulfates (SO <sub>4</sub> )	24 Hour	25 µg/m <sup>3</sup>	<b>No Federal Standards</b>	
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m <sup>3</sup> )	<b>No Federal Standards</b>	
Vinyl Chloride <sup>l</sup>	24 Hour	0.01 ppm (26 µg/m <sup>3</sup> )	<b>No Federal Standards</b>	

<sup>a</sup> California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM<sub>10</sub>, PM<sub>2.5</sub>, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

<sup>b</sup> National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM<sub>10</sub>, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 micrograms/per cubic meter (µg/m<sup>3</sup>) is equal to or less than one. For PM<sub>2.5</sub>, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

<sup>c</sup> Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

<sup>d</sup> National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

<sup>e</sup> National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

<sup>f</sup> On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

<sup>g</sup> To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb.

<sup>h</sup> On June 2, 2010, a new 1-hour SO<sub>2</sub> standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO<sub>2</sub> national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated non-attainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

<sup>i</sup> On December 14, 2012, the national annual PM<sub>2.5</sub> primary standard was lowered from 15 µg/m<sup>3</sup> to 12.0 µg/m<sup>3</sup>.

<sup>j</sup> CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.



Pollutant	Average Time	California Standards <sup>a</sup>	National Standards <sup>b</sup>	
		Concentration <sup>c</sup>	Primary <sup>c,d</sup>	Secondary <sup>c,e</sup>

<sup>k</sup> The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m<sup>3</sup> as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated non-attainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

<sup>l</sup> In 1989, CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

SOURCE: CARB, Ambient Air Quality Standards, May 4, 2016.

**TABLE 2-2**  
**ATTAINMENT STATUS FOR THE EKAPCD PORTION OF THE MOJAVE DESERT AIR BASIN<sup>A</sup>**

Pollutant	National Standards (NAAQS)	California Standards (CAAQS)
O <sub>3</sub> (1-hour standard)	Attainment <sup>b</sup>	Non-attainment
O <sub>3</sub> (8-hour standard)	Non-attainment – Serious	Non-attainment
CO	Unclassifiable/Attainment	Unclassified
NO <sub>2</sub>	Unclassified	Attainment
SO <sub>2</sub>	Unclassified	Attainment
PM <sub>10</sub>	Unclassifiable/Attainment	Non-attainment
PM <sub>2.5</sub>	Unclassifiable/Attainment	Unclassified
Lead (Pb)	Unclassifiable/Attainment	Attainment

<sup>a</sup> Excluding the Kern River/Cummings Valleys and Indian Wells Valley Planning Areas

The NAAQS for 1-hour O<sub>3</sub> was revoked on June 15, 2005, for all areas except Early Action Compact areas.

SOURCE: EKAPCD, 2018.

The EKAPCD portion of the Air Basin (excluding the Indian Wells Valley and Kern River/Cummings Valley area), is currently designated as a serious non-attainment area with respect to the NAAQS for ozone (8-hour). The portion of the Air Basin in which the proposed project is located is designated as unclassifiable/attainment for all other EPA-regulated criteria pollutants.

In addition to criteria pollutants, the EPA and the State of California regulate hazardous air pollutants, also known as toxic air pollutants or air toxics, which are pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. A TAC is defined by California Health and Safety Code Section 39655 as follows:

*“Toxic air contaminant” means an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health. A substance that is listed as a hazardous air pollutant pursuant to subsection (b) of Section 112 of the federal act (42 U.S.C. Sec. 7412(b)) is a toxic air contaminant.*

Diesel particulate matter, which is emitted in the exhaust from diesel engines, was listed by the State as a toxic air contaminant in 1998. Most major sources of diesel emissions, such as ships, trains, and trucks operate in and around ports, railyards, and heavily traveled roadways. These areas are often located near highly populated areas resulting in greater health consequences for urban areas than rural areas (CARB 2017). Diesel particulate matter has historically been used as a surrogate measure of exposure for all diesel exhaust emissions. Diesel particulate matter consists of fine particles (fine particles have a diameter  $<2.5\ \mu\text{m}$ ), including a subgroup of ultrafine particles (ultrafine particles have a diameter  $<0.1\ \mu\text{m}$ ). Collectively, these particles have a large surface area which makes them an excellent medium for absorbing organics. The visible emissions in diesel exhaust include carbon particles or “soot.” Diesel exhaust also contains a variety of harmful gases and cancer-causing substances.

Exposure to diesel particulate matter may be a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Diesel particulate matter levels and resultant potential health effects may be higher in proximity to heavily traveled roadways with substantial truck traffic or near industrial facilities. According to CARB, diesel particulate matter exposure may lead to the following adverse health effects: (1) aggravated asthma; (2) chronic bronchitis; (3) increased respiratory and cardiovascular hospitalizations; (4) decreased lung function in children; (5) lung cancer; and (6) premature deaths for people with heart or lung disease (CARB 2017; CARB 2008).

### ***Significance Criteria***

The EKAPCD, formerly known as Kern County APCD, adopted its Guidelines for Implementation of the California Environmental Quality Act of 1970, as Amended to set forth the District’s definitions, procedures and forms used in implementation of the Act (Kern County 2006). The EKAPCD guidelines state that a proposed project is determined to not have significant air quality impacts if operation of the proposed project would:

1. Emit (from all project sources subject to KCAPCD Rule 201) less than offsets trigger levels set forth in Subsection III.B.3. of KCAPCD's Rule 210.1 (New and Modified Source Review Rule);<sup>1</sup>
2. Emit less than 137 pounds per day of  $\text{NO}_x$  or Reactive Organic Compounds<sup>2</sup> from motor vehicle trips (indirect sources only);
3. Not cause or contribute to an exceedance of any California or National Ambient Air Quality Standard;

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<sup>1</sup> A new or modified stationary source of  $\text{NO}_x$ , VOC,  $\text{PM}_{10}$  or  $\text{SO}_x$  shall provide offsets for the New and Modified Stationary Source Review (NSR) when the NSR balance, equals or exceeds the following offset trigger levels; and a new or modified stationary source of  $\text{NO}_x$  and VOC shall provide offsets for the source's potential to emit when the source's potential to emit equals or exceeds the following offset trigger levels:  $\text{PM}_{10}$ : 15 tons/yr;  $\text{SO}_x$  (as  $\text{SO}_2$ ): 27 tons/yr; VOC: 25 tons/yr  $\text{NO}_x$  (as  $\text{NO}_2$ ): 25 tons/yr After a stationary sources NSR balance and/or stationary source potential to emit equals or exceeds these trigger levels and offsets have been provided fully 210.1-10 offsetting the NSR balance or the stationary source potential to emit, any additional future increase shall be offset.

<sup>2</sup> Includes reactive organic gases (ROGs) which is used interchangeably as volatile organic compounds (VOCs) (CARB 2004).

4. Not exceed the District health risk public notification thresholds adopted by the KCAPCD Board; and
5. Be consistent with adopted federal and State Air Quality Attainment Plans.

To assist local jurisdictions in the evaluation of air quality impacts, the EKAPCD established thresholds of significance to be used for the evaluation of short-term construction, long-term operational, odor, toxic air contaminant, and cumulative air quality impacts (Kern County 2006). Accordingly, the recommended thresholds of significance are used to determine whether implementation of the proposed project would result in a significant air quality impact. Projects that exceed these recommended thresholds would be considered to have a potentially significant impact to human health and welfare. The thresholds of significance are summarized as follows:

- EKAPCD thresholds for construction and operational sources (including stationary sources):
  - Reactive Organic Gases (ROG) emissions of 25 tons per year
  - Oxides of nitrogen (NOX) emissions of 25 tons per year
  - Sulfur Oxide (SOX) emissions of 27 tons per year
  - Particulate matter (PM10) emissions of 15 tons per year

### **Air Quality Management Plans/State Implementation Plans**

As required by the federal CAA and CCAA, air basins or portions thereof have been classified as either “attainment” or “non-attainment” for each criteria air pollutant based on whether or not the standards have been achieved. Jurisdictions of non-attainment areas are also required to prepare an air quality management plan (AQMP) that includes strategies for achieving attainment. The following AQMPs have been adopted by EKAPCD and submitted to CARB as part of California’s SIP.

#### *2003 Ozone Attainment Demonstration, Maintenance Plan, and Redesignation Request*

On January 9, 2003, EKAPCD adopted the East Kern Ozone Attainment Demonstration, Maintenance Plan and Redesignation Request for the East Kern County non-attainment area. On May 1, 2003, the EKAPCD Board adopted amendments to the January 2003 plan and on December 9, 2003, CARB adopted and submitted the amended plan to USEPA. The 2003 Ozone Attainment Demonstration, Maintenance Plan, and Redesignation Request primarily addresses the 1-hour O<sub>3</sub> NAAQS.

#### *2017 Reasonably Available Control Technology SIP*

As a moderate O<sub>3</sub> non-attainment area, EKAPCD is required to adopt Reasonably Available Control Technology (RACT) rules for all sources of O<sub>3</sub> precursor emissions (NO<sub>x</sub> and VOCs). EKAPCD has fulfilled this mandate by adopting a number of rules between 1987 and 2005 which aim to reduce O<sub>3</sub> precursor emissions. The EKAPCD adopted the Reasonably Available Control Technology SIP for the 2008 Ozone NAAQS (2017 RACT SIP) on May 11, 2017. CARB submitted the 2017 RACT SIP to the USEPA as a revision to the California SIP on August 9, 2017.

### *2017 Ozone Attainment Plan*

The EKAPCD is in non-attainment for the national and State 8-Hour O<sub>3</sub> standard and the State 1-hour O<sub>3</sub> standard. Accordingly, in 1993 the EKAPCD adopted an attainment plan to meet the national and State standards for O<sub>3</sub> pursuant to existing mandates. On September 28, 2017, CARB adopted the EKAPCD Plan for 2008 Federal 75 ppb 8-Hour Ozone Standard (2017 Ozone Attainment Plan) as a revision to the California SIP. The District Board adopted the 2017 Ozone Attainment Plan at a public hearing on July 27, 2017. The Plan showed significant progress toward reduced O<sub>3</sub> within the district. However, the attainment status of the district has not changed and the O<sub>3</sub> attainment plan remains in effect. The Plan addressed all required elements, emissions reductions, and control measures necessary to demonstrate attainment with the 2008 8-hour Ozone NAAQS by 2020.

### **Applicable State Rules**

The California Air Toxics Program is an established two-step process of risk identification and risk management to address potential health effects from exposure to toxic substances in the air. In the risk identification step, CARB and OEHHA determine if a substance should be formally identified, or “listed,” as a TAC in California. In the risk management step, CARB reviews emission sources of an identified TAC to determine whether regulatory action is needed to reduce risk. Based on results of that review, CARB has promulgated a number of Airborne Toxic Control Measures (ATCMs), both for stationary and mobile sources, including On-Road and Off-Road Vehicle Rules. These ATCMs include measures such as limits on heavy-duty diesel motor vehicle idling and emission standards for off-road diesel construction equipment in order to reduce public exposure to DPM and other TACs. These actions are also supplemented by the AB 2588 Air Toxics “Hot Spots” program and SB 1731, which require facilities to report their air toxics emissions, assess health risks, notify nearby residents and workers of significant risks if present, and reduce their risk through implementation of a risk management plan. The South Coast Air Quality Management District (SCAQMD) has further adopted two rules to limit cancer and non-cancer health risks from facilities located within its jurisdiction. Rule 1401 (New Source Review of Toxic Air Contaminants) regulates new or modified facilities, and Rule 1402 (Control of Toxic Air Contaminants from Existing Sources) regulates facilities that are already operating. Rule 1402 incorporates requirements of the AB 2588 program, including implementation of risk reduction plans for significant risk facilities.

### **Applicable Air District Rules**

#### **Rule 201. Permits Required**

Rule 201 establishes the required permit for the Authority to Construct: Any person building, altering or replacing any equipment, the use of which may cause the issuance of air contaminants or the use of which may eliminate or reduce or control the issuance of air contaminants, shall first obtain authorization for such construction from the Control Officer; Rule 201 also establishes the required permit for the Permit to Operate: Before any new or modified equipment or any existing equipment so described may be operated,

a written permit shall be obtained from the Control Officer. No Permit to Operate shall be granted either by the Control Officer or the Hearing Board for any equipment described under the Authority to Construction shall be constructed or installed without authorization, until the information required is presented to the Control Officer and such equipment is altered, if necessary, and made to conform to standards.

#### Rule 210.1 New and Modified Stationary Source Review

Rule 210.1 establishes stationary source offset levels for new and modified stationary sources<sup>3</sup> of air pollutants. Under this rule, the EKAPCD has established required offsets for when the emissions from a source exceed the following levels:

- PM<sub>10</sub> – 15 tons/year
- SO<sub>x</sub> (as SO<sub>2</sub>) – 27 tons/year
- VOCs – 25 tons/year
- NO<sub>x</sub> (as NO<sub>2</sub>) – 25 tons/year

#### Rule 401 Visible Emissions

Rule 401 states that a person shall not discharge into the atmosphere, from any single source of emissions whatsoever, any air contaminant from any single emissions source for a period or periods aggregating more than 3 minutes in any 1 hour which is:

- As dark or darker in shade as that designated as No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines.
- Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in Subsection A [of the Rules].

#### Rule 402 Fugitive Dust

Rule 402 addresses significant man-made dust sources from active operations. An active operation is defined as "Activity capable of generating fugitive dust, including any open storage pile, earth-moving activity, construction/demolition activity, disturbed surface area, and non-emergency movement of motor vehicles on unpaved roadways and any parking lot served by an unpaved road subject to this Rule." Rule 402 applies to specified bulk storage, earthmoving, construction and demolition, and man-made conditions resulting in wind erosion, and includes the following requirements:

- A person shall not cause or allow emissions of fugitive dust from any active operation to remain visible in the atmosphere beyond the property line of the emission source.
- A person shall utilize one or more Reasonably Available Control Measures (RACM) or Bulk Material Control Measures (BMCM) to minimize fugitive dust emissions

<sup>3</sup> Stationary Source: any structure, building, facility, or installation which emits or may emit any affected pollutant directly, or as a fugitive emission. "Structure, building, facility or installation" includes all pollutant emitting activities, including emissions units: 1. Located on one or more contiguous or adjacent properties; 2. Under the same or common ownership or entitlement to use, or owned or operated by entities under common control; and 3. Belonging to the same industry either by being within the same two-digit Standard Industrial Classification Code; or 4. By being part of a common industrial process, manufacturing process, or connected process involving a common raw material.

from each source type that is part of any active operation, including unpaved roadways.

- No person shall conduct a large operation without filing for and obtaining an approved fugitive dust emission control plan. Large operation is defined as “Any construction activity on any site involving 10 or more contiguous acres of disturbed surface area, or any earthmoving activity exceeding a daily volume of 10,000 cubic yards, or relocating more than 2,500 cubic yards per day of bulk materials at least three days per year.”
- EKAPCD may require on-site PM<sub>10</sub> monitoring for any large operation that causes downwind PM<sub>10</sub> ambient concentrations to increase more than 50 micrograms per cubic meter above upwind concentrations as determined by utilizing high-volume particulate matter samplers, or other USEPA-approved equivalent method(s).

#### **Rule 419 Nuisance**

Rule 419 states that a person shall not discharge from any source whatsoever such quantities of contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or that endanger the comfort, repose, health, or safety of such persons or the public or that cause or have a natural tendency to cause injury or damage to business or property.

#### **Rule 423 National Emissions Standards for Hazardous Air Pollutants**

Rule 423 adopts the USEPA’s National Emissions Standards for Hazardous Air Pollutants by reference, which grants EKAPCD the ability to ensure that all sources of hazardous air pollution would comply with applicable standards, criteria, and requirements set forth in Title 40, Chapter 1, parts 61 and 63, of the Code of Federal Regulations that are in effect as of February 10, 2010.

#### **Applicable General Plan Policies**

The City of Tehachapi implements the following policies that are applicable to its efforts to improve air quality (City of Tehachapi 2012). Note: only those policies that are applicable to the proposed project and are capable of being implemented by the proposed project are listed below.

#### **Natural Resources Element**

Policy NR-3. Reduce emissions for stationary point sources of air pollution (e.g., equipment at commercial and industrial facilities) and stationary area sources (e.g., wood-burning fireplaces & gas powered lawn mowers) which cumulatively, represent large quantities of emissions.

- a. Work with the Air Quality Management District to achieve emission-reductions for non-attainment pollutants including carbon monoxide, ozone and PM-10;
- b. Apply the California Environmental Quality Act (CEQA) to evaluate and mitigate the local and cumulative effects of new development on air quality.

Policy NR-4. Reduce emissions from residential and commercial uses:

- b. Require that contractors include, in construction contracts, the following requirements, consistent with the East Kern District's Regulations:
- Maintain construction equipment engines in good condition and in proper tune per manufacturer's specification for the duration of construction;
  - Minimize idling time of construction-related and/or, heavy duty equipment, motor vehicles, and portable equipment;
  - Use alternative fuel construction equipment (i.e., compressed natural gas, liquid petroleum gas and unleaded gasoline);
  - Use 'add-on' control devices such as diesel oxidation, catalysts or particulate filters;
  - Use diesel equipment that meets the Air Quality Management District's certification standard for off-road heavy-duty diesel engines;
  - Limit construction hours/hours of operation of heavy-duty equipment;
  - Include buffer zones within new residential and sensitive receptors to separate those uses from potential sources of odors, dust from agricultural uses, and stationary sources of toxic air contaminants.

The proposed project would construct new facilities to produce, convey, and recharge tertiary-treated recycled water. The proposed project would only require one new permanent employee to operate the project facilities and one daily site visit, and would not introduce a land use that would induce population or housing that could result in a substantial increase in vehicle miles traveled and associated criteria pollutant emissions. As such, the proposed project would be consistent with the growth assumptions of the AQMPs.

The proposed project would be required to incorporate and comply with all applicable EKAPCD rules and regulations to reduce fugitive dust emissions. The proposed project would comply with Rule 402, Fugitive Dust, during construction activities, which requires control of fugitive dust from certain unpaved roadways, bulk storage piles, construction and demolition projects, and land leveling and clearing projects. Additionally, the proposed project would comply with EKAPCD Rule 201 and 210.1 that establishes permit conditions and sets forth the thresholds of significance by which stationary source projects are evaluated.<sup>4</sup>

In addition, as below in *Air Quality* Impact (b), the unmitigated emissions generated by the proposed project during both construction and operation would not result in emissions of criteria pollutants that exceed the significance thresholds established by the EKAPCD for implementing CEQA, including PM<sub>10</sub>, PM<sub>2.5</sub>, and fugitive dust. Therefore, the proposed project would not conflict with or obstruct implementation of the applicable air quality attainment plans. The proposed project would: be consistent the air quality plan because it would be consistent with growth assumptions used to form the applicable

<sup>4</sup> In addition, the proposed project would be required to comply with Rules 401, 419 and 423 regarding visible, nuisance and hazardous air pollutants and contaminants.

AQMPs; implement all applicable and reasonably available and feasible air quality control measures; and not exceed the EKAPCD thresholds of significance. Therefore, the impact would be less than significant.

- b) **Less Than Significant Impact.** The proposed project would result in the emission of criteria pollutants during both construction and operation, including those for which the project area is in non-attainment. As discussed above in above in *Air Quality Impact* (a), the proposed project would be consistent with the applicable AQMPs including the 2003 East Kern Ozone Attainment Demonstration, Maintenance Plan and Redesignation Request, the 2017 RACT SIP, and the 2017 Ozone Attainment Plan including control measures and regulations.

As described above, the air basin is in non-attainment or serious nonattainment for ozone and PM10, which means that the background levels of those pollutants are at times higher than the ambient air quality standards. With respect to cumulative health impacts, the NAAQS and CAAQS were set to protect public health, including the health of sensitive individuals (such as children, the elderly, and persons with pre-existing respiratory or cardiovascular illnesses). Therefore, when the concentration of those pollutants exceeds the standard, it is likely that some sensitive individuals in the population would experience adverse health effects. Since the air basin is already in non-attainment for these constituents, it is considered to have an existing significant cumulative health impact without the proposed project. However, the focus of this analysis is whether the proposed project's contribution to the existing violation of air quality standards is cumulatively considerable.

The EKAPCD has determined that projects that exceed regional thresholds would have a cumulatively considerable health impact. Construction and operational emissions were calculated for the proposed project by using the California Emissions Estimator Model (CalEEMod) version 2016.3.2. CalEEMod is the recommended emissions inventory software program that can be used to estimate anticipated emissions associated with land development projects in California. CalEEMod has separate databases for specific counties and air districts. The EKAPCD database in CalEEMod was used for the proposed project. On-road mobile source emissions were estimated using the CARB on-road vehicle emissions factor (EMFAC) model. As described in Section 1, *Project Description*, of this IS/MND, the proposed project would be constructed in multiple stages with construction occurring at various locations sequentially: the Tehachapi WWTP upgrades would occur first, followed by the recharge and conveyance facilities. Each stage would require construction phases including site preparation, grading/excavation, trenching/shoring, building construction, site restoration, paving and testing/start up that require various amounts of heavy-duty construction equipment and associated worker, haul and vendor truck trips (see Section 1, *Project Description*, and **Appendix AQ**, for additional details). **Table 2-3** includes project construction generated emissions for year 2022, which is the earliest year the proposed project could begin construction. **Table 2-4** presents the emissions for project construction and project operation emissions in year 2023 as the proposed project is expected to be built out in the



first quarter of year 2023. **Table 2-5** presents the proposed project's long-term operational emissions for the first full year of proposed project buildout in year 2024. As shown, the proposed project's construction and operational emissions would not exceed the EKAPCD's significance thresholds.<sup>5</sup> Therefore, in accordance with EKAPCD policy, the proposed project's cumulatively considerable impacts would be less than significant.

**TABLE 2-3**  
**ESTIMATED MAXIMUM REGIONAL CONSTRUCTION EMISSIONS (TONS PER YEAR) – YEAR 2022 <sup>A</sup>**

Source	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM10	PM2.5
Treatment Facilities	0.21	3.85	3.35	0.01	0.27	0.13
Recharge Facilities	0.08	1.79	1.58	0.01	0.14	0.06
Conveyance Facilities - Pipeline	0.07	0.60	0.60	<0.01	0.03	0.03
Conveyance Facilities - Pump Stations	0.11	1.11	1.14	<0.01	0.06	0.05
<b>Total Annual Emissions</b>	<b>0.46</b>	<b>7.35</b>	<b>6.66</b>	<b>0.02</b>	<b>0.51</b>	<b>0.26</b>
<b>EKAPCD Threshold<sup>b</sup></b>	<b>25</b>	<b>25</b>	<b>NA</b>	<b>27</b>	<b>15</b>	<b>15</b>
Exceeds Thresholds?	No	No	No	No	No	No

<sup>a</sup> Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in Appendix AQ of this IS/MND.

<sup>b</sup> The EKAPCD has not established a threshold for PM2.5; however, since the EKAPCD region is designated non-attainment for PM10 and unclassified for PM2.5, and PM2.5 is a subset of PM10, 15 tons per year is used for PM2.5.

SOURCE: ESA 2021.

**TABLE 2-4**  
**ESTIMATED MAXIMUM OVERLAP OF REGIONAL CONSTRUCTION AND OPERATIONAL EMISSIONS (TONS PER YEAR) – YEAR 2023 <sup>A</sup>**

Source	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM10 <sup>b</sup>	PM2.5 <sup>b</sup>
<b>Construction</b>						
Recharge Facilities	0.03	0.35	0.37	<0.01	0.04	0.01
Conveyance Facilities - Pipeline	0.02	0.14	0.15	<0.01	0.01	0.01
Conveyance Facilities - Pump Stations	0.07	0.64	0.65	<0.01	0.03	0.03
<b>Operations</b>						
Area	0.16	0.00	<0.01	0.00	0.00	0.00
Energy	<0.01	0.03	0.02	<0.01	<0.01	<0.01
Mobile	0.02	<0.01	0.01	<0.01	<0.01	<0.01
Emergency Generator	0.05	0.93	0.53	<0.01	0.03	0.03
<b>Total Annual Emissions</b>	<b>0.35</b>	<b>2.08</b>	<b>1.72</b>	<b>&lt;0.01</b>	<b>0.11</b>	<b>0.08</b>

<sup>5</sup> As shown Table 2-3 and Table 2-4, construction and operational emissions would not exceed the EKAPCD regional significance thresholds for attainment, maintenance, or unclassifiable criteria air pollutants. With respect to the State-identified criteria pollutants (i.e., sulfates, hydrogen sulfide, visibility reducing particles, and vinyl chloride), the Project would either not emit them (i.e., hydrogen sulfide and vinyl chloride) or they would be accounted for as part of the pollutants estimated in this analysis (i.e., sulfates and visibility reducing particles). For example, visibility reducing particles are associated with particulate matter emissions and sulfates are associated with SO<sub>2</sub> emissions. Both particulate matter and SO<sub>2</sub> are included in the emissions estimates for the Project.

Source	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM10 <sup>b</sup>	PM2.5 <sup>b</sup>
<b>EKAPCD Threshold<sup>b</sup></b>	<b>25</b>	<b>25</b>	<b>NA</b>	<b>27</b>	<b>15</b>	<b>15</b>
Exceeds Thresholds?	No	No	No	No	No	No

<sup>a</sup> Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in Appendix AQ of this IS/MND. Area and energy emissions are conservatively taken from the year 2023 modeling run and apportioned to 10 months of the year as the proposed project would be completed in the first quarter of year 2023. Emergency generator emissions are apportioned to 10 months of the year as the proposed project would be completed in the first quarter of year 2023.

<sup>b</sup> The EKAPCD has not established a threshold for PM2.5; however, since the EKAPCD region is designated non-attainment for PM10 and unclassified for PM2.5, and PM2.5 is a subset of PM10, 15 tons per year is used for PM2.5.

SOURCE: ESA 2021.

**TABLE 2-5**  
**ESTIMATED MAXIMUM OPERATIONAL EMISSIONS (TONS PER YEAR) – YEAR 2024 <sup>A</sup>**

Source	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM10 <sup>b</sup>	PM2.5 <sup>b</sup>
Operations						
Area	0.19	0.00	<0.01	0.00	0.00	0.00
Energy	<0.01	0.03	0.03	<0.01	<0.01	<0.01
Mobile	0.03	<0.01	0.01	<0.01	<0.01	<0.01
Emergency Generator	0.06	1.12	0.64	<0.01	0.04	0.03
<b>Total Annual Emissions</b>	<b>0.28</b>	<b>1.15</b>	<b>0.68</b>	<b>&lt;0.01</b>	<b>0.04</b>	<b>0.04</b>
<b>EKAPCD Threshold<sup>b</sup></b>	<b>25</b>	<b>25</b>	<b>NA</b>	<b>27</b>	<b>15</b>	<b>15</b>
Exceeds Thresholds?	No	No	No	No	No	No

<sup>a</sup> Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in Appendix AQ of this IS/MND. Area and energy emissions are conservatively taken from 2023 modeling run which is conservative as impacts would be lower than those analyzed due to the use of a more energy-efficient buildings and cleaner burning landscaping and employee vehicle fleet mix over time pursuant to State regulations.

<sup>b</sup> The EKAPCD has not established a threshold for PM2.5; however, since the EKAPCD region is designated non-attainment for PM10 and unclassified for PM2.5, and PM2.5 is a subset of PM10, 15 tons per year is used for PM2.5.

SOURCE: ESA 2021.

- c) **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.

The EKAPCD considers a sensitive receptor a location that houses or attracts children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Examples of sensitive receptors include hospitals, residences, convalescent facilities, and schools. The closest existing off-site sensitive receptors to the proposed project components are single-family homes located along Steuber Road, which would be adjacent to the proposed transmission pipeline that would be installed along Steuber Road. The same sensitive receptor would be approximately 800 feet from the southeast corner of the Borrow Pit where the proposed pump station would be constructed. The

nearest school to any component of the proposed project is the Saint Malachys School, located approximately 0.49 miles northeast of the proposed facilities at the existing WWTP. All other project components including the upgraded pump station, and the potential proposed spreading grounds to be constructed south of the existing Blackburn Dam would not have sensitive receptors within 2,000 feet.

As shown in Table 2-3, Table 2-4, and Table 2-5, the proposed project's construction and operational emissions would not exceed the EKAPCD's thresholds established in accordance with health-based standards for determining significance of criteria pollutant emissions. Therefore, in accordance with these standards, the proposed project would have a less than significant impact related to exposure of sensitive receptors to substantial pollutant concentrations.

Construction of the proposed project would result in short-term diesel exhaust emissions (DPM), which are TACs, from on-site heavy-duty equipment. Project construction would generate DPM emissions from the use of off-road diesel equipment required for site grading and excavation, and other construction activities, as well as from the use of on-road heavy duty trucks. The dose to which sensitive receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent of exposure that person has with the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the maximally exposed individual. Thus, the risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the proposed project. Thus, the duration of the proposed construction activities (approximately 2 years) would only constitute approximately 3 percent of the total 70-year exposure period. In addition, while construction activities may at times occur near air quality-sensitive receptors (i.e., single family residences along Steuber Road), the majority of project construction activity would occur at a substantial distance from any one specific sensitive receptor location (i.e., more than 1,000 feet away) for most of the construction duration. The distribution of construction over a large area would disperse pollutants generated by construction activity as construction moves from one location to another across the various project components and their construction areas such that any one specific sensitive receptor location would not be exposed to prolonged periods of construction activity and would not be exposed to substantial pollutant concentrations.

The proposed project would comply with the CARB anti-idling Air Toxics Control Measure, which limits idling to no more than five minutes at any location for diesel-fueled commercial vehicles, would further minimize diesel particulate matter emissions in the construction area. Because the use of mobilized equipment would be temporary and because construction activity would move from one location to another within the

project component construction areas such that any one specific sensitive receptor location would not be exposed to prolonged periods of construction activity, DPM from construction activities would not be anticipated to result in the exposure of sensitive receptors to levels that exceed applicable standards.

Project operation would generate only minor amounts of diesel emissions from mobile sources, such as delivery trucks needed for chemical deliveries that is anticipated to occur once per month and from mobile trips from the one new permanent employee to operate the project facilities. Therefore, project operation would not be considered a substantial source of DPM. Chemicals that would be stored and used at the new facility would include sodium hypochlorite, aqueous ammonia, and polymers. The chemicals would be stored onsite in a tank with secondary containment within an enclosed building.

Additionally, backup emergency generators requiring consumption of diesel fuel would be required at both the effluent pump station at the WWTP and the pump station at the Borrow Pit. It is assumed each emergency generator would be 750 horsepower. The emergency generators produce minimal emissions, where emissions from maintenance and testing would not occur daily, but rather periodically, up to 200 hours per year. As shown in Table 2-5, the emergency generators would not be a substantial source of diesel particulate emissions and the emergency generators would not cause or contribute to adverse health impacts at nearby sensitive receptors. Therefore, the emissions would not pose a health risk to off-site receptors. Impacts would be less than significant.

- d) **Less Than Significant Impact.** Types of land uses that typically pose potential odor problems include agriculture, wastewater treatment plants, food processing and rendering facilities, chemical plants, composting facilities, landfills, waste transfer stations, and dairies. In addition, the occurrence and severity of odor impacts depend on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. Although offensive odors rarely cause any physical harm, they can still be very unpleasant, leading to considerable distress and often generating citizen complaints to local governments and regulatory agencies.

The proposed project would construct new facilities at the City's existing WWTP to produce tertiary-treated recycled water. Wastewater treatment plant uses are part of the baseline condition for the project area and vicinity. In addition, since the proposed project is largely a modification project of the existing WWTP, the proposed project would not change baseline uses and conditions and would not introduce new land uses that would create objectionable odors. Occasionally, diesel exhaust from heavy equipment used during construction activities or during operational maintenance activities can generate objectionable odors, but these dissipate very quickly. Thus, neither construction nor the operation of the proposed project would create objectionable odors affecting a substantial number of people, and odor impacts would be less than significant.

As shown previously in Table 2-3, Table 2-4, and Table 2-5, emissions of criteria pollutants would not exceed the applicable EKAPCD significance thresholds. Therefore,

neither construction nor the operation of the proposed project would generate other emissions adversely affecting a substantial number of people,<sup>6</sup> and impacts would be less than significant

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<http://kernair.org/Documents/CEQA/AirQualityAssessmentPreparationGuidelines.pdf>

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<sup>6</sup> The main sensitive receptors located near project components would be the single-family homes located along Steuber Road, which would be adjacent to the proposed transmission pipeline. The same sensitive receptor would be approximately 800 feet from the southeast corner of the Borrow Pit where the proposed pump station would be constructed.

## 2.2.4 Biological Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>IV. BIOLOGICAL RESOURCES —</b> Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Discussion

A background investigation of the proposed project sites was conducted that included queries of the California Natural Diversity Database (CNDDB) and California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants. A biological resource reconnaissance survey and a burrowing owl habitat assessment was conducted on February 4 and 5, 2021 of the biological study area (BSA) for the proposed project. The BSA includes the project sites, plus a 500-foot buffer around the WWTP and staging area, proposed effluent pump station, the existing Borrow Pit and proposed pump station, and the existing Blackburn Dam, as well as a 100-foot buffer around the proposed transmission pipeline. The results of the field reconnaissance were compiled into the *City of Tehachapi Groundwater Sustainability Project Biological Resources Technical Report*, included as **Appendix BIO** to this IS/MND. The analysis presented in this section is based on the report.

- a) **Less Than Significant Impact with Mitigation Incorporated.** A field reconnaissance was conducted to gather baseline biological resources data during which time biologists characterized and mapped plant communities, disturbed/developed areas, and recorded observations/detections of plants and wildlife species, including special-status species. A

thorough discussion of the existing biological conditions, including potentially occurring special-status species and sensitive plant communities, is contained in Appendix BIO.

### ***Special-Status Plants***

A review of the CNDDDB (CDFW 2021) and the CNPS Inventory of Rare and Endangered Plants (CNPS 2021) revealed a total of 12 special-status plant species with at least a low potential to occur within the BSA. These plants include San Joaquin adobe sunburst, Bakersfield cactus, Aromatic canyon gooseberry, Tejon poppy, Tracy's eriastrum, Baja navarretia, Piute Mountains navarretia, Latimer's woodland-gilia, Kern buckwheat, alkali mariposa-lily, Palmer's mariposa-lily, and Aparejo grass. Based on the date of documentation of CNDDDB occurrences and current marginal habitat conditions and site use, these species are either not expected to occur or previous occurrences are expected to be extirpated. Impacts to special-status plants would be less than significant as a result of the proposed project, and no mitigation measures would be required.

### ***Special-Status Wildlife***

A review of the CNDDDB revealed 15 special-status wildlife species have at least a low potential to occur within the BSA. Based on the presence of suitable habitat within the project sites, there is moderate potential for eight special-status wildlife species to occur in the project sites: Crotch bumble bee, California legless lizard, coast horned lizard, California condor, golden eagle, loggerhead shrike, tricolored blackbird, and Tehachapi pocket mouse. These species are discussed in detail below.

### **Tehachapi Pocket Mouse**

The Tehachapi pocket mouse (TPM) is a State Species of Special Concern. It can be found in sandy soils in a variety of vegetation communities including annual grasslands and rubber rabbitbrush scrub at elevations between 3,500-6,000 feet TPM has been documented in nearby fallow fields dominated by Russian thistle (*Salsola tragus*). Both rubber rabbitbrush and Russian thistle occur in portions of the BSA and may be impacted by ground disturbing activities associated with project construction, most notably at Blackburn Dam. Of the 35.1 acres of available habitat for TPM within the BSA, permanent habitat modification of approximately 6.93 acres of rubber rabbitbrush scrub and mixed rubber rabbitbrush–California buckwheat scrub communities in the proposed spreading grounds and removal of 0.96 acre of mixed rubber rabbitbrush scrub along the proposed transmission pipeline alignment would result in habitat loss or conversion, and could result in direct mortality of TPM or disrupt breeding of the species during construction. It should be noted that the proposed spreading grounds area is currently used for recharge and thus likely exhibits some level of disturbance to these communities from existing activities. Nonetheless, with the implementation of the proposed project, the removal of rubber rabbitbrush scrub could result in potential permanent, direct impacts to TPM individuals and suitable habitat for TPM, which would be a potentially significant impact. Implementation of **Mitigation Measure BIO-1** would be required, which would involve conducting a trapping survey and avoidance measures for the

Tehachapi pocket mouse. With implementation of this mitigation measure, impacts would be reduced to a less than significant level.

### **Tricolored Blackbird**

Tricolored blackbird is a State Threatened species. Suitable breeding and foraging habitat for the tricolored blackbird is present within the red willow, Fremont cottonwood, and mulefat forested portions of the riparian habitat present within the BSA. This species may also utilize the agricultural fields for nesting and foraging as well, such as those dominated by herbaceous vegetation. Thus, out of a total of 8.16 acres of available tricolored blackbird habitat within the BSA, the project could result in habitat removal of approximately 0.01 acre of the Red Willow – Fremont Cottonwood – Mulefat Riparian Woodland and Forest Alliance for installation of the proposed effluent pump station upgrade and approximately 5.92 acres of Developed – Agriculture lands for installation of the proposed transmission pipeline. Additionally, if proposed project construction takes place during the nesting season, disturbance from construction activities could result in potential indirect impacts to tricolored blackbird nesting activity. With the implementation of the proposed project, the removal of riparian and agricultural vegetation, as well as the indirect disturbance (e.g., noise, human activity) from construction during the breeding season, could result in potential permanent direct and temporary indirect impacts to the suitable breeding and foraging habitat for the tricolored blackbird. Implementation of **Mitigation Measure BIO-2** and **Mitigation Measure BIO-4**, which would require focused surveys during the nesting season for tricolored blackbird at the WWTP and avoidance measures if the species are found, would reduce this impact to a less than significant level.

### **California Condor and Golden Eagle**

California condor is a Federal and State Endangered species, and golden eagle is a State Fully Protected species. Although California condor and golden eagle have a moderate potential to forage within the BSA, these species are not expected to nest within the BSA due to lack of cliff-walled canyons that contain their preferred nesting habitat. Golden eagles can sometimes nest in large trees in open areas; however, the trees within the BSA are limited to riparian trees within the Borrow Pit and are likely not suitable habitat for golden eagle nesting. Thus, with implementation of the proposed project, which would impact limited areas of potential foraging habitat, and in light of the extensive foraging habitat of native shrublands surrounding the BSA and throughout the region that would remain available, impacts to California condor and golden eagle foraging habitat are less than significant, and no mitigation is required.

### **Crotch Bumble Bee, California Legless Lizard, Coast Horned Lizard, and Loggerhead Shrike**

Crotch bumble bee is a State Candidate Threatened species, and California legless lizard, coast horned lizard, and loggerhead shrike are State Species of Special Concern. Native upland habitat occurs within the BSA that is suitable for Crotch bumble bee, California legless lizard, coast horned lizard, and loggerhead shrike. With implementation of the



proposed project, approximately 14.85 acres out of a total of 35.33 acres of shrubland within the BSA could be removed resulting in potential permanent, direct impacts to the suitable habitat for these species. The native shrubland habitats are ubiquitous in the region. During construction, it is expected that if Crotch bumble bee and/or loggerhead shrike is in the vicinity of the work area, these species, if present, would move out of the way of vehicles and construction equipment. Direct impacts to these species would be less than significant as there is ample native shrubland within the area and vicinity to provide habitat for these species. Although California legless lizard and coast horned lizard would also be expected to move out of the way, there is greater potential for direct impacts to these species to occur. Additionally, if any loggerhead shrikes are nesting within the proposed project areas, impacts to this species may occur. Thus, impacts to these special-status wildlife species are potentially significant. Implementation of **Mitigation Measures BIO-3** and **Mitigation Measure BIO-4**, which would require pre-construction surveys and nesting bird surveys and appropriate avoidance measures if species are found, would reduce potentially significant impacts to California legless lizard, coast horned lizard, and loggerhead shrike to a less than significant level.

### ***Mitigation Measure***

**BIO-1: Impacts to Tehachapi Pocket Mouse and Occupied Habitat.** Prior to commencement of project activities at the proposed transmission pipeline area or proposed spreading grounds within Blackburn Dam, a qualified biologist shall conduct a live-trapping survey for the Tehachapi pocket mouse, in accordance with CDFW standard live-trapping protocols. If live-trapping surveys show that the Tehachapi pocket mouse occupies the proposed transmission pipeline area or proposed spreading grounds within Blackburn Dam, the following measures will be implemented to avoid potential adverse effects to this species and its habitat:

- If Tehachapi pocket mouse are detected during the live-trapping, occupied habitat should be avoided wherever possible, including protective buffers around the occupied habitat as recommended by the qualified mammologist conducting the trapping. If construction activities cannot avoid occupied habitat, within three days prior to the commencement of work activities, a qualified biologist shall trap and relocate any individuals out of the work area. CDFW shall be consulted on the relocation methods prior to relocation efforts, as well as any additional avoidance and minimization measures to protect individuals.

**BIO-2: Impacts to Tricolored Blackbird.** Prior to implementation of the proposed project, a qualified biologist shall conduct focused surveys during the nesting season for tricolored blackbird at the WWTP and Borrow Pit to determine if this species uses the project sites for nesting. If tricolored blackbirds are not detected within the suitable breeding habitat, no further action is necessary.

If tricolored blackbirds are observed nesting within or adjacent to the project sites, construction activities within 300 feet of suitable nesting habitat shall be avoided to the extent feasible and **Mitigation Measure BIO-4** shall be implemented for species avoidance. If occupied nesting habitat for tri-colored blackbird is unavoidable, suitable nesting habitat shall be replaced at minimum ratio of 2:1 at a suitable location approved by CDFW. The replacement habitat shall be suitable to support tricolored blackbird

breeding habitat with similar nesting and foraging habitat functions as is provided by the existing habitat.

**BIO-3: Pre-Construction Wildlife Clearance Surveys.** Prior to any ground disturbance, a qualified biologist shall conduct a pre-construction wildlife clearance survey throughout the project sites, including an approximate 100-foot buffer for California legless lizard and coast horned lizard. If California legless lizard or coast horned lizard are observed within 100 feet of the project work areas during pre-construction clearance surveys, a qualified biologist shall relocate the individuals to suitable habitat located a sufficient distance away from the impact areas to ensure that construction-related impacts are avoided.

**BIO-4: Impacts to Nesting Avian Species and Active Nests.** If the nesting avian season cannot be avoided and construction or vegetation removal is initiated between March 1 – September 15 (or January 1 to August 1 for raptors), the following measures would reduce potential impacts to nesting and migratory birds and raptors to less than significant levels:

- Within 10 days of site clearing, a qualified biologist shall conduct a preconstruction, migratory bird and raptor nesting survey. The biologist must be qualified to determine the status and stage of nesting by migratory birds and all locally breeding raptor species without causing intrusive disturbance. The survey shall cover all reasonably potential nesting locations for the relevant species on or closely adjacent to the proposed project site.
- The preconstruction survey shall cover all reasonably potential nesting locations on and within 300 feet of the proposed removal areas, and areas that would be occupied by ground-nesting species, such as killdeer. A 500-foot radius shall be surveyed in areas containing suitable habitat for nesting raptors, such as trees, utility poles and buildings.
- If an active nest is confirmed by the biologist, no construction activities shall occur within 300 feet of the nesting site for migratory birds and within 500 feet of the nesting site for raptors and listed avian species. The buffer zones around any nest within which project-related construction activities would be avoided can be reduced as determined acceptable by a qualified biologist. Construction activities may resume once the breeding season ends (March 1 – September 15), or the nest has either failed or the birds have fledged.

- b) **Less Than Significant Impact with Mitigation Incorporated.** The proposed project could permanently impact up to 0.01 acre (436 square feet) of Red Willow – Fremont Cottonwood - Mulefat (*Salix laevigata* – *Populus fremontii* – *Baccharis salicifolia*) Riparian Woodland & Forest Alliance from construction of the proposed effluent pump station, and up to 0.01 (436) acre of Red Willow – Fremont Cottonwood (*Salix laevigata* – *Populus fremontii*) Riparian Woodland & Forest Alliance from modification to laterals of the transmission pipeline extending into the Borrow Pit. Impacts to these sensitive natural communities from implementation of the proposed project are potentially significant. Implementation of **Mitigation Measure BIO-5** would be required to reduce impacts, which would involve preparation of a revegetation plan if sensitive natural

communities cannot be avoided. With implementation of **Mitigation Measure BIO-5**, impacts would be reduced to a less than significant level.

### ***Mitigation Measure***

**BIO-5: Impacts to Sensitive Natural Communities.** Impacts to sensitive natural communities (red willow and Fremont cottonwood dominated vegetation), shall be avoided if feasible. If avoidance of sensitive natural communities is not feasible during construction activities, a qualified biologist or restoration ecologist shall prepare and implement a revegetation plan. The revegetation plan shall include restoration of sensitive natural communities at a minimum of 1:1 mitigation-to-impact ratio.

- c) **Less Than Significant Impact with Mitigation Incorporated.** There are several constructed aquatic features within or adjacent to the project sites that may be impacted during construction of the proposed project. These features include land cover mapped as Developed – Drainage Feature, Developed – Storage Ponds, Developed – Stormwater Feature, the Red Willow-Fremont Cottonwood-Mulefat habitat within the Borrow Pit, and the Red Willow – Fremont Cottonwood habitat at the effluent pump station. Additionally, there is a riverine feature that conveys offsite sheet flow through a small portion of the WWTP site in the proposed staging area. This is a constructed stormwater feature with ephemeral flows that continues offsite to the west into Tehachapi Creek. In addition, three constructed drainage features enter Blackburn Dam from the west, south, and east that convey flows from the hills to the south only during large storm events. These constructed features are not expected to support wetlands.

Based on the Navigable Waters Protection Rule, it is anticipated that the aquatic resources in the BSA are not considered federal wetlands or waters of the U.S. that would be subject to the regulatory jurisdiction of the USACE. Similarly, based on the State Wetland Procedures, it is anticipated that the aquatic resources in the BSA are not considered wetlands or waters of the State since they were constructed within uplands for purposes of municipal water/wastewater treatment. However, potential direct impacts to aquatic resources including the Red Willow-Fremont Cottonwood-Mulefat vegetation at the Borrow Pit and the Red Willow – Fremont Cottonwood habitat at the effluent pump station could be potentially significant. With implementation of **Mitigation Measure BIO-5**, which includes requirements for a revegetation plan if this habitat cannot be avoided, impacts will be reduced to less than significant. Additionally, if impacts to aquatic resources cannot be avoided, consultation should occur with CDFW to determine the need for a Lake or Streambed Alteration Agreement.

### ***Mitigation Measure***

Implement **Mitigation Measure BIO-5**.

- d) **Less Than Significant Impact with Mitigation Incorporated.** Though the BSA lies within the Pacific Flyway and is adjacent to Tehachapi Connection, which is an important wildlife corridor linking the southern Coast and Transverse Ranges in the southwest to the Sierra Nevada Mountain Range in the north, construction of the proposed project is

not anticipated to significantly restrict the movement of wildlife because the BSA would still remain accessible and traversable to any wildlife that may be foraging or moving through the area during construction and operational activities. These areas will remain intact and will continue to provide water sources and habitat for wildlife movement during and following completion of the proposed construction activities within the BSA. Additionally, the majority of the WWTP and 12-inch proposed transmission pipeline corridor is currently heavily disturbed (i.e. due to vehicle travel), and species are most likely used to the level of disturbance at these locations and aware of the travel routes needed to access other adjacent open areas and corridors. Although construction activities will introduce a temporary disruption to adjacent habitats from the presence of large equipment and people in the area within limited, discrete areas of the BSA, work activities will be limited to daylight hours and will not disrupt migration and local movement through the area that generally occurs during nighttime hours. Therefore, construction activities and operations are not anticipated to disrupt wildlife movement.

Nesting birds and raptors have the potential to be present in the project sites and could be affected by the proposed project. Raptors, and migratory and common bird species may utilize all habitats within the project sites, including but not limited to, trees, vegetation, and building structures for foraging and breeding purposes. These species could be adversely affected by habitat modification and noise-related disturbances during construction that could disrupt breeding behavior and nesting activity. Thus, impacts to nesting birds from implementation of the proposed project are potentially significant. With implementation of **Mitigation Measure BIO-4**, impacts will be reduced to less than significant.

### ***Mitigation Measure***

Implement **Mitigation Measure BIO-4**.

- e) **Less Than Significant Impact with Mitigation Incorporated.** The proposed project is within the jurisdiction of the City of Tehachapi General Plan and Kern County General Plan, both of which are discussed below.

### ***Tehachapi General Plan***

Per Policy NR26, which requires identification of significant resources through project design, Policy NR28, which requires protection and/or restoration of identified resources and areas, and Policy NR30 which requires enhancement of the existing tree resources through regulations that set forth thresholds for identifying and protecting a significant tree resource, the analysis provided in Sections a) through d) above identify important biological resources (e.g., special-status species, sensitive natural communities [including tree resources], aquatic resources, and wildlife movement), and prescribe mitigation for potentially significant impacts to those resources that may result from the proposed project. Thus, with implementation of **Mitigation Measure BIO-1, BIO-2, BIO-3, BIO-4, and BIO-5**, the proposed project would not conflict with the policies of the Tehachapi General Plan.

### ***Kern County General Plan***

Per Policy 27, threatened or endangered plant and wildlife species should be protected in accordance with State and federal laws. As detailed in Section a) above, special-status species were analyzed in accordance with federal and state regulations, and where necessary, mitigation measures were prescribed for the protection of special-status species. Per Policy 32, riparian areas will be managed in accordance with the USACE and the CDFW rules and regulations to enhance the drainage, flood control, biological, recreational, and other beneficial uses while acknowledging existing land use patterns. As detailed in Section c) above, aquatic resources potentially subject to the regulatory authority of the CDFW and RWQCB were identified in accordance state regulations, and a mitigation measure was prescribed to conduct an aquatic resources delineation and provide mitigation for impacts that cannot be avoided or minimized. Thus, with implementation of **Mitigation Measure BIO-1, BIO-2, BIO-3, BIO-4, and BIO-5**, the proposed project would not conflict with the policies of the Kern County General Plan.

### ***Mitigation Measure:***

Implement **Mitigation Measure BIO-1, BIO-2, BIO-3, BIO-4, and BIO-5**.

- f) **No Impact.** No habitat conservation plans or natural community conservation plans are applicable to the BSA. As a result, no conflicts with the provisions of an adopted HCP would occur as a result of the proposed project.

## **References**

- California Department of Fish and Wildlife (CDFW). 2021. California Natural Diversity Database. RareFind 5 online database. Sacramento, CA: CDFW, Natural Heritage Division, 2020. (Accessed January 2021).
- California Native Plant Society (CNPS). 2021. Inventory of Rare and Endangered Plants (online edition, v8-01a). California Native Plant Society. Sacramento, CA.
- ESA. 2021. City of Tehachapi Groundwater Sustainability Project Biological Resources Technical Report. Prepared November 2021.

## 2.2.5 Cultural Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>V. CULTURAL RESOURCES —</b> Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Discussion

- a) **Less Than Significant Impact with Mitigation Incorporated.** A Cultural Resources Assessment was conducted for the proposed project in July 2021 (ESA 2021). The assessment included a California Historical Resources Information System – Southern San Joaquin Valley Information Center (SSJVIC) records search conducted on February 22, 2021, a Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search conducted on February 8, 2021, Native American outreach conducted between March and June 2021, a pedestrian survey conducted on March 22, 2021, evaluation of a previously recorded historic-era resource, and a subsurface archaeological sensitivity assessment based on a review of historic maps, aerial photographs, and geologic maps.

The SSJVIC records search results indicate that approximately 50 percent of the 0.50-mile records search radius and approximately 20 percent of the project site has been included in previous cultural resources assessments. The SSJVIC records search results also indicate that a total of 12 cultural resources have been recorded within the 0.50-mile radius, including eight historic built environment resources and four archaeological resources (two historic-period, one prehistoric, and one multicomponent). One resource (P-15-003541) is located within the project site.

The NAHC SLF search returned negative results within the project site. However, the NAHC provided a list of Native American tribes who may have knowledge of cultural resources in the project site. Outreach letters were sent via certified mail to 20 individuals representing 15 tribes listed on the NAHC contact list on March 30, 2021. The letters described the proposed project and included a map depicting the location of the project site. Recipients were requested to reply with any information concerning Native American cultural resources that might be affected by the proposed project. The letters were sent via email on March 31, 2021. Follow-up phone calls were conducted on April 14 and June 1, 2021. Five responses were received. Four of the responses indicated that the proposed project is outside their tribe's ancestral territory or the tribe had no concerns regarding the project. Only one response (Kern Valley Indian Community) indicated that the area has great potential for cultural resources, and recommended archaeological and tribal monitoring.

No new cultural resources were encountered within the project site during the pedestrian survey. Generally flat areas with visible ground surface, including unimproved roadway shoulders, were subject to systematic pedestrian survey with transects spaced between 5-15 meters apart (approximately 15-50 feet). Areas with limited ground visibility, such as densely vegetated or inundated areas, were subject to opportunistic survey wherein areas with some ground visibility were targeted. Paved areas, such existing roads and parking lots, were not surveyed. Ground surface visibility in the areas surveyed ranged from approximately 0 to 100 percent.

Resource P-15-003541 (Steuber Road) is an approximate 2-mile long improved and unimproved road extending from Tehachapi Boulevard to Blackburn Dam. The road appears on a 1914 historic topographic map and is still currently in use. Resource P-15-003541 (Steuber Road) was evaluated and recommended ineligible for listing in the National Register of Historic Places and California Register of Historical Resources under criteria A/1 through D/4. As such, it is not a historical resource as defined in §15064.5.

The subsurface archaeological sensitivity assessment concluded that there is a low potential for encountering subsurface archaeological resources within the project site. The low potential is based on a combination of the following factors: (1) the portions of the project site underlain by Pleistocene/Pliocene-age soils would not contain buried archaeological materials since the sediments predate human occupation of North America; (2) the portions of the project site underlain by Holocene-age soils, which are contemporaneous with the period for which there is widely accepted evidence for human occupation of Southern California, have been subject to previous disturbances that would have destroyed archaeological resources if any once existed; (3) historical water sources capable of sustaining continuous human occupation are located too far from the project site; (4) there is a lack of prehistoric resources within or in close proximity to the project site.

The SSJVIC records search, NAHC SLF search, and pedestrian survey yielded negative results. Although the Kern Valley Indian Community recommended tribal and archaeological monitoring during ground disturbing activities, the archaeological sensitivity assessment concluded that there is a low potential for encountering subsurface archaeological resources within the project. However, since the proposed project includes ground disturbance, there remains the possibility that unknown archaeological resources potentially qualifying as historical resources as defined in §15064.5 could be encountered. The implementation of **Mitigation Measures CUL-1 and CUL-2**, which would require construction worker cultural resources sensitivity training, procedures to follow in the event of the discovery of archaeological resources, and treatment of discoveries, would reduce impacts to a less than significant level.

- b) **Less Than Significant Impact with Mitigation Incorporated.** As noted under impact a), the SSJVIC records search, NAHC SLF search, and pedestrian survey did not identify archaeological resources within the project site. Additionally, the subsurface archaeological sensitivity assessment indicated that the project site appears to contain a

low potential for yielding buried prehistoric archaeological resources. However, since the proposed project includes ground disturbance, there remains the possibility that unknown archaeological as defined in §15064.5 could be encountered. The implementation of **Mitigation Measures CUL-1 and CUL-2**, which would require construction worker cultural resources sensitivity training, procedures to follow in the event of the discovery of archaeological resources, and treatment of discoveries, would reduce impacts to a less than significant level.

- c) **Less Than Significant Impact with Mitigation Incorporated.** The SSJVIC records search, NAHC SLF search, and pedestrian survey did not identify human remains within the project site. Should ground disturbance encounter human remains, disturbance of those remains could result in a significant effect on the environment. With implementation of **Mitigation Measure CUL-3**, which requires following state laws in the event of a discovery, impacts to human remains would be less than significant.

### ***Mitigation Measures***

**Mitigation Measure CUL-1.** 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 and the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources or human remains. The City shall ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance

**Mitigation Measure CUL-2:** In the event of the unanticipated discovery of archaeological materials, the City 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 City 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 Data Recovery and 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 City 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 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-3:** If human remains are encountered, the City or its contractor shall halt work in the vicinity (within 100 feet) of the discovery and contact the Kern 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 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.

## References

ESA. 2021. *Cultural Resources Assessment for the Tehachapi Groundwater Sustainability Project. Confidential*. November 2021.

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## 2.2.6 Energy

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>VI. ENERGY</b> — 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Discussion

- a) **Less than Significant Impact.** The proposed project would consume energy during construction activities primarily from on- and off-road vehicle fuel consumption in the form of diesel, gasoline, and electricity from water conveyance for dust control. Project operations would consume energy from pump stations and filtration, aeration, disinfection, chlorination facilities, emergency generators, and mobile sources. The analysis below includes the proposed project's energy requirements and energy use efficiencies by energy type for each stage of the project (construction and operation).

#### Construction

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. 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 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 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 2-6** summarizes the proposed project's total and annual fuel and electricity consumption from construction activities.

**TABLE 2-6**  
**SUMMARY OF ENERGY CONSUMPTION DURING PROJECT CONSTRUCTION**

<b>Fuel Type</b>	<b>Quantity</b>
<b>Gasoline</b>	<b>gallons</b>
On-Road Construction Equipment	236,213
Off-Road Construction Equipment	-
<b>Total Gasoline</b>	<b>236,213</b>
<b>Diesel</b>	<b>gallons</b>
On-Road Construction Equipment	144,900
Off-Road Construction Equipment	94,830
<b>Total Diesel</b>	<b>239,729</b>
<b>Electricity</b>	<b>MWh</b>
Construction Office	16.2
Water Conveyance for Dust Control	33.9
<b>Total Electricity</b>	<b>50.1</b>
<b>Annualized Gasoline Use (gal)</b>	<b>189,907</b>
<b>Annualized Diesel Use (gal)</b>	<b>192,734</b>
<b>Annualized Electricity (MWh)</b>	<b>40.2</b>

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

As shown in Table 2-6, annual average construction electricity usage would be approximately 40.2 megawatt-hours (MWh) and would be within the supply and infrastructure capabilities of Southern California Edison (SCE), the electricity provider for the project site, which had a net energy load of 84,654 gigawatt-hours (GWh) in 2019 (SCE 2019).<sup>7</sup> 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, used for necessary construction-related activities, and represent a small fraction of the project's net annual operational electricity (the project's annualized construction electricity would be approximately 2 percent of the project's annual operational electricity). 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.

<sup>7</sup> The most recent year that SCE data was available.

The energy use summary provided above in Table 2-6 represents the amount of energy that could potentially be consumed during project construction based on a conservative set of assumptions, provided in **Appendix ENERGY** of this Draft IS/MND. As shown, on- and off-road vehicles would consume an estimated annual average of 189,907 gallons of gasoline and approximately 192,734 gallons of diesel fuel throughout the project's construction. For comparison purposes, the fuel usage during project construction would represent approximately 0.05 percent of the 2019 annual on-road gasoline-related energy consumption and 0.09 percent of the 2019 annual diesel fuel-related energy consumption in Kern County. Detailed calculations are shown in Appendix ENERGY of this Draft IS/MND.

## Operations

During operation of the proposed project, energy would be consumed for multiple purposes, including, but not limited to pump stations and filtration, aeration, disinfection, chlorination facilities, and mobile sources. **Table 2-7** summarizes the proposed project's operational energy consumption.

**TABLE 2-7**  
**PROJECT OPERATIONAL ENERGY USAGE**

Energy Type	Annual Quantity <sup>a,b</sup>
<b>Electricity</b>	
Treatment Facilities	1,650 MWh
Pump Stations	850 MWh
Total Electricity	2,500 MWh
<b>Natural Gas</b>	
Treatment Facilities	2.19 million cf
Pump Stations	1.60 million cf
Total Net Natural Gas	3.78 million cf
<b>Transportation</b>	
Total Gasoline	289 gallons
Total Diesel	11,489 gallons
Mobile	28 gallons
Emergency Generators	11,461 gallons
MWh = megawatt-hours	
million cf = million cubic feet	
<sup>a</sup> Detailed calculations are provided in Appendix ENERGY of this IS/MND	
<sup>b</sup> Totals may not add up due to rounding of decimals.	
SOURCE: ESA 2021.	

The proposed project would increase demand for electricity during operations. As shown in Table 2-7, the proposed project would result in an annual consumption of electricity of approximately 2,500 MWh per year, which would represent approximately 0.003 percent of SCE's total sales of 84,654 GWh in 2019 (SCE 2019). The project would comply with the applicable energy efficiency provisions of the Title 24 and the CALGreen Code in

effect at the time of operation such as requirements related to high efficiency light fixtures which would minimize electricity demand at the project facilities. The project would also aim to reduce reliance on imported water and maximize the use of recycled water produced by the Tehachapi WWTP. The project would save electricity for water conveyance by increasing the amount of water sourced locally rather than being imported. Therefore, operation of the project would not result in the wasteful, inefficient, and unnecessary consumption of electricity, and impacts would be less than significant.

The proposed project would increase the demand for natural gas resources. As shown in Table 2-7, the project's estimated operational natural gas demand is 3.8 million cubic feet which represents 0.0004 percent of SoCalGas' projected supply of 896,805 million cubic feet in 2022 (California Gas and Electric Utilities 2020). As would be the case with electricity, the project would comply with the applicable provisions of Title 24, and the CALGreen Code in effect at the time of operation. Applicable Title 24 requirements related to natural gas include energy efficiency requirements for mechanical equipment for heating and variable speed fan drives which would minimize natural gas demand at the project facilities. As such, the project would minimize energy demand. Therefore, with the incorporation of these features, operation of the project would not result in the wasteful, inefficient, and unnecessary consumption of natural gas, and impacts would be less than significant.

The proposed project would increase demand for transportation fuels relative to existing site conditions for gasoline and diesel consumed for employee trips to and from the project site and for emergency generators. The proposed project's annual gasoline consumption would be approximately 253 gallons which represents 0.0001 percent of Kern County's 2019 consumption of 392 million gallons (CEC 2019). The proposed project's annual diesel consumption would be approximately 11,489 gallons which represents 0.005 percent of Kern County's 2019 consumption of 222.5 million gallons (CEC 2019). Therefore, operation of the project would not result in the wasteful, inefficient, and unnecessary consumption of transportation fuels, and impacts would be less than significant.

- b) **Less than Significant Impact.** The City 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 (NHTSA) 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.<sup>8</sup> 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

<sup>8</sup> 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.

25 percent reduction in fuel consumption over the 2017 baseline depending on the compliance year and vehicle type.<sup>9</sup> 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 Airborne Toxic Control Measures (ATCMs) 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 (CARB 2004). 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.

As mentioned earlier, the project would comply with the applicable provisions of the 2019 Title 24 standards and the CALGreen Code as they relate to electricity and natural gas efficiency in effect at the time of project operation. With respect to operational transportation-related fuel usage, the project would support statewide efforts to improve transportation energy efficiency and reduce transportation energy consumption with respect to private automobiles. The project would comply with CAFE fuel economy standards and the Pavley Standards, which are designed to result in more efficient use of transportation fuels.

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.

## References

- California Air Resources Board (CARB). 2004. *Proposed Regulation Order: Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling, Appendix A*. <https://www.arb.ca.gov/regact/idling/isorappf.pdf> Accessed April 2021.
- California Energy Commission, *California Annual Retail Fuel Outlet Report Results (CEC-A15) Spreadsheets*, 2019. Available at: <https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-retail-fuel-outlet-annual-reporting>. Accessed April 2021.
- California Gas and Electric Utilities, *2020 California Gas Report*. Available: [https://www.socalgas.com/sites/default/files/2020-10/2020\\_California\\_Gas\\_Report\\_Joint\\_Utility\\_Biennial\\_Comprehensive\\_Filing.pdf](https://www.socalgas.com/sites/default/files/2020-10/2020_California_Gas_Report_Joint_Utility_Biennial_Comprehensive_Filing.pdf). Accessed April 2021.

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<sup>9</sup> 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.

Southern California Edison (SCE), *2019 Annual Report*.

<https://docs.cpuc.ca.gov/PublishedDocs/SupDoc/A1908013/2880/342189211.pdf>.

Accessed April 2021.

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## 2.2.7 Geology and Soils

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>VII. GEOLOGY AND SOILS — Would the project:</b>				
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Discussion

- a.i) **No Impact.** No known active faults cross the City of Tehachapi (City of Tehachapi 2012). The active Garlock Fault is located approximately 4 miles southeast of the Blackburn Dam. The active White Wolf Fault is located approximately 12 miles northwest of the WWTP and had an earthquake rated at 7.5 on the Mercalli scale in 1952. The Tehachapi Creek Fault is within the City of Tehachapi but is considered inactive. The project site is not located in an Alquist-Priolo Earthquake Fault Zone as established by the Alquist-Priolo Fault Zoning Map, and no known active faults cross the project site or its immediate vicinity. Therefore, there would be no impact associated with rupture of a known earthquake fault.
- a.ii) **Less Than Significant Impact.** The active White Wolf Fault and the Garlock Fault may have earthquakes that could subject the project area to strong seismic ground-shaking (City of Tehachapi 2012). Construction of the proposed structures would comply with the most recent seismic standards as set forth in the California Building Code and local



building codes. Compliance with these standards would ensure potential impacts related to strong seismic ground shaking would be less than significant.

- a.iii, iv) **Less Than Significant Impact.** Potential hazards related to major earthquakes include seismic-induced ground failures, such as liquefaction and lateral spreading, and landslides. The project site components are not located in areas susceptible to liquefaction and lateral spreading (City of Tehachapi 2012). The project components are located in relatively flat areas that would not be subject to landslides. In addition, construction of the proposed structures would comply with the most recent seismic standards as set forth in the California Building Code and local building codes. Compliance with these standards would ensure potential impacts related to seismic-induced ground failures would be less than significant.
- b) **Less Than Significant Impact.** Earthmoving activities associated with the proposed project would include excavation, trenching, grading, and construction over an area that would be more than one acre. These activities could expose soils to erosion processes; the extent of erosion, if any, would vary depending on slope steepness/stability, vegetation/cover, concentration of runoff, and weather conditions. Projects that disturb one or more acres of soil or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one acre or more, are required to obtain coverage under the *NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities* (Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ) (Construction General Permit). Construction activity subject to this permit includes clearing, grading, excavation, and stockpiling of excavated soil. The Construction General Permit requires the development of a Stormwater Pollution Prevention Plan (SWPPP) by a Qualified SWPPP Developer. The SWPPP would list the hazardous materials (including petroleum products) proposed for use during construction; describe spill prevention measures, equipment inspections, equipment and fuel storage; protocols for responding immediately to spills; and describe best management practices (BMPs) to control runoff and runoff from the construction site. Since the project site has relatively flat terrain with a low potential for soil erosion and would comply with the State Water Resources Control Board (SWRCB) requirements, the project's impacts relative to erosion would be less than significant.

Once constructed, rainfall on the WWTP would be controlled by the existing stormwater control structures. Transmission pipelines would be subsurface and would not be subject to or cause erosion. Treated water from the WWTP discharged to the recharge basins at Blackburn Dam would be contained within the recharge basin. Impacts relative to erosion during operations would be less than significant.

- c) **Less Than Significant Impact.** As discussed above in *Geology and Soils Impact* (a.iii) and (a.iv), impacts relative to liquefaction, lateral spreading, and landslides would be less than significant. Subsidence and collapse are typically caused by the injection or extraction of water, or inadequate compaction of backfill. The proposed changes at the

WWTP and pump stations would not cause conditions susceptible to subsidence or collapse because water would not be injected or extracted at these locations. The transmission pipelines would be buried at a relatively shallow depth beneath Steuber Road. The backfill placed in the trench would require compaction to achieve public road construction standards. The compaction of the backfill would reduce the potential for subsidence or collapse. The discharge of the treated water to the recharge basins would result in drying and wetting sequences that might have the potential to cause subsidence. The modeling report conducted for the proposed project evaluated whether the infiltration of recycled water would result in mounding that could trigger adverse impacts such as groundwater rising up into structures, soil swelling that could damage structures, or triggering liquefaction that could damage structures (GSI 2021). As discussed in the modeling report, the depth to water immediately beneath Blackburn Dam is about 220 feet below ground surface (bgs). The modeling indicated that mounding would not occur to depths that could trigger liquefaction, considered to be 50 feet bgs. This also indicates that groundwater mounding could not become shallow enough to affect structures at the surface. Further, collapse is typically caused by the withdrawal of water, which not occur at the recharge basins. In summary, impacts relative to liquefaction, lateral spreading, landslides, subsidence, and collapse would be less than significant.

- d) **Less Than Significant Impact.** Expansive soils are typically soils with a high content of plastic clay and silt. Plastic clays and silts are susceptible to shrinking and swelling when subjected to drying and wetting cycles. The volume change can damage structures. Soil maps for the area of the proposed pump station, transmission pipeline, and recharge basins indicate the underlying soils have a low susceptibility to expansion (NCRS 2020). The infiltration investigation conducted at the proposed recharge basins encountered soils composed mostly of sand with gravel and smaller amounts of clay and silt (GSI 2021). These materials did not include expansive soils. Soil maps for the area of the WWTP indicate the underlying soils have a low to moderate susceptibility to expansion (NCRS 2020). Project components constructed at the WWTP would be required to comply with standards set forth in the California Building Code and local building codes. Soil under structures would be required to be treated for expansive potential. If present, the expansive soils would be removed or treated to prevent damage to structures from expansive soils. With compliance with the CBC and local building codes, impacts relative to expansive soils would be less than significant.
- e) **Less Than Significant Impact.** The proposed project does not include septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water. The water sent to the recharge basins would be tertiary treated water for recycling. Prior to discharging the water to the recharge basins, the water would be treated to Indirect Potable Reuse (IPR) standards promulgated in Title 22, California Code of Regulations (CCR), Division 4, Chapter 3, *Water Recycling Criteria*. With compliance with Title 22 regulations, the water would no longer be considered wastewater and would be considered recycled water. Relative to waste water disposal, the impact would be less than significant.

- f) **Less Than Significant Impact with Mitigation Incorporated.** A Paleontological Resources Assessment was conducted for the project in April 2021 (ESA 2021). The assessment included geologic map review, literature review, a paleontological resources database search by the Natural History Museum of Los Angeles County (LACM), a database search of the online records through the University of California Museum of Paleontology (UCMP), and a search of the FAUNMAP/NEOTOMA online databases.

No paleontological resources were identified within the project area as a result of the database searches. The LACM indicates that one single fossil locality of Pleistocene age and from an unknown formation (LACM VP 3722, which yielded a fossil specimen of a horse) found within the Tehachapi area; however specific locality data is not available. In addition, there are several fossil localities (LACM VP 3722, 5853-5854, 5931, 6263-6267, 7853, 7884, and 7891) situated in the general vicinity (approximately 15 to 60 miles away from the project area) from the same sedimentary deposits (Holocene and Pleistocene-aged soils of unknown or undetermined formations) that occur in the project area.

The geologic map review indicates that the project area has exposures of the following fossiliferous geological formation/units: Fanglomerate of the Tehachapi Formation (Qtz) and Younger Quaternary Alluvium (Qa). In addition, south of the proposed project there is an apron of older alluvium (Qoa) at the base on the mountains, which likely extends below the Qa in the project area. The Fanglomerate (Qtz) are coarse alluvial fans (of Pleistocene or perhaps Pliocene age), which are old enough to contain significant fossils. However, coarse alluvial facies (i.e. rock characterizations) are often not conducive to preserving fossils and the lack of a known fossil record from the Tehachapi Formation suggests low potential. The Quaternary alluvium (Qa) 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 proposed project area, but is estimated to be 5 feet based on similar geological settings. The older alluvium (Qoa) has a high paleontological potential. Similarly, while the depth at which the older alluvium (Qoa) may be encountered is unknown, is also estimated to be 5 feet based on similar geological settings.

The City of Tehachapi General Plan indicates that the greater Tehachapi Valley has documented paleontological sites with evidence of prehistoric flora and fauna embedded in rock formations (City of Tehachapi 2012). As a result, the General Plan includes policies to ensure paleontological resources are preserved and protected if they are discovered. The following City of Tehachapi General Plan policies related to paleontological resources are applicable to the proposed project:

- Policy NR42: Maintain a step in the development process for evaluating the potential for archaeological and paleontological resources.
- Policy NR43: Maintain that excavation, exploration and documentation of archaeological and paleontological sites be conducted only by recognized authorities by applicable State laws.
- Policy NR44: Maintain that in the event of discovering an archaeological or paleontological site, that the appropriate authorities and parties be notified according to established procedures and applicable State laws.

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 area. With implementation of **Mitigation Measures GEO-1 and GEO-2**, which require retention of a qualified paleontologist, construction worker paleontological resources sensitivity training, and procedures to follow in the event of the discovery of paleontological resources, impacts would be reduced to a less than significant level.

### ***Mitigation Measures***

**Mitigation Measure GEO-1:** The City shall retain a paleontologist who meets the Society of Vertebrate Paleontology's (SVP, 2010) definition for Qualified Professional Paleontologist (Qualified Paleontologist). Prior to the start of ground-disturbing activities, the Qualified Paleontologist or their designee shall conduct paleontological resources sensitivity training for all construction personnel. The training shall include how to identify the types of paleontological resources that may be encountered and the proper procedures to be enacted in the event of an inadvertent discovery of paleontological resources.

**Mitigation Measure GEO-2:** If a potential fossil is found, the City or its contractor shall temporarily halt excavation activities in the area of the exposed fossil and contact the Qualified Paleontologist to evaluate the discovery. The City or its contractor shall establish a 50-foot buffer area around the find where construction activities shall not be allowed to continue until the evaluation has been completed. Work shall be allowed to continue outside of the buffer area. At the Qualified Paleontologist's request, and to reduce any construction delay, the contractor shall assist in removing rock/sediment samples for initial processing and evaluation, if needed. 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, curated at an accredited repository, and documented in a report.

### **References**

- City of Tehachapi. 2012. *Tehachapi General Plan*.  
<https://www.liveuptehachapi.com/DocumentCenter/View/3184/Combined-General-Plan-2015-reduced?bidId=>
- ESA. 2021. *Paleontological Resources Assessment for the Tehachapi Groundwater Sustainability Project*; City of Tehachapi and Unincorporated Kern County, California. Prepared by Russell Shapiro and Candace Ehringer.
- GSI Water Solutions. 2021. *Draft Hydrogeologic Evaluation of Indirect Potable Reuse in the Tehachapi Groundwater Basin*.
- Natural Resources Conservation Service (NCRS). 2020, *Web Soil Survey, Soil Map*. May 20.
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## 2.2.8 Greenhouse Gas Emissions

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>VIII. GREENHOUSE GAS EMISSIONS —</b>				
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Discussion

- a,b) **Less Than Significant Impact.** The emissions of GHGs associated with construction and operation of the proposed project were calculated for the various construction and operational activities using CalEEMod and EMFAC. Construction-related GHG emissions were amortized over a 30-year lifetime and included with the annual operational emissions. As shown in **Table 2-8**, the proposed project would generate amortized construction GHG emissions of 78 MTCO<sub>2</sub>e per year. As shown in Table 2-8, the proposed project would generate operational emissions of 744 MTCO<sub>2</sub>e for the proposed project's first full buildout year of 2024, inclusive of the amortized construction emissions. As the proposed project's annual GHG emissions would not exceed the threshold of significance of 25,000 metric tons per year, emissions impacts with respect to the generation of GHGs would be less than significant.

**TABLE 2-8**  
**ESTIMATED CONSTRUCTION GREENHOUSE GAS EMISSIONS**

Year	MTCO <sub>2</sub> e per Year a,b			
	Onsite Construction Equipment	On-Road Mobile Sources	Water and Construction Office	Total
2022	1,277	820	7	2,104
2023	60	169	1	231
Total	1,337	989	8	2,335
Amortized Emissions (30-years)	45	33	0.3	78

<sup>a</sup> Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in Appendix GHG of this IS/MND.

<sup>b</sup> CO<sub>2</sub>e emissions are calculated using the global warming potential values from the Intergovernmental Panel on Climate Change Fourth Assessment Report: 25 for CH<sub>4</sub> and 298 for N<sub>2</sub>O (Intergovernmental Panel on Climate Change, Fourth Assessment Report: The Physical Science Basis, Summary for Policy Makers, (2007)).

SOURCE: ESA 2021.

The California Global Warming Solutions Act of 2006 (AB 32) established a comprehensive, multi-year program to reduce greenhouse gas (GHG) emissions in

California. CARB is the agency responsible for implementing AB 32 through development of Climate Change Scoping Plans. The first Scoping Plan was approved by CARB in 2008 and the second was approved in 2014. Subsequently, Senate Bill 32 (SB 32) was adopted to codify the 2030 GHG emissions reduction target of 40 percent below 1990 levels by 2030. In response to SB 32 and the required 2030 GHG reduction target, CARB adopted the 2017 update to the Climate Change Scoping Plan (CARB 2017).

The proposed project is located in within the jurisdiction of the City of Tehachapi, as well as unincorporated Kern County and is in the portion of the Mojave Air Basin under the jurisdiction of EKAPCD. The City of Tehachapi has not adopted thresholds of significance apart from EKAPCD's thresholds. In accordance with EKAPCD guidance document, *Addendum to CEQA Guidelines Addressing GHG Emission Impacts For Stationary Source Projects When Serving As Lead CEQA Agency* (EKAPCD 2012), a new stationary source project would be considered to have a less than significant impact on GHG emissions if it meets one of the following conditions:

1. Project-specific GHG emissions are less than 25,000 metric tons per year (tpy) or,
2. Project demonstrates to EKAPCD that it is in compliance with state GHG reduction plan such as AB 32 or future federal GHG reduction plan if it is more stringent than state plan,
3. Project GHG emissions will be mitigated to a less than significant impact if GHGs can be reduced by at least 20% below Business-As-Usual (BAU) through implementation of one or more of the following strategies:
  - (a) Compliance with a Best Performance Standard (BPS) as set forth in Section VI of this Policy<sup>10</sup>,
  - (b) Compliance with GHG Offset as detailed in Section VI of this Policy,
  - (c) Compliance with an Alternative GHG Reduction Strategy as discussed in Section VII of this Policy.

GHG emissions are cumulative in nature and there are no non-cumulative GHG emission impacts from a climate change perspective. The proposed project would generate GHG emissions that have the potential to contribute to climate change impacts by its incremental contribution of GHGs. When combined with the cumulative increase of all other sources of GHGs, the proposed project's incremental contributions have the potential to constitute potential influences on global climate change.

The reference gas for global warming potential is carbon dioxide (CO<sub>2</sub>). To describe how much global warming a given type of GHG may cause, the carbon dioxide equivalent (CO<sub>2</sub>e) is used and quantified in metric tons (MTCO<sub>2</sub>e). A carbon dioxide equivalent is the mass emissions of an individual GHG, multiplied by its global warming potential.

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<sup>10</sup> The Policy refers to the Addendum to CEQA Guidelines Addressing GHG Emission Impacts For Stationary Source Projects When Serving As Lead CEQA Agency, March 8, 2012.

Determinations in this analysis of project construction and operation impacts on GHGs relies on modeling performed using CalEEMod, Version 2016.3.2. CalEEMod is the recommended emissions inventory software program that can be used to estimate anticipated emissions associated with land development projects in California. CalEEMod has separate databases for specific counties and air districts. The EKAPCD database was used in CalEEMod for the proposed project. On-road mobile source emissions were estimated using the CARB on-road vehicle emissions factor (EMFAC) model. Determinations consider the EKAPCD's established thresholds of significance, air district adopted rules, the CEQA guidelines thresholds, existing regulations, and applicable Tehachapi General Plan policies as described below.

### State Plans, Policies, and Regulations

The following regulations have been incorporated into the CalEEMod model and/or GHG calculation methodology:

- **Renewable Portfolio Standards (RPS):** State requirement that specific percentages of electricity sold by utilities come from renewable sources. In 2018, SB100 established that 100 percent of all electricity in California must be obtained from renewable and zero-carbon energy resources by the end of 2045. SB 100 also creates new standards for the RPS, increasing required energy from renewable sources for both investor-owned utilities and publicly-owned utilities from 50 percent to 60 percent by the end of 2030. Incrementally, these energy providers must also have a renewable energy supply of 33 percent by the end of 2020, 44 percent by the end of 2024, and 52 percent by the end of 2027. The updated RPS goals are considered achievable, since many California energy providers are already meeting or exceeding the RPS goals established by SB 350. The proposed project is assumed to be built out in the first quarter of year 2023, therefore the RPS was linearly scaled to meet RPS goals of year 2024, where 42.2% RPS was assumed.
- **Green Building Code Standards (CalGreen Code):** CCR Title 24 establishes California's Building Energy Efficiency Standards; Part 11 is referred to as the California Green Building Standards (CALGreen) Code. The CALGreen Code establishes mandatory measures for new residential and non-residential buildings. Such mandatory measures include energy efficiency, water conservation, material conservation, planning and design, and overall environmental quality that support GHG reductions. Tehachapi General Plan Policy TF-57 renders these standards applicable to the proposed project. CalEEMod energy usage was adjusted to account for the 2019 California Title 24 Building Energy Efficiency Standards (see Appendix AQ for additional details)
- **Low Carbon Fuel Standard (LCFS):** Under AB 32, the state identified nine early action measures to reduce GHG emissions. The LCFS is designed to continue to decrease dependence on petroleum fuels and increase the use of low-carbon and renewable alternatives.
- **Pavely II/Low Emission Vehicle III regulations:** CARB adopted regulations that establish increasingly stringent emissions standards for criteria pollutants and GHGs emitted by passenger vehicles. Current standards affect vehicles through the 2025 model year. (Amendments to Title 13, California Code of Regulations Sections 1900, 1956.8, 1960.1, 1961, 1961.1, 1965, 1968.2, 1968.5, 1976, 1978, 2037, 2038, 2062,

2112, 2139, 2140, 2145, 2147, 2235, and 2317, and adopting Sections 1961.2 and 1961.3)

- Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling: In 2004, CARB adopted an Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling to reduce public exposure to diesel particulate matter emissions (Title 13 California Code of Regulations [CCR] Section 2485). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure prohibits diesel-fueled commercial vehicles from idling for more than 5 minutes at any given location. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation also results in energy savings in the form of reduced fuel consumption from unnecessary idling.

### **Applicable General Plan Policies**

The City of Tehachapi implements the following for purposes of reducing GHG emissions (City of Tehachapi 2012). Those policies that are applicable to the proposed project and are capable of being implemented by the proposed project are listed below.

- Civic Health and Culture Element
  - Policy CH-11. Maintain and improve Tehachapi’s air quality through a variety of measures including greenhouse gas emissions reduction measures.
- Town Form Element
  - Policy TF-57. Reduce greenhouse gas emissions and adapt to climate change with efforts in the following areas:
    - Energy. Key adaptation strategies will include incentivizing renewable energy installation, facilitating green technology and business, and reducing community-wide energy consumption,
    - Waste. Key mitigation strategies will include increased composting and recycling, and efforts to reduce waste generation.

### **Impact Assessment**

#### **Short-Term Construction-Generated Emissions**

The proposed project would be constructed in multiple stages and phases, with various amounts of heavy-duty construction equipment and associated worker, haul and vendor truck trips (see stage and phase description in Section 2.2.3, *Air Quality*, of this IS/MND above, for additional details regarding construction stages and phasing, equipment and vehicle trip assumptions). Total GHG emissions generated during all phases of construction are presented in Table 2-8.

#### **Long-Term Operational Emissions**

Operational or long-term emissions occur over the life of the proposed project. Sources of emissions may include motor vehicles, energy usage, water usage, waste generation, and area sources, such as landscaping activities. **Table 2-9** presents the proposed project long-term operational emissions for the first full year of project buildout of year 2024.



**TABLE 2-9**  
**ESTIMATED MAXIMUM OPERATIONAL GREENHOUSE EMISSIONS**  
**(TONS PER YEAR) – YEAR 2024 <sup>a</sup>**

Source	Project (MTCO <sub>2</sub> e/year)
Area	<1
Electricity	403
Natural Gas	34
Mobile	3
Waste	12
Water	30
Emergency Generator	118
Subtotal Operations:	599
Amortized Project Construction Emissions	78
<b>Total Emissions:</b>	<b>677</b>
Significance Threshold	25,000
Exceed Screening Level?	No

<sup>a</sup> Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in Appendix GHG of this IS/MND. Area, energy, waste, and water emissions are conservatively taken from 2023 modeling run which is conservative as impacts would be lower than those analyzed due to the use of a more energy-efficient buildings and cleaner burning landscaping vehicle fleet mix over time pursuant to State regulations.

SOURCE: ESA 2021.

With respect to reducing energy associated with water use, as, stated in Section 1, *Project Description* of this IS/MND, the proposed project is an Indirect Potable Reuse (IPR) project that would allow the City to increase local water supply, maximize recycled water use, improve water quality to support higher levels of recycled water, and decrease reliance on imported water. Replacing purchased imported water with locally generated recycled water for use by local customers reduces the overall energy-related GHG emissions associated with the purchase of imported water since there would be reduced GHG emissions from water supply and conveyance as importing water requires more energy than producing the same amount of recycled water and therefore there could be a net decrease in energy use if offsetting imported water with recycled water. By providing the City of Tehachapi with recycled water stored under the proposed project, electricity used for water supply and conveyance from imported water would be offset by the energy used to produce and distribute the recycled water, thus reducing district-wide GHG emissions because recycled water has less distance to be transported than imported water supplies, and thus requires less energy for delivery (California Sustainability Alliance 2008). The 2017 Climate Change Scoping Plan recognizes the nexus between water and energy consumption. The water-energy nexus provides opportunities for reducing energy demand and reducing emissions of GHGs. The 2017 Climate Change Scoping Plan, states that “recycled water has the potential to reduce GHGs if it replaces, and not merely

serves as an alternative to, an existing, higher-carbon water supply.” Thus, the proposed project would be consistent with the Scoping Plan’s strategy to reduce water-related GHG emissions.

As the proposed project would only generate a minimal increase in traffic within the region (the project would only require one new permanent employee to operate the GSP facilities and one daily site visit), and would reduce the overall energy-related GHG emissions associated with the use of imported water, the proposed project would not conflict with the Scoping Plan. Therefore, the proposed project would result in less than significant impacts to generation of GHG emissions. In addition, as mentioned above, the proposed project would also be consistent with the other State and local plans, policies, and regulations as the proposed project would comply with California’s current RPS legislation SB100, the CalGREEN Code, the LCFS and the Pavely II/Low Emission Vehicle III regulations that are reflected into the proposed project’s GHG emissions modeling and modeling calculations. Therefore, the proposed project is consistent with the adopted State and local GHG reduction plans, policies, and regulations currently adopted and in effect. As such, the proposed project, would have less than significant impacts.

## References

- California Air Resources Board (CARB). 2017. California’s 2017 Climate Change Scoping Plan. [www.arb.ca.gov/cc/scopingplan/scoping\\_plan\\_2017.pdf](http://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf). Accessed May 2021.
- California Sustainability Alliance. 2008. The Role of Recycled Water In Energy Efficiency and Greenhouse Gas Reduction. [https://water-cti.com/pdf/CSARReport\\_RecycledWater\\_EnergyEfficiency\\_2008.pdf](https://water-cti.com/pdf/CSARReport_RecycledWater_EnergyEfficiency_2008.pdf).
- City of Tehachapi. 2012. Tehachapi General Plan. <https://www.liveuptehachapi.com/DocumentCenter/View/3184/Combined-General-Plan-2015-reduced?bidId=>. Accessed May 2021.
- East Kern Air Pollution Control District. 2012. Addendum to CEQA Guidelines Addressing GHG Emission Impacts For Stationary Source Projects When Serving As Lead CEQA Agency. <http://www.kernair.org/Documents/CEQA/EKAPCD%20CEQA%20GHG%20Policy%20Adopted%203-8-12.pdf>. Accessed May 2021.
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## 2.2.9 Hazards and Hazardous Materials

<i>Issues (and Supporting Information Sources):</i>		<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>IX. HAZARDS AND HAZARDOUS MATERIALS —</b> Would the project:					
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g)	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Discussion

- a) b) **Less than Significant Impact.** During the construction phase of the proposed project, construction equipment and materials would include fuels, oils and lubricants, solvents and cleaners, cements and adhesives, paints and thinners, degreasers, cement and concrete, and asphalt mixtures, which are all commonly used in construction. The routine use or an accidental spill of hazardous materials could result in inadvertent releases, which could adversely affect construction workers, the public, and the environment. Construction activities would be required to comply with numerous hazardous materials regulations designed to ensure that hazardous materials are transported, used, stored, and disposed in a safe manner to protect worker safety, and to reduce the potential for a release of construction-related fuels or other hazardous materials into the environment, including stormwater and downstream receiving water bodies. Contractors would be required to prepare and implement Hazardous Materials Business Plans that would require that hazardous materials used for construction would be used properly and stored in appropriate containers with secondary containment to contain a potential release. The California Fire Code would also require measures for the safe storage and handling of hazardous materials. As discussed above in Section 2.2.7, *Geology and Soils*,

construction contractors would be required to prepare a SWPPP for construction activities in compliance with the Construction General Permit requirements. The SWPPP would list the hazardous materials (including petroleum products) proposed for use during construction; describe spill prevention measures, equipment inspections, equipment and fuel storage; protocols for responding immediately to spills; and describe BMPs for controlling site runoff and runoff. The required compliance with the numerous laws and regulations that govern the transportation, use, handling, and disposal of hazardous materials would limit the potential for creation of hazardous conditions due to the use or accidental release of hazardous materials, and would result in a less than significant impact.

Operation of the WWTP would be designed to treat wastewater to tertiary treatment standards and produce recycled water in compliance with Title 22 recycled water requirements for indirect potable reuse. As described in Section 1, *Project Description*, upgrades to the existing primary and secondary treatment system would include adding cloth disk filters with polymer feed, a flocculation tank, an in-vessel ultraviolet light disinfection system, chlorine storage and feed facilities for residual disinfection of recycled water. These treatment processes would involve a range of chemical additives, such as sodium hypochlorite, aqueous ammonia, and polymers.

The current process of treating wastewater to secondary standards results in the generation of biosolids that are either transported to an offsite composting and land application (e.g., for the purpose of conditioning soil or fertilizing crops) and/or to an offsite licensed disposal facility permitted to accept the biosolids. The improvements to the WWTP treatment process from secondary to tertiary would generate some additional biosolids as a byproduct of treating wastewater to tertiary standards. However, the additional biosolids produced by the tertiary process would not be considered to be hazardous materials as defined by 40 CFR Part 503. The additional biosolids would be disposed of under the existing disposal process. Compositing and land application of the biosolids or disposal at a licensed facility permitted to accept the waste would not pose a risk to human health or the environment.

While the proposed treatment processes are not chemical intensive, chemicals would need to be routinely transported, used, and or disposed from the WWTP. If not done properly, transport of chemicals could result in spills. In accordance with Title 22 Division 4.5 Chapter 13 of the CCR, all hazardous waste transporters that would serve the proposed project during operation would be required to be registered with DTSC and provide proof of the ability to provide adequate response to spills for DTSC review and approval. Additionally, the registered hazardous waste transporters would be required to implement all standard industry practices for securing and transporting of hazardous materials as well as for cleanup of any accidental spills or leaks. Once the hazardous materials have arrived onsite, all bulk chemical storage at the WWTP would be located in chemical containment areas fitted to contain spills. If a spill incident were to occur, all spills would be contained for disposal. Furthermore, the use of such hazardous materials would be required to comply with existing regulatory standards with respect to the

storage and handling of hazardous materials including preparation of and compliance with a Hazardous Materials Business Plan as managed and overseen by the Kern County Environmental Health Services, Department Certified Unified Program Agency (CUPA). These requirements include such safety measures as ensuring the use of appropriate storage vessels, secondary containment features, safety labeling, readily available spill absorbent materials, and training of site workers to respond to any accidental release. Adherence to these requirements and programs would ensure that impacts to the environment and public health due to routine transport, use, and disposal of hazardous materials during operation of the WWTP would be less than significant.

- c) **No Impact.** The only school within one-quarter mile of project components is the Monroe High School at 126 South Snyder Avenue, located about 0.20 miles south of the existing 12-inch pipeline connecting the WWTP to the Borrow Pit. However, the project does not propose any changes to this existing pipeline. Therefore, relative to proximity to schools, there would be no impact.
- d) **No Impact.** The location of the project components were checked on the state's GeoTracker and EnviroStor websites that track sites that have reported releases of hazardous materials (SWRCB and DTSC 2021). None of the project components are listed on either website. Therefore, relative to being listed as a hazardous materials site, there would be no impact.
- e) **Less Than Significant Impact.** The WWTP is located within one-half mile of the western end of the runway for the Tehachapi Municipal Airport. Construction of structures at the WWTP that rise up into the airport's runway approach surface could result in conflicts with aircraft. None of the other project components would be high enough to interfere with aircraft. The airport master plan shows that the WWTP is not located within the runway approach surface (City of Tehachapi 2004). Therefore, structures at the WWTP would not interfere with airport operations, and there would be no impact.

The recharge basins behind the Blackburn Dam would be located within one-tenth mile of the eastern end of the runway for the Mountain Valley Airport. The Mountain Valley Airport is a privately owned public-use airport that is primarily used for glider operations and training. The construction of the recharge basins would use nothing taller than a bulldozer, which would not be high enough to interfere with the runway approach surface. However, the construction of monitoring wells to monitor groundwater levels in the project area would require the use of a drill rig that could have a tower that may rise about 30 feet in the air. As explained in Section 1, *Project Description*, the four monitoring wells would be sited upstream (south) and downstream (north) of the Blackburn Dam, as well as near the existing Mobile Home park well which is located on the northwest side of the airport. As currently proposed, none of the wells would be sited between the eastern end of the airport runway and Blackburn Dam, and therefore would not interfere within aircraft during construction. The City would coordinate with airport operators in the project vicinity prior to construction. All permanent facilities would not

exceed 14 feet aboveground and would therefore not pose hazards to airport operations. As a result, impacts would be less than significant related to airport safety hazards.

- f) **Less Than Significant Impact with Mitigation Incorporated.** The construction of improvements at the WWTP would occur within the property of the WWTP and would not require the closure of any roads. The equipment and materials to construct the improvements would use Enterprise Way, which is a dead-end street. The volume of equipment and materials would not be large enough to require any street closures or restrictions. The construction of improvements at the proposed pump station would occur within the property along the west side of Steuber Road and would not require the closure of any roads. The volume of equipment and materials would not be large enough to require any street closures or restrictions. The construction of improvements at the recharge basins would occur within the property just behind Blackburn Dam and would not require the closure of any roads. Construction of the transmission pipeline would occur within Steuber Road and result in partial closure of traffic lanes. As such, construction of the transmission pipeline could have the potential to impact evacuation plans or routes in the project area. As explained in Section 2.2.17, *Transportation*, implementation of **Mitigation Measure TRA-1** would require agency coordination with emergency service providers in the area in advance of project construction. Adherence to this mitigation measure would reduce any potential impacts regarding evacuation plans or routes to less than significant levels.

### ***Mitigation Measure***

Implement **Mitigation Measure TRA-1** (see Section 2.2.17, *Transportation* below).

- g) **Less Than Significant Impact.** The State of California maps areas that are considered Fire Hazard Severity Zones (FHSZs) throughout the state, including Kern County (California Department of Forestry and Fire Protection [CAL FIRE] 2007a, 2007b). The FHSZs are based on an evaluation of fire history, existing and potential fuel, flame length, blowing embers, terrain, weather, and the likelihood of buildings igniting (CAL FIRE 2015). The area around the WWTP, the area of and around both pump stations and the transmission pipeline to the recharge basins are in areas designated by the state as moderate to high fire hazard severity zones. During construction, equipment traveling through off-road areas, such as for the construction of monitoring wells for the recharge basins, could cause a wildfire. Additionally, the project would include the use of equipment such as trucks and drilling rigs for carrying workers and equipment that could spark fires from hot components, such as catalytic converters and/or mufflers, if driven in grassy off-road areas. The California Vehicle Code, Section 38366, requires spark-arresting equipment on vehicles that travel off-road. This code applies to the project because the vehicles that work in off-road areas (e.g., drilling rigs for well installations) will be required to have spark-arresting equipment to reduce the risk of wildfires. During operations, there would be no potential to cause a wildfire because there would be no off-road travel. Therefore, relative to wildfires, the impact would be less than significant.

## References

California Department of Forestry and Fire Protection (CAL FIRE). 2007a. *Fire Hazard Severity Zones in LRA, Kern County*. September 24.

\_\_\_\_\_. 2007b. *Fire Hazard Severity Zones in SRA, Kern County*. November 7.

\_\_\_\_\_. 2015. *Wildland Hazard & Building Codes*. January 30.

City of Tehachapi. 2004. *Tehachapi Municipal Airport, Master Plan Update*, August.

State Water Resources Control Board (SWRCB) and Department of Toxic Substances Control (DTSC). 2021. GeoTracker and EnviroStor website. May 23, 2021.

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## 2.2.10 Hydrology and Water Quality

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

### Discussion

- a) **Less Than Significant Impact.** During the construction phase of the proposed project, construction equipment and commonly-used construction materials such as fuels, oils and lubricants, solvents and cleaners, cements and adhesives, paints and thinners, degreasers, cement and concrete, and asphalt mixtures could adversely affect nearby surface waters and water quality if accidentally spilled. Construction activities would be required to comply with numerous hazardous materials regulations designed to ensure that the potential for a release of construction-related fuels or other hazardous materials into the environment, including stormwater and downstream receiving water bodies, is reduced. Additionally, as discussed in above in Section 2.2.7, *Geology and Soils*, construction contractors would be required to prepare a SWPPP for construction activities in compliance with the NPDES Construction General Permit requirements. The SWPPP would list the hazardous materials (including petroleum products) proposed for use during construction; describe spill prevention measures, equipment inspections, equipment and fuel storage; protocols for responding immediately to spills; and describe BMPs for controlling site runoff and runoff. The required compliance with the numerous



laws and regulations that govern the transportation, use, handling, and disposal of hazardous materials would limit the potential for creation of hazardous conditions due to the routine use or accidental release of hazardous materials during construction, and would render this impact less than significant.

As discussed in Section 1.7, *Operation and Maintenance Activities*, operation of the WWTP would involve chemical deliveries and on-site chemical use and storage. Chemicals that would be stored and used at the facility includes sodium hypochlorite, aqueous ammonia, and polymers. Spills of these chemicals could adversely affect water quality if the spills reached the nearby Blackburn Creek and Antelope Canyon Creek. However, the chemicals would be stored onsite in a tank with secondary containment within an enclosed building. The secondary containment structures and the building would prevent spills from leaving the building and entering the surrounding environment.

Operation of the project would result in the placement of treated recycled water on spreading grounds south of Blackburn Dam and allowing that water to infiltrate into the underlying alluvial aquifer. If not properly treated, the addition of this water could degrade the water quality of groundwater.

Operation of the WWTP would be designed to treat wastewater to tertiary treatment standards and produce recycled water in compliance with Title 22 Recycled Water Regulations for indirect potable reuse.<sup>11</sup> Title 22 requirements are summarized below and described in more detail in the Hydrogeologic Evaluation (GSI 2021).

- Title 22 Engineering Report – The project applicant shall submit a report providing data and information on the treatment facility, the spreading grounds, and the project applicant’s plans for complying with Title 22 regulations. This report is required to be submitted the California Division of Drinking Water for their approval prior to production of reclaimed recycled water.
- Retention time – The recycled water shall be retained underground for a required period of time (i.e., response retention time). The project applicant shall determine the necessary retention time to allow a project applicant sufficient response time to identify treatment failures and implement actions. Title 22 regulations identify four methods of quantifying the response retention time. The minimum response retention time is two months.
- Recycled water monitoring program - The project applicant shall monitor the water quality of the recycled water prior to placement in the spreading grounds.
- Operational groundwater monitoring program - The project applicant shall monitor groundwater quality to assess changes in groundwater quality associated with groundwater replenishment activities.
- Annual and five-year reporting – The project applicant shall submit annual and five-year reports summarizing the compliance status, along with any violations, corrective actions, and changes in the operations.

<sup>11</sup> California Code of Regulations, Title 22, Division 4, Chapter 3 Water Recycling Criteria

The WWTP would generate biosolids as a byproduct of treating wastewater. The current process of treating wastewater to secondary standards results in the generation of biosolids that are either transported to an offsite composting and land application (e.g., for the purpose of conditioning soil or fertilizing crops) and/or to an offsite licensed disposal facility permitted to accept the biosolids. The improvements to the WWTP treatment process from secondary to tertiary would generate some additional biosolids as a byproduct of treating wastewater to tertiary standards. However, the additional biosolids produced by the tertiary process would not be considered to be hazardous materials as defined by 40 CFR Part 503. The additional biosolids would be disposed of under the existing disposal process of composting and land application of the biosolids or disposal at a licensed facility permitted to accept the waste would not pose a risk to water quality.

During operations, the transmission pipelines and the recharge basins would transport water treated to Title 22 recycled water standards. The tertiary-treated recycled water would not be a hazardous material and in the unlikely event of a pipeline break, its release would not adversely affect the water quality of surface water.

During operations, water would be treated to tertiary treatment standards and produce recycled water in compliance with Title 22 recycled water requirements for indirect potable reuse. This tertiary-treated recycled water would be placed on spreading grounds to be constructed behind Blackburn Dam and for infiltration into the underlying aquifer. The Title 22 requirements ensure that the recycled water used for indirect potable reuse would not degrade the water quality of the alluvial aquifer. In addition, and as previously noted, to complete the treatment process, the state Division of Drinking Water requires a minimum retention time. The retention time is the time period the recycled water is required to remain in the aquifer to further treatment the water and enable its recovery for potable use. The concept is that water flowing through the soil materials in the aquifer are further “polished” (i.e., treated), resulting in water suitable for potable use. To ensure that the recycled water has achieved this last water polishing step, the proposed project must demonstrate either through water quality testing of retrieved mixed native and recycled water samples, or through modeling that quantifies the water travel time from the point of entry (i.e., the location in the aquifer where the recycled water first enters the aquifer) to the nearest water supply wells. Based on the hydrologic evaluation already conducted for the proposed project, the state Division of Drinking Water advised that approximately 16 months of modelled retention time in the aquifer would be required based upon the anticipated water quality of the percolated recycled water (GSI 2021). The modeling results of the hydrologic evaluation indicated a retention time of over 2 years between Blackburn Dam and the nearest private domestic supply wells, and over 4 years to the nearest municipal supply well. These model results indicate that the aquifer retention times of infiltrated water would satisfy Title 22 requirements for the permitting of the proposed project. Adherence to these requirements and programs would ensure that impacts to the environment and water quality during operation of the proposed project would be less than significant.

- b) **Less Than Significant Impact.** The purpose of the proposed project is to recycle wastewater and infiltrate that water into the underlying alluvial aquifer of the Tehachapi Groundwater Basin. This action would increase groundwater supplies and the result would be a beneficial impact to groundwater recharge and sustainable groundwater management.

Groundwater recharge can be affected when substantial amounts of impervious surfaces are constructed that impede infiltration of stormwater to the underlying aquifer. None of the project components would require substantial amounts of new impervious surfaces. The upgrades to the WWTP would occur within the existing facility footprints and would not increase the amount of impervious surfaces. The proposed effluent pump station would be installed at the same location as the existing effluent pump station and would not increase impervious surfaces substantially. The construction of the Borrow Pit pump station along Steuber Road would add about 2,500 square feet of new impervious hardscape surface. However, all rainwater falling on the new pump station would flow to the surrounding unpaved area and infiltrate into the subsurface, as it does now. The new transmission pipeline would be installed in a narrow trench under Steuber Road; some of the road is paved and some is unpaved dirt. The pipeline alignment would be restored to existing conditions, resulting in no change in the amount of impervious surfaces. The recharge basins at the Blackburn Dam would be formed by earthen berms and would not introduce impervious surfaces. Therefore, since the proposed project would introduce minimal amounts of impervious surfaces, there would be minimal interference with stormwater infiltration, and the impact to groundwater recharge would be less than significant.

- c) i) **Less Than Significant Impact.** As described in Section 1, *Project Description*, the project includes construction of upgrades to the WWTP, replacement of the effluent pump station just west of the WWTP, installation of the Borrow Pit pump station and transmission pipeline, and grading within the recharge basins behind Blackburn Dam. Ground disturbing activities during construction would include excavation and grading that could result in erosion or siltation. However, as described above in *Hydrology and Water Quality Impact (a)*, the project would be required to prepare and implement a SWPPP in compliance with the NPDES Construction General Permit. The BMPs would control runoff and runoff during construction and prevent erosion and siltation. Once constructed, the operation of the project components would not require any more ground disturbance. The infiltration of tertiary-treated recycled water at the recharge basins would not include silt in the water, and no siltation would occur. Relative to erosion and siltation, the impact would be less than significant.
- c) ii) **Less Than Significant Impact.** The proposed project could result in increasing surface runoff due to the addition of new impervious surfaces. As described above under *Hydrology and Water Quality Impact (b)*, the upgrades to the WWTP and effluent pump station would occur within the existing footprints and would not add additional impervious surfaces or additional runoff. The new Borrow Pit pump station would add 2,500 square feet of new impervious surface. However, rainfall falling on this relatively

small area would flow off to the surrounding unpaved area and infiltrate into the subsurface, as it does now. The transmission pipelines would be installed below ground and would not change the existing surface runoff pattern. The recharge basins where the tertiary-treated recycled water would be discharged would entirely contain the recharged water. Therefore, the proposed project would not substantially increase the rate or amount of surface water runoff, and the impact would be less than significant.

c) iii) **Less Than Significant Impact.** As described above under *Hydrology and Water Quality* Impact (c.ii), the pump stations and transmission pipelines are conveyance infrastructure and would not create or contribute to substantial increases in runoff water. The operation of the upgraded WWTP would result in the creation of tertiary-treated recycled water that would be routed to new recharge basins to be constructed in the area behind Blackburn Dam. The area behind Blackburn Dam is currently used for flood control to contain and infiltrate excess stormwater runoff in Blackburn Creek and prevent flooding of downstream areas. The City would operate the project such that the addition of the tertiary-treated recycled water would not enter the recharge basins at Blackburn Dam during a rain event when stormwater from Blackburn Creek is being contained and infiltrated in the recharge basins behind Blackburn Dam. As a result, the project would not create or contribute runoff water that would exceed drainage system capacities or provide additional sources of polluted runoff, and the impact would be less than significant.

c) iv) **Less Than Significant Impact.** The proposed project could impede or redirect flood flows if new facilities are built within existing flood zones. The WWTP is located in an area in between Blackburn Creek and Antelope Canyon Creek. Most rainy season flows are within the creek beds around the WWTP. However, this area in between the creeks is identified by FEMA as within Zone AE, an area with a 1 percent chance of flooding in any given year (100-year flood event) (FEMA 2008a). The construction of the new WWTP structures and the upgraded pump station would not change this designation; the WWTP and pump station would still be within Zone AE. As described in Section 1, *Project Description*, the proposed upgrades would include the construction of two shelters and one storage building within the existing footprint of the WWTP as well as an upgrade to the effluent pump station just west of the WWTP. The footprint of these new structures is relatively small. The upgraded pump station would occur primarily within the existing pump station footprint and would not change existing conditions substantially. In the event of a 100-year flood event, the flood waters would be expected to flow around the new treatment structures at the WWTP with little impedance or redirection of flows, and the impact would be less than significant.

The new Borrow Pit pump station would add 2,500 square feet of new impervious surface and a pump station structure. However, this area is not within a 100-year flood zone (FEMA 2008b). The transmission pipeline would be located underground and would not be able to affect flood flows. Therefore, the changes relative to the pump stations and transmission pipeline would not impede or redirect flood flows and the impact would be less than significant.

The southwestern portion of the recharge basins are located within a 100-year flood zone (FEMA 2008c). As discussed above in *Hydrology and Water Quality Impact* (c.iii), the recharge basins would receive tertiary-treated recycled water for infiltration into the area behind Blackburn Dam. The City would operate the project such that the addition of tertiary-treated recycled water to the recharge basins would not occur during a storm event. As a result, the project would not deliver tertiary-treated recycled water to the recharge basins during storm events. Therefore, the proposed recharge basins would not impede or redirect flood flows, and the impact would be less than significant.

- d) **Less Than Significant Impact.** Tsunamis are ocean waves generated by vertical movement of the sea floor, normally associated with earthquakes or volcanic eruptions. The project area is not located near the ocean and therefore would not be susceptible to a tsunami. Seiches are oscillations of enclosed or semi-enclosed bodies of water that result from seismic events, wind stress, volcanic eruptions, underwater landslides, and local basin reflections of tsunamis. The project area is not located near any large water bodies and therefore would not be susceptible to seiches. Relative to tsunamis and seiches, there would be no impact.

The WWTP is located in between Blackburn Creek and Antelope Canyon Creek. This area has been identified by FEMA as within Zone AE, an area with a 1 percent chance of flooding in any given year (100-year flood event) (FEMA 2008a). The construction of the WWTP upgrades would not change this designation; the WWTP would remain within Zone AE. However, the upgraded operations of the WWTP would include the use of chemical additives for water treatment, such as sodium hypochlorite and aqueous ammonia. Flooding of the WWTP that results in the release of these chemicals would risk the release of pollutants due to project inundation. However, as discussed above in *Hydrology and Water Quality Impact* (a), all chemicals at the WWTP would be stored in chemical containment areas fitted to contain spills, as well as prevent flooding from releasing chemicals. Furthermore, the use of such hazardous materials would be required to comply with existing regulatory standards with respect to the storage of hazardous materials including preparation of and compliance with a Hazardous Materials Business Plan as managed and overseen by the local CUPA (Kern County Environmental Health Services, Department Certified Unified Program Agency). These requirements include such safety measures such as ensuring the use of appropriate storage vessels and secondary containment features to prevent the release of chemicals. Adherence to these requirements and programs would ensure that impacts relative to the release of pollutants due to inundation of the WWTP would be less than significant.

- e) **No Impact.** Prior to 1970, the Tehachapi Basin was subject to groundwater overdraft, a situation which resulted in a 1966 legal adjudication of most of the basin that prescribed groundwater pumping rights, and appointed the general manager of the Tehachapi-Cummings County Water District (TCCWD, or the District) as the watermaster for both the Tehachapi and the Cummings Basins (GSI 2021). Because the basin is adjudicated, there is no sustainable groundwater management plan. Related to conflicts with a sustainable groundwater management plan, no impacts would occur.

In response to the adjudication of the basin, groundwater levels and the volume of water in storage have increased since the 1980's. The purpose of the project is to treat wastewater to Title 22 tertiary-treated recycled water standards and infiltrate the tertiary-treated recycled water to the aquifer. This action would increase groundwater levels and the volume of water in storage, which would be consistent with the water quality control plan (Basin Plan; RWQCB 2017). The Basin Plan sets forth water quality standards for the surface and ground waters of the Region, which include designating beneficial uses of surface water and groundwater. The spreading grounds are located within the Tehachapi Valley East Basin. The Basin Plan identifies municipal, agricultural, industrial, and freshwater beneficial uses for groundwater. The project would result in a beneficial impact.

## References

- Federal Emergency Management Agency (FEMA). 2008a. *Flood Insurance Rate Map, Map Number 06029C2839E*. September 26, 2008.
- \_\_\_\_\_. 2008b. *Flood Insurance Rate Map, Map Number 06029C2850E*. September 26, 2008.
- \_\_\_\_\_. 2008c. *Flood Insurance Rate Map, Map Number 06029C3250E*. September 26, 2008.
- GSI Water Solutions. 2021. *Draft Hydrogeologic Evaluation of Indirect Potable Reuse in the Tehachapi Groundwater Basin*. 2021.
- Regional Water Quality Control Board (RWQCB). 2017. *Water Quality Control Plan for the Lahountan Region*. October 29, 2017.
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## 2.2.11 Land Use and Planning

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>XI. LAND USE AND PLANNING —</b> Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Discussion

- a) **No Impact.** The physical division of an established community typically refers to the construction of a linear feature, such as a highway or railroad, or removal of a means of access, such as a road or bridge that would impact mobility within or between existing communities. The proposed project, once constructed, would be located underground within local roadway rights-of-way or within private property where water supply and water storage facilities exist currently. The proposed project would not create a barrier or physically divide an established community; therefore, no impact would occur.
- b) **Less Than Significant Impact.** The proposed project facilities are located both in the City of Tehachapi and in Kern County. The proposed pump station at the existing Borrow Pit would be constructed on land designated and zoned for Light Industrial (M-1) in the City of Tehachapi (City of Tehachapi 2018). The Light Industrial (M-1) zone allows for manufacturing and other similar industrial uses that do not produce undesirable byproducts such as fumes, odor, dust or smoke (City of Tehachapi 2019). Within this zone, industrial “power / electrical substation” uses are permitted (City of Tehachapi 2019). The proposed facilities at the WWTP property would be constructed on land designated and zoned for Agriculture (A) in the City of Tehachapi with the special designation as a Wastewater Treatment Plant (City of Tehachapi 2018). All facilities to be constructed within this zone would be located within the footprint of existing wastewater treatment facilities and would not modify the use. The proposed project would not introduce new structures at the WWTP or Borrow Pit that would substantially change existing characteristics at either site. Therefore, impacts would be less than significant.

Proposed facilities at the Blackburn Dam would occur within land designated in the Kern County General Plan as “Other Facilities” (Map Code 3.3) and in land zoned for Exclusive Agriculture (Zone A). Land uses in Kern County “Other Facilities” areas allow for facilities that are used for public or semi-public services, including water spreading areas (Kern County 2009). Land zoned for Exclusive Agriculture (Zone A) allow for water storage or groundwater recharge facilities (Kern County 2021). Therefore, the proposed project not conflict with land use plans, policies, or regulations. Impacts would be less than significant.

The proposed transmission pipeline would generally be constructed within existing rights-of-way (paved and unpaved). General Plans for both the City of Tehachapi and Kern County recognize and value the need for infrastructure, such as water distribution pipelines, to service community demands. Public rights of way are defined as “a strip of land... intended to be occupied or occupied by a road, crosswalk, railroad, electric transmission lines, oil or gas pipeline, water line, sanitary storm sewer or other similar uses” (Kern County Municipal Code, Title 19 Section 19.04.639). As such, installation of the transmission pipeline within City and Kern County rights-of-way would not conflict within any land use policies, plans, or regulations. Additionally, the Project does not require changes in land use designation or zoning for its implementation. No impact would occur with regard to land use plans, policies, or regulations for the proposed pipeline.

## References

- City of Tehachapi. 2018. City of Tehachapi Zone Map, March 2018.  
<https://www.liveuptehachapi.com/DocumentCenter/View/5665/ZONE-MAP-2018-PDF?bidId=>. Accessed April 16, 2021.
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- Kern County. 2009. General Plan Land Use, Open Space, and Conservation Element.  
<https://psbweb.co.kern.ca.us/planning/pdfs/kcgp/KCGPChp1LandUse.pdf>. Accessed April 16, 2021.
- \_\_\_\_\_. 2021. California Municipal Code. Codified through Ordinance No. G-8985, passed January 5, 2021. (Supp. No. 52).  
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## 2.2.12 Mineral Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>XII. MINERAL RESOURCES</b> — 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Discussion

- a, b) **No Impact.** According to Mineral Land Classification (MLC) studies prepared by the California Geologic Survey (CGS), the project site is not located in a Mineral Resource Zone (DOC 1999). Construction of the proposed project would occur within previously developed water facility sites and roadway rights-of-way (See Section 1.6, *Project Construction*). The proposed project would not involve construction in areas that are used for mineral extraction or known as locally important resource recovery sites. Therefore, implementation of the proposed project would not result in the loss of availability of a known mineral resource. No impact would occur.

### References

California Department of Conservation (DOC). 1999. Mineral Land Classification of Southeastern Kern County, California – Plate 2A.

## 2.2.13 Noise

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>XIII. NOISE</b> — Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Discussion

- a) **Less Than Significant Impact with Mitigation Incorporated.** The proposed project is located in a partially urbanized area surrounded by rural land uses. The proposed project is located both within the jurisdiction of the City of Tehachapi, as well as unincorporated Kern County, located in southeastern Kern County. The proposed project would construct new facilities at the City's existing Tehachapi WWTP to produce tertiary-treated recycled water, construct new pump stations and transmission pipelines to convey recycled water from the WWTP to the Blackburn Dam, and construct new spreading grounds at Blackburn Dam to allow for recharge of the tertiary-treated recycled water to the local Tehachapi Groundwater Basin. The proposed transmission pipeline would be installed within the rights-of-way of Steuber Road.

The proposed project would generate noise that could increase the ambient noise levels during both construction and operational phases, due to stationary and mobile noise sources both onsite and offsite. For purposes of this analysis, the ambient noise levels at the closest sensitive receptors to the project components in each jurisdiction (City of Tehachapi and Kern County) 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 within each jurisdiction:

- **City of Tehachapi:** Baymont by Wyndham Hotel (hotel) located approximately 370 feet northeast of the proposed pump station at the Borrow Pit and approximately 560 feet north of the proposed transmission pipeline.
- **Kern County:** Single-family residences located approximately 50 feet from the proposed transmission pipeline and 625 feet from the proposed pump station at the Borrow Pit along Steuber Road.

## **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 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<sub>eq</sub>:** The L<sub>eq</sub>, or equivalent continuous sound level, is used to describe the noise level over a specified period of time, typically 1-hour, i.e., L<sub>eq(1)</sub>, expressed as L<sub>eq</sub>. The L<sub>eq</sub> may also be referred to as the “average” sound level.
- L<sub>max</sub>:** The maximum, instantaneous noise level.
- L<sub>min</sub>:** The minimum, instantaneous noise level.
- L<sub>x</sub>:** The noise level exceeded for specified percentage (x) over a specified time period; i.e., L<sub>50</sub> and L<sub>90</sub> represent the noise levels that are exceeded 50 and 90 percent of the time specified, respectively.
- L<sub>dn</sub>:** The L<sub>dn</sub> 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 nighttime noise sensitivity. L<sub>dn</sub> 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<sub>dn</sub> noise levels typically differ by less than 1 dBA and are generally interchangeable.

### ***Kern County General Plan***

The Noise Element of the Kern County General Plan (County of Kern 2009) provides goals, policies, and implementation measures applicable to noise, which, as related to the project, are provided below. The major purpose of the County’s Noise Element is to establish reasonable standards for maximum noise levels desired in Kern County, 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<sub>dn</sub>, and interior noise levels in excess of 45 dBA L<sub>dn</sub>. For construction, the Kern County Code of Ordinances includes acceptable hours of construction as discussed below. Applicable goals, policies, and implementation measures from the County’s General Plan that are relevant to the proposed project are summarized below.

### Chapter 3. Noise Element, Section 3.3 Sensitive Noise Areas

#### Goals

**Goal 1:** Ensure that residents of Kern County are protected from excessive noise and that moderate levels of noise are maintained.

**Goal 2:** Protect the economic base of Kern County by preventing the encroachment of incompatible land uses near known noise producing roadways, industries, railroads, airports, oil and gas extraction, and other sources.

#### Policies

**Policy 1:** Review discretionary industrial, commercial, or other noise-generating land use projects for compatibility with nearby noise-sensitive land uses,

**Policy 3:** Encourage vegetation and landscaping along roadways and adjacent to other noise sources in order to increase absorption of noise,

**Policy 4:** Utilize good land use planning principles to reduce conflicts related to noise emissions.

**Policy 7:** Employ the best available methods of noise control.

#### Implementation Measures

**Measure A:** Utilize zoning regulations to assist in achieving noise-compatible land use patterns.

**Measure C:** Review discretionary development plans, programs and proposals, including those initiated by both the public and private sectors, to ascertain and ensure their conformance to the policies outlined in this element.

**Measure F:** Require proposed commercial and industrial uses or operations to be designed or arranged so that they will not subject residential or other noise-sensitive land uses to exterior noise levels in excess of 65 dB  $L_{dn}$  and interior noise levels in excess of 45 dB  $L_{dn}$ .

#### ***Kern County Code of Ordinances***

The Kern County Code of Ordinances, Chapter 8.36 (Noise Control), includes acceptable hours of construction, and limitations on construction related noise impacts on adjacent sensitive receptors. Noise producing construction activities that are audible to a person with average hearing ability at a distance of 150 feet from the construction site, or if the construction site is within 1,000 feet of an occupied residential dwelling, are prohibited between the hours of 9:00 p.m. to 6:00 a.m. on weekdays, and 9:00 p.m. to 8:00 a.m. on weekends. However, the following exceptions are permitted:

1. The resource management director or a designated representative may for good cause exempt some construction work for a limited time.
2. Emergency work is exempt from this section.

### ***City of Tehachapi General Plan***

The City of Tehachapi implements the following policies that are applicable to the project related to noise.

#### **Community Safety Element**

**Policy CS-65:** Incorporate the following into Tehachapi's Noise Ordinance:

- a. Require that applicants for new noise-sensitive development in areas subject to noise levels greater than 65 dB CNEL, obtain the services of a professional acoustical engineer to provide a technical analysis and design of appropriate mitigation measures;
- b. Limit the maximum noise levels during evening hours from commercial/industrial development to 75 dB(A);
- c. Require placement of fixed equipment, such as air conditioning units and condensers, inside or in the walls of new buildings or on roof-tops of central units in order to reduce noise impacts on any nearby sensitive receptors;
- d. Maintain appropriate noise-emission standards in connection with the purchase, use, and maintenance of City vehicles;
- e. Require control of noise or mitigation measures for any noise-emitting construction equipment or activity.

The City's Noise Element indicates that exterior and interior noise measurement standards are not provided in the Tehachapi Noise Ordinance. Therefore, noise levels defer to the guidance from the State of California and should inform the development of standards to support the community vision. **Table 2-10** lists the acceptable range of noise levels by land use category and is based on State General Plan Guidelines.

**TABLE 2-10  
ACCEPTABLE NOISE LEVELS BY LAND USE CATEGORY**

Land Use	Community Noise Exposure CNEL (dBA)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Single-Family, Duplex, Mobile Homes	50 to 60	55 to 70	70 to 75	Above 75
Multi-Family Homes	50 to 65	60 to 70	70 to 75	Above 75
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 to 65	55 to 70	70 to 80	Above 80
Transient Lodging—Motels, Hotels	50 to 65	55 to 70	70 to 80	Above 80
Auditoriums, Concert Halls, Amphitheaters	—	50 to 70	—	Above 65
Sports Arena, Outdoor Spectator Sports	—	50 to 70	—	Above 65
Playgrounds, Neighborhood Parks	50 to 70	—	60 to 75	Above 70
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 to 75	—	65 to 80	Above 80
Office Buildings, Business and Professional Commercial	50 to 70	60 to 75	Above 75	—
Industrial, Manufacturing, Utilities, Agriculture	50 to 75	65 to 80	Above 80	—

Land Use	Community Noise Exposure CNEL (dBA)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.				
Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.				
Normally Unacceptable: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.				
Clearly Unacceptable: New construction or development should generally not be undertaken.				
SOURCE: California Office of Planning and Research, Office of Noise Control, <i>General Plan Guidelines</i> .				

### ***City of Tehachapi Noise Ordinance***

Tehachapi's noise ordinance provides noise guidelines and standards to address the issues associated with significant sound-generators. The ordinance limits building construction activities including the operation of any pile driver, steam shovel, pneumatic hammer, derrick, steam or electric hoist between the hours of 7 p.m. and 8 a.m. within a residential zone or within a radius of 500 feet. These standards are provided to limit noise during sensitive time periods.

### ***Construction Noise***

#### **On-Site Construction Activities**

Project construction is expected to commence in 2022 and would last through 2024. Noise from construction activities would be generated by the operation of vehicles and equipment involved during various stages of construction of treatment facilities, recharge facilities, transmission pipelines, pump stations, and monitoring wells. 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 hotel located in the City of Tehachapi approximately 370 feet northeast of the proposed pump station at the Borrow Pit and 560 feet north of the proposed transmission pipeline, and the single-family residences located along Steuber Road in Kern County approximately 50 feet from the proposed transmission pipeline and 625 feet from the proposed pump station at the Borrow Pit. It is conservatively assumed that multiple pieces of construction equipment would operate simultaneously at the closest distance to the sensitive receptor

locations. In reality equipment would likely be dispersed throughout the project area along the proposed transmission pipeline alignment and the pump station; therefore, the calculated noise levels represent a conservative maximum and actual noise levels would be lower. The closest sensitive receptors in each 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.<sup>12</sup> **Table 2-11** presents the results of construction noise modeling for each of the project components. **Appendix NOI** provides a detailed list of construction equipment, quantities of equipment, reference noise levels, and assumed distances.

**TABLE 2-11**  
**ESTIMATED CONSTRUCTION NOISE LEVELS AT NEAREST SENSITIVE RECEPTORS**  
**(ESTIMATED HOURLY NOISE LEVEL  $L_{eq}$  (DBA))**

Construction Phase	City of Tehachapi - Hotel	Kern County - Residences
Pipelines	66	86
Pump Station	67	62
Overlapping Phases (Pipelines + Pump Station)	70	86

NOTE: Other project components are located further away from sensitive receptors and noise levels would be less than disclosed above.

SOURCE: ESA 2021.

The peak construction noise levels experienced by the off-site sensitive receptors would be up to 70 and 86 dBA  $L_{eq}$ . As shown in Table 2-11, estimated construction noise levels at the hotel receptor in the City of Tehachapi could be up to 70 dBA  $L_{eq}$ , and estimated construction noise levels at the nearest residential receptors located in Kern County would be up to 86 dBA  $L_{eq}$ . The City of Tehachapi limits construction noise to between the hours of 8:00 a.m. and 7:00 p.m. within a residential zone or within a radius of 500 feet. In Kern County, noise-producing construction activities that are audible to a person with average hearing ability are prohibited at a distance of 150 feet from the construction site, or if the construction site is within 1,000 feet of an occupied residential dwelling are allowed between the hours of 6:00 a.m. to 9:00 p.m. Monday through Friday and 8:00 a.m. to 9:00 p.m. on weekends. As stated in the Project Description, construction activities for the proposed project would occur between 8 A.M. to 7 P.M. Monday through Friday; weekend and nighttime construction is not expected. Therefore, the project construction would occur within the allowable hours for the City of Tehachapi and Kern County and in compliance with the noise ordinance of both jurisdictions.

<sup>12</sup> 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.



Construction activities associated with the proposed project would generate periodic noise levels above the normally acceptable noise levels listed in Table 2-10 for all land use categories. As noted in Table 2-10, construction noise could exceed 65 dBA at the residential sensitive receptor in Kern County along Steuber Road. 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 (e.g., at locations along the proposed transmission pipeline alignment and the pump station further away from the receptor locations). In compliance with the City of Tehachapi's Policy CS-65 of the General Plan's Community Safety Plan, **Mitigation Measure NOI-1** would be required to reduce noise levels. Because construction of the proposed project would comply with the hourly limitations identified in the County's and City's noise-control ordinances, impacts would be less than significant with mitigation.

### ***Mitigation Measures***

**NOI-1:** This measure shall apply to project construction activity located within unincorporated Kern County and within 1,000 feet of sensitive receptors, including those along Steuber Road within Kern County's jurisdiction. The City shall implement the following measures to reduce temporary construction related noise impacts:

1. Equipment staging shall be located in areas that will create the greatest distance between construction-related noise sources and the noise sensitive receptor to the extent practical. The project contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptor, where feasible.
2. The contractor shall ensure all construction equipment is equipped with manufacturers approved mufflers and baffles, where feasible.

### **Off-Site Construction Activities**

During all phases of construction, haul and vendor truck trips would be required to transport construction materials to and from the project site. During the most intensive phase of construction (site preparation for Recharge Facilities), the project would require 30 workers and 306 haul trips per day. The temporary addition of the number of trips required per day during construction activities would result in noise levels of 64.1 dBA CNEL and would be within the normally acceptable and conditionally acceptable noise levels for all land uses listed in Table 2-10 and would occur within the allowable construction hours for both the County and 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**

### **On-Site Operational Noise**

Once operational, noise generated by the proposed project would primarily be a result of stationary equipment at the treatment and pump station facilities. The stationary equipment used at the facilities would be completely housed within structures which would shield any sensitive uses from operational noise. The closest sensitive receptor to any stationary source is the hotel along Steuber Road located approximately 370 feet northeast of the proposed pump station at the Borrow Pit. Assuming the operation of four pumps simultaneously within a concrete structure, noise levels at the closest sensitive receptor would be 36 dBA and would not exceed the acceptable noise levels for any land uses listed in Table 2-10.<sup>13,14</sup> Therefore, operational impacts from stationary sources and pipelines would be less than significant.

### **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). The project would add an additional two daily trips from an additional permanent employee to operate the GSP facilities and inspect the Borrow Pit and recharge facilities. The project would not double existing daily trips and traffic noise from the project would generate considerably less than a 3 dBA increase. 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.

- b) **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.

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<sup>13</sup> Uses a reference noise level of 81 dBA for pumps from the FHWA's RCNM User's Guide and a usage factor of 100 percent, assuming that pumps are operated 24 hours a day, 7 days a week. FHWA RCNM User's Guide available at: [https://www.fhwa.dot.gov/environment/noise/construction\\_noise/rcnm/rcnm.pdf](https://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/rcnm.pdf)

<sup>14</sup> Assumes stationary equipment is completely housed within a concrete block structure that would provide a sound transmission loss of 34 dBA according to FHWA's Noise Barrier Design Handbook, Section 3.4.2, Table 2-3. Available at: [https://www.fhwa.dot.gov/Environment/noise/noise\\_barriers/design\\_construction/design/design03.cfm#sec3.4.2](https://www.fhwa.dot.gov/Environment/noise/noise_barriers/design_construction/design/design03.cfm#sec3.4.2)

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 of Tehachapi and Kern County do not address vibration either in their respective municipal codes or in the Noise Element of their General Plans. 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 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 west of the project's proposed transmission pipeline along Steuber Road, which are approximately 50 feet from the project site. At a distance of 50 feet, the maximum vibration level of 0.031 inches per second PPV (using large bulldozer as an example, as shown above) would be well below the Caltrans construction vibration structure damage criteria of 0.5 inches per second PPV 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 370 feet away from the proposed pump station. Once constructed, the transmission pipelines would not result in any perceptible levels of vibration. As such, vibration impacts associated with operation of the project would be less than significant.

- c) **No Impact.** Portions of the project site are located within 2-miles of the Tehachapi Municipal Airport and the Mountain Valley private airstrip. The project is located outside of all of the identified airport protection zones as illustrated on Tehachapi's Airport Influence Map and is not within identified noise contours of the Tehachapi Municipal Airport (Kern County 2012). Pipeline construction activities may briefly take place within the Mountain Valley private airstrip's 65 dBA CNEL contour, but any noise from aircraft would be brief, episodic and infrequent. Further, the Mountain Valley Airport is primarily used for glider operations, which do not have engines, and would generate much less noise than a traditional engine-propelled aircraft. As the project will not expose people residing or working on the project site to excessive noise levels, no project impacts would occur.

## **References**

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

- California Department of Transportation (Caltrans). 2004. Transportation- and Construction- Induced Vibration Guidance Manual. June 2004. <http://www.dot.ca.gov/hq/env/noise/pub/vibrationmanFINAL.pdf>. Accessed April 2021.
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- State of California, Office of Planning and Research (OPR). 2003. General Plan Guidelines. [https://www.opr.ca.gov/docs/General\\_Plan\\_Guidelines\\_2003.pdf](https://www.opr.ca.gov/docs/General_Plan_Guidelines_2003.pdf). Accessed April 2021.
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## 2.2.14 Population and Housing

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>XIV. POPULATION AND HOUSING —</b> 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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Discussion

- a) **Less than Significant Impact.** The proposed project would be limited to the provision of water supply infrastructure. No housing or commercial development is proposed that could directly affect the number of residents or employees in the project area. During peak construction activities, the project would require a maximum of 30 workers. However, construction activities would be temporary and workers would be from the local workforce. Operation and maintenance of the proposed project would require one new permanent employee. Thus, the proposed project would not directly introduce a substantial amount of unplanned population growth to the area.

In addition, the proposed project would not indirectly induce growth or remove an obstacle to growth. Future increases in population within the City of Tehachapi would occur in accordance with the 2035 buildout as planned and described in the General Plan (City of Tehachapi 2012). The object of the proposed project is in part is to maximize the City's water supply through IPR in order to meet future projected demand for the 2035 buildout that would otherwise be met with imported water. Impacts would be less than significant.

- b) **No Impact.** The proposed project would be constructed within existing rights-of-way and within property lines where existing water supply and water storage facilities are located. Therefore, the proposed project would not require demolition of any existing houses and would not displace people or their housing. No impact would occur.

### References

City of Tehachapi. 2012. General Plan.  
<https://www.liveuptehachapi.com/DocumentCenter/View/3184/Combined-General-Plan-2015-reduced?bidId=>. Accessed April 6, 2021.

## 2.2.15 Public Services

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>XV. PUBLIC SERVICES —</b>				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:				
i) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
v) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Discussion

- a.i) **No Impact.** The Kern County Fire Department (KCFD) provides fire suppression and emergency medical services to the project site and surrounding area. KCFD Stations 12 and 13, located at 800 South Curry Street and 21415 Reeves Street in the City of Tehachapi, are the nearest fire stations to the proposed project (KCFD 2021). Proposed project sites at the WWTP, Blackburn Dam, the Borrow Pit, and existing roadways would be, at maximum, a 3.5-mile drive from a station in the event that fire suppression services are needed. As such, KCFD would be able to maintain acceptable emergency response times during proposed construction and operation and maintenance activities. KCFD stations in surrounding areas have adequate service capacity to support the proposed project. Therefore, the proposed project would not result in the need for additional fire protective services beyond what is already provided. No impact would occur.
- a.ii) **No Impact.** Police protection services for the proposed project would be provided by the City of Tehachapi Police Department located in downtown Tehachapi at 220 W. C Street, and the Kern County Sheriff's Department located approximately 2 miles west of the City of Tehachapi at 22209 Old Town Road. The close proximity between the proposed project and nearby police stations would allow for acceptable response times in the event that police protection services are needed. The proposed project would not involve construction of housing or otherwise contribute to an increase in population. Therefore, the proposed project would not require new or expanded law enforcement facilities. No impact would occur.
- a.iii) **No Impact.** The proposed project would not involve construction of housing or otherwise contribute to an increase in population that would change existing demand for school services. No impact would occur.

- a.iv) **No Impact.** The proposed project would not involve construction of housing or otherwise contribute to an increase in population that would prompt a need for new parks. No impact would occur.
- a.v) **No Impact.** The proposed project would not introduce new housing or businesses to the area that would require any additional services or public facilities. No impact would occur.

## References

Kern County Fire Department (KCFD). 2021. Fire Stations.  
<https://www.kerncountyfire.org/en/operations/fire-stations.html#35.1538183/-118.4827385/12/cats/16/hotspot/50>. Accessed April 6, 2021.

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## 2.2.16 Recreation

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>XVI. RECREATION —</b>				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Discussion

- a) **No Impact.** The project site does not contain any recreational facilities. The proposed project would not result in direct or indirect growth in population or housing and is not expected to impact existing neighborhood or regional parks or any other recreational facilities due to increases in park usage. No impact would occur.
- b) **No Impact.** The proposed project would not include recreational facilities or require the construction or expansion of recreational facilities. No impact would occur.

## 2.2.17 Transportation

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

### Discussion

- a) **Less Than Significant Impact with Mitigation Incorporated.** The City of Tehachapi General Plan Mobility and Public Realm Elements include plans and policies related to traffic and transportation (City of Tehachapi 2012a). The Kern County General Plan Circulation Element contains applicable policies related to transportation and traffic (Kern County 2009). Applicable policies are included below.

#### City of Tehachapi Mobility Element

- Policy M6: Maintain / generate context-related level of service standards for each street type within Tehachapi's sphere of influence.

#### City of Tehachapi Public Realm Element

- Policy PR-7: Maintain bicycle access-types (class 1, 2 or 3) on all thoroughfare types including gradeseparations.

#### County of Kern General Plan Circulation Element

- Highway Plan 2.3.3, Implementation Measure B) Continuity and integrity of the arterial and collector system at the mountain/valley region and the mountain/desert region boundary must be reviewed and approved in conjunction with project adoption on an individual basis.
- Future Growth, 2.3.4, Implementation Measure C): Project development shall comply with the requirements of the Kern County Zoning Ordinance, Land Division Ordinance, and Development Standards.
- Congestion Management Programs, 2.3.10, The elements within the Kern Congestion Management Program are to be implemented by each incorporated city and the County of Kern. Specifically, the land use analysis program, including the preparation and adoption of deficiency plans is required. Additionally, the adoption of trip reduction and travel demand strategies are required in the Congestion Management Program.

According to the City of Tehachapi Bicycle Master Plan and the Kern County Transit System Map, no bicycle facilities or public transit routes coincide with proposed construction areas (City of Tehachapi 2012b; County of Kern 2021). Additionally, none of the proposed project facilities would be located in a City of Tehachapi “pedestrian shed” as identified in the General Plan, which are areas within which a key central amenity such as a park or some small shops would be within a five-minute walk of most neighborhood residents (City of Tehachapi 2012a). As a result, no impact would occur to public transit, bicycle, or pedestrian facilities.

Potential effects to the circulation system would be limited to the construction phase of the proposed project. During installation of the proposed transmission pipeline within roadway rights-of-way of Valley Boulevard and Steuber Road, partial closure of traffic lanes would be required. As such, the proposed project could have the potential to create temporary delays and/or detours for vehicles traveling along these roadways.

Construction for the proposed pipeline would be temporary and occur over approximately five months. Nevertheless, the potential impacts from delays and detours associated with installation of the pipeline within Steuber Road and Valley Boulevard are potentially significant. Construction of all other components would not occur in existing roadway rights-of-way and no other traffic lane closures are anticipated. To lessen the impacts related to the circulation system as a result of construction of the transmission pipeline within public rights-of-way, the City would implement **Mitigation Measure TRA-1**, which would require the preparation and implementation of a Traffic Control Plan. With implementation of **Mitigation Measure TRA-1**, impacts would be reduced to a less than significant level.

During construction of all project facilities, temporary truck and vehicle trips would be required to transport workers and equipment to the project sites, as well as haul soil away from project sites. In general, equipment would be transported to each construction site at the beginning of each phase, stored on-site, and would be removed once construction is completed. Within the proposed project area, annual average daily traffic ranges from 11,050 to 5,828 daily trips in the vicinity of the WWTP, and 8,794 to 1,037 in the vicinity of the Borrow Pit and pipeline installation within Steuber Road (Kern Council of Governments 2021). With implementation of the project, approximately 30 workers (60 daily vehicle trips) would travel to/from the project site during the peak construction period (assuming the recharge and conveyance facilities are constructed concurrently). Export of excess soils and waste following construction of various project components would also be required, and would be hauled from the project sites and transported along existing roads/highways surrounding the project site. Materials would be delivered to nearby waste disposal facilities as described in the discussion in Section 2.2.19, *Utilities and Service Systems*, Impact (d). It is estimated that the project would require a maximum total of approximately 159 trucks (or 318 daily truck trips) to haul excess soils and wastes during the peak construction phase when several components are being constructed simultaneously. The delivery of materials and equipment and hauling of exported soils would result in intermittent lessening of roadway capacities due to slower movements and larger turning radii of the trucks compared to passenger vehicles. Nevertheless,

maximum daily trips associated with construction of concurrent project facilities of up to 388 average daily truck and vehicle trips would be minimal when spread out over the project area and within the existing baseline daily trips ranging from 11,050 to 1,037. Since the vehicle and truck trips generated during construction would be temporary and minor relative to existing circulation system capacity in the project area, and because implementation of **Mitigation Measure TRA-1** would be required during installation of the proposed transmission pipeline, the proposed project would not conflict with any program plans, ordinance, or policy addressing the circulation system. Impacts would be less than significant.

Once construction is completed, operation and maintenance of the project would require hiring one new employee to inspect project facilities daily, and one chemical delivery monthly to the Tehachapi WWTP. The proposed transmission pipeline would be located underground and rights-of-way surfaces would be restored after construction. As such, increased traffic volume that would result from operating the proposed project would not have a substantial impact on local circulation system performance. Therefore, impacts would be less than significant.

### ***Mitigation Measure***

**TRA-1:** Prior to the start of construction, the City shall require the construction contractor to prepare and have approved a Traffic Control Plan. The Traffic Control Plan will show all signage, striping, delineated detours, flagging operations, and any other devices that will be used during installation of the proposed transmission pipeline to guide motorists, bicyclists, and pedestrians safely through the construction area and allow for adequate access and circulation. The Traffic Control Plan shall be prepared to ensure that emergency access will not be restricted. The City shall also notify local emergency responders of any planned partial or full lane closures required for project construction. Emergency responders include fire departments, police departments, and ambulances that have jurisdiction within the project area. Written notification and disclosure of lane closure location must be provided at least 30 days prior to the planned closure to allow emergency response providers adequate time to prepare for lane closures.

- b) **Less Than Significant Impact.** In accordance with Senate Bill (SB) 743, the new 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 GHG emissions, creation of multimodal networks, and promotion of a mix of land uses. Vehicle miles traveled (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. OPR has published the *Technical Advisory on Evaluating Transportation Impacts in CEQA*, and the recommended significance criteria for the operation of new projects is to generate 15 percent less VMT per capita (or per employee) compared to existing conditions (OPR 2018). Neither the Governor's Office of Planning and Research (OPR) nor the City of Tehachapi have adopted specific VMT metrics or thresholds of significance for construction-related traffic. Many jurisdictions in Southern California consider

construction-related traffic to cause adverse but not lasting intersection deficiencies because, while sometimes inconvenient, construction-related traffic efforts are temporary.

As documented above in the discussion for *Transportation* Impact (a), construction of the proposed project would generate a maximum of 318 haul truck trips per day and 60 worker trips per day for a total of 388 trips. Since construction of the proposed project would generate temporary vehicle trips during the 25-month construction period, the proposed project would result in a less than significant impact with respect to VMT. Similarly, operation and maintenance of the project would require hiring one new employee to inspect project facilities daily, and one chemical delivery monthly to the Tehachapi WWTP. These nominal vehicle trips during operation and maintenance would not exceed OPR's recommended significance thresholds for operational VMT. Therefore, impacts would be less than significant.

- c) **Less than Significant Impact.** The proposed project would not permanently modify any roadway designs or introduce incompatible vehicles. Any disturbance to roadways during transmission pipeline construction would be restored to pre-construction conditions. Impacts would be less than significant.
- d) **Less than Significant Impact with Mitigation Incorporated.** The proposed project would result in detours and delays during construction of the transmission pipeline in Valley Boulevard and Steuber Boulevard. Implementation of **Mitigation Measure TRA-1** would require agency coordination with emergency service providers in the area in advance of project construction. Adherence to this mitigation measure would reduce any potential impacts regarding emergency services to less than significant levels.

### ***Mitigation Measure***

Implement **Mitigation Measure TRA-1**.

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Accessed: <https://kerncog.public.ms2soft.com/tcds/tsearch.asp?loc=Kerncog&mod=TCDS>,  
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Office of Planning and Research (OPR), 2018. *Technical Advisory on Evaluating Transportation Impacts in CEQA*, December 2018. Available: [https://www.opr.ca.gov/docs/20190122-743\\_Technical\\_Advisory.pdf](https://www.opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf), accessed April 16, 2021.

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## 2.2.18 Tribal Cultural Resources

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

### Discussion

On February 8, 2021, a Sacred Lands File (SLF) search was requested and a list of Native American contacts from the NAHC. The NAHC responded on March 3, 2021, stating that the SLF search returned negative results. The NAHC's response also included a list of Native American groups who may have knowledge of cultural resources in the project site.

Native American outreach was conducted with the groups on the NAHC contact list in compliance with the requirements of the State Water Resources Control Board, the results of which are detailed below. Since no California Native American tribes have requested to be notified by the City of projects pursuant to PRC Section 21080.3.1, formal government-to-government consultation pursuant to Assembly 52 was not required nor conducted. The results of the Native American outreach were used to support the analysis presented in this section.

On March 30, 2021, letters were sent via certified mail to the Native American groups indicated by the NAHC. The letters were also sent via email on March 31, 2021. The letters described the proposed project and included a map depicting the location of the project site. Recipients were requested to reply with any information concerning Native American cultural resources that might be affected by the proposed project. **Table 2-12** provides an overview of outreach efforts. Five tribes responded to the request, either in writing or via phone call, and responses are summarized below.

In an email received on March 31, 2021, Jairo Avila, THPO for the Fernandeano Tataviam Band of Mission Indians, indicated that the proposed project is outside the Tribe's ancestral boundaries and deferred to local tribes in closer proximity to the project site.

During a phone call on April 14, 2021, Chairperson Robert Robinson of the Kern Valley Indian Community indicated that the area has great potential for cultural resources. Chairperson Robinson recommended tribal and archaeological monitoring of ground disturbing activities. He also indicated that the Tomo Kahni State Park is in the general vicinity of Tehachapi, which is located about 4 miles from the project site. Tomo Kahni State Park is located on a ridge in the Tehachapi Mountains, overlooking Sand Canyon to the east and the Tehachapi valley to the west, and was the site of Tomo-Kahni, or “Winter Village,” a Kawaiisu (Nuwa) village site.

In an email received on April 1, 2021, Ryan Nordness, Cultural Resources Analyst for the San Manuel Band of Mission Indians, indicated that the proposed project is outside of Serrano ancestral territory and the Tribe would not be requesting consultation.

During a phone call on April 14, 2021, Colin Rambo, CRM Tech for the Tejon Indian Tribe, requested information about the proposed project and inquired about the cultural resources survey results. Mr. Rambo stated that he had no concerns about the proposed project. He requested a follow-up email, which was sent the same day. In an email received on April 15, 2021, Mr. Rambo reiterated that the Tribe does not have any concerns with this project moving forward as proposed, but requested to be contacted in the event of a discovery.

In an email received on April 3, 2021, Chairperson Mona Olivas Tucker of the Yak Tityu Yak Tilhini – Northern Chumash Tribe recommended contacting the Tejon Indian Tribe.

**TABLE 2-12**  
**SUMMARY OF NATIVE AMERICAN OUTREACH**

<b>Tribe</b>	<b>Contact</b>	<b>Title</b>	<b>Date Letter Sent</b>	<b>Response Received</b>
Big Pine Paiute Tribe of the Owens Valley	Danelle Gutierrez	THPO	3/30/2021	No
Big Pine Paiute Tribe of the Owens Valley	James Rambeau, Sr.	Chairperson	3/30/2021	No
Big Pine Paiute Tribe of the Owens Valley	Sally Manning	Environmental Director	3/30/2021	No
Chumash Council of Bakersfield	Julio Quair	Chairperson	3/30/2021	No
Coastal Band of the Chumash Nation	Mariza Sullivan	Chairperson	3/30/2021	No
Fernandeño Tataviam Band of Mission Indians	Jairo F. Avila	THPO	3/30/2021	Yes
Kern Valley Indian Community	Brandy Kendricks	N/A	3/30/2021	No
Kern Valley Indian Community	Julie Turner	Secretary	3/30/2021	No
Kern Valley Indian Community	Robert Robinson	Chairperson	3/30/2021	Yes
Kitanemuk & Yowlumne Tejon Indians	Delia Dominguez	Chairperson	3/30/2021	No
San Fernando Band of Mission Indians	Donna Yocum	Chairperson	3/30/2021	No
San Manuel Band of Mission Indians	Jessica Mauck	Director	3/30/2021	Yes
Santa Rosa Rancheria Tachi Yokut	Leo Sisco	Chairperson	3/30/2021	No
Santa Ynez Band of Chumash Indians	Kenneth Kahn	Chairperson	3/30/2021	No
Tejon Indian Tribe	Colin Rambo	CRM Tech	3/30/2021	Yes
Tejon Indian Tribe	Octavio Escobedo III	Chairperson	3/30/2021	No
Tubatulabals of Kern Valley	Robert L. Gomez Jr	Tribal Chairperson	3/30/2021	No



Tribe	Contact	Title	Date Letter Sent	Response Received
Tule River Indian Tribe	Neil Peyron/ William Garfield	Chairperson	3/30/2021	No
Wuksache Indian Tribe/Eshom Valley Band	Kenneth Woodrow	Chairperson	3/30/2021	No
Yak Tityu Yak Tilhini – Northern Chumash Tribe	Mona Olivas Tucker	Chairperson	3/30/2021	Yes

- a.i) **No Impact.** No tribal cultural resources were identified within or adjacent to the project site. Tomo-Kahni, or “Winter Village,” a Kawaiisu (Nuwa) village site identified by one tribal respondent is located in the Tehachapi Mountains about 4 miles from the project site, and would not be directly or indirectly affected by the proposed project. Therefore, the project would not cause a substantial adverse change in the significance of a tribal cultural resource, as defined by PRC Section 21074(a), that is listed or eligible for listing in the California Register of Historical Resources or a local register of historical resources. No impact would occur.
- a.ii) **No Impact.** As indicated above, no known tribal cultural resources have been identified within or adjacent to the project. Therefore, the project would not cause a substantial adverse change in the significance of a tribal cultural resource, as defined by PRC Section 21074a), that has been determined by a lead agency to be significant pursuant PRC Section 5024.1(c). No impact would occur.

## 2.2.19 Utilities and Service Systems

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>XIX. UTILITIES AND SERVICE SYSTEMS —</b> 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 facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Discussion

- a) **Less Than Significant Impact.** Water supplies required for construction of the proposed project would be provided by water trucks. The proposed project would generate wastewater during construction, including discharge from construction of monitoring wells, excess water following trench and pipeline dewatering, and portable toilet waste generated by construction workers. Wastewater discharge generated during construction of monitoring wells would be temporarily stored in bins prior to disposal. Water collected from dewatering would be reused for dust control purposes. Wastewater generated during construction would be collected within portable toilet facilities, collected by a permitted portable toilet waste hauler and appropriately disposed of at an identified liquid-disposal station. Thus, construction of the proposed project would not necessitate the construction or expansion of water or wastewater facilities. The proposed project provides for beneficial use of recycled water, which in turn provides benefits to both wastewater and water resources management. Once operational, recharge water generated by the proposed project would be extracted at existing domestic supply wells. Therefore, construction and operation of the proposed project would not require new or expanded water or wastewater facilities other than those that are proposed as part of the project. Impacts are less than significant.

As discussed for Section 2.2.10, *Hydrology and Water Quality* Impact (c.iii), the project would be required to prepare and implement a SWPPP in compliance with the NPDES

Construction General Permit. The BMPs would control runoff and runoff during construction and prevent erosion and siltation. No new storm water facilities would be required during project construction.

Once constructed, the project would result in minimal additional impervious surfaces (see Section 2.2.10, *Hydrology and Water Quality Impact (b)*). Therefore, the proposed project is not expected to generate surface runoff for these components in quantities that would require construction of new storm drains or expansion of existing off-site storm drains. Impacts would be less than significant.

The proposed project would not require new or expanded electric, gas, or telecommunications service facilities other than those analyzed as part of the project within this document. No impact would occur.

- b) **No Impact.** As described above in the discussion for Section 2.2.19, *Utilities and Service Systems Impact (a)*, water required for construction would be supplied by imported water trucks. Once constructed, the proposed project would contribute to the City's goal of diversifying its water supply through increased use of recycled water, allowing the City to be less reliant on imported water when annual groundwater pumping demand exceeds annual allocations. No impact would occur.
- c) **Less Than Significant Impact.** The City of Tehachapi has approximately 2,600 sewer service connections. Thirty-five miles of sanitary sewers convey wastewater to the WWTP. The proposed project would be served by the City's WWTP, which has a permitted capacity of 1.25 MGD and an average daily flow of 0.66 MGD. The WWTP has adequate capacity to serve the proposed project in addition to its existing commitments (City of Tehachapi 2021; City of Tehachapi 2015). Therefore, the proposed project would have a less than significant impact.
- d) **Less Than Significant Impact.** Construction of the proposed project would not generate substantial amounts of solid waste that would exceed state or local standards. Excavated soils would be reused as backfill to the extent feasible. However, it is estimated that approximately 43,196 cubic yards of demolition-related debris plus 80,050 cubic yards of soil would be disposed of offsite following installation of the project facilities. The construction contractor would be required to dispose of excavated soils and solid wastes 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. Once constructed, solid waste generated during operation and maintenance activities would be minimal. The Tehachapi Sanitary Landfill located at 12001 Tehachapi Boulevard accepts both industrial waste and construction/demolition waste and would service the proposed project's waste disposal needs. The landfill has a maximum permitted throughput capacity of 1,000 tons per day, and remaining capacity of 522,298 cubic yards (CalRecycle 2015). The landfill has sufficient capacity to serve the proposed project. Impacts would be less than significant.

- e) **Less Than Significant Impact.** The proposed project would comply with all federal, state, and local construction requirements during construction of the proposed project. As described above in the discussion for *Utilities and Service Systems* Impact (d), the proposed project would be required to comply with the California Integrated Waste Management Act of 1989 and the California Green Building Code requiring 50 percent diversion of its construction waste from landfills through reuse and recycling. Operation and maintenance of the proposed project would generate minimal amounts of solid waste from the advanced treatment of wastewater that would be disposed of appropriately offsite. Therefore, project impacts related to potential noncompliance with solid waste statutes and regulations would be considered less than significant.

## References

California Department of Resources Recycling and Recovery (CalRecycle). 2015. Solid Waste Information System (SWIS). Tehachapi Sanitary Landfill (15-AA-0062). <https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/3896?siteID=710>. Accessed April 8, 2021.

City of Tehachapi. 2015. General Plan. <https://www.liveuptehachapi.com/DocumentCenter/View/3184/Combined-General-Plan-2015-reduced?bidId=>. Accessed April 6, 2021.

\_\_\_\_\_. 2021. City Web Page, Wastewater. <https://www.liveuptehachapi.com/92/Wastewater>. Accessed April 8, 2021.

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## 2.2.20 Wildfire

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>XX. WILDFIRE</b> — 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Discussion

In the City of Tehachapi Community Safety Element, the City includes an assessment of risk potential for environmental hazards that may occur in the project area. The potential for wildland fires in the project area is considered “high risk,” indicating risk levels are significant and occurrence of wildland fires is probable or inevitable. The scope of risk for wildland fires in the project area is “Regional (Level 2),” indicating wildland fires have the potential to affect the entire City as well as the surrounding region, and that moderate-to-severe emergencies would necessitate regional or statewide assistance (City of Tehachapi 2012). Additionally, CAL FIRE’s Fire Hazard Severity Zone (FHSZ) Maps place the proposed project within Local Responsibility Area (LRA) High and State Responsibility Area (SRA) Moderate zones (CAL FIRE 2007).

- a) **Less Than Significant Impact with Mitigation Incorporated.** During installation of the transmission pipelines within roadway rights-of-way, partial closures of roadways would temporarily reduce traffic speeds and would have the potential reduce response times for emergency vehicles. Further, proposed transport of construction materials and export of excess soils would temporarily reduce roadway capacities. Once construction is completed, operation of the proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Preparation of a Traffic Control Plan in accordance with **Mitigation Measure TRA-1** would ensure that emergency access is not impacted by the proposed project and that emergency responders are notified of lane closures by the City prior to construction. Therefore, impacts would be reduced to less than significant with implementation of **Mitigation Measure TRA-1**.

#### **Mitigation Measure**

Implement **Mitigation Measure TRA-1**.

- b) **Less Than Significant Impact.** As explained above in Section 2.2.9, *Hazards and Hazardous Materials Impacts* (a)(b), construction of the proposed project would require equipment that uses hazardous materials such as petroleum fuels and oil. During project construction, use of construction equipment and vehicles, and use of combustible materials such as diesel fuel could pose a wildfire risk to people and property with possible ignition sources such as internal combustion engines, gasoline-powered tools, and equipment that could produce a spark, fire, or flame. The use of spark-producing construction machinery could expose project workers and contractors to pollutant concentrations from a wildfire resulting in a potentially significant impact. Construction activities would be required to comply with numerous State and local hazardous materials regulations designed to ensure that hazardous materials are transported, used, stored, and disposed of in a safe manner to protect worker safety, and to reduce the potential for a release of construction-related fuels or other hazardous materials into the environment. Additionally, all construction activities and crews must comply with fire protection and prevention requirements specified by the CCR, which 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. Compliance with the regulations discussed above would reduce the impact to a less than significant level.

Once the transmission pipeline is constructed, rights-of-way would be restored and would be similar to existing conditions. Operation and maintenance of project facilities would require one new employee inspecting proposed facilities daily, and one chemical delivery monthly to the Tehachapi WWTP. BMPs would be implemented during transport and storage of hazardous materials at the WWTP. Operations and maintenance activities would comply with applicable federal, state, and local standards for handling hazardous materials, fuels, and chemicals. Thus, impacts would be less than significant.

- c) **No Impact.** The proposed project would not require the installation or maintenance of infrastructure other than the facilities that are proposed by the project and analyzed throughout this IS/MND. No impact would occur.
- d) **Less Than Significant Impact.** As detailed in Section 2.2.7, *Geology and Soils Impact* (a) above, construction of the project would require compliance with the NPDES General Construction Permit for stormwater. In accordance with the requirements of this permit, the project would implement a SWPPP that specifies BMPs and erosion control measures to be used during construction to manage runoff flows. Implementation of the project would not significantly alter drainage patterns compared to existing conditions and runoff from the project sites would continue to be controlled through existing stormwater conveyance systems. Additionally, the project would be implemented primarily within established rights-of-ways and disturbed areas and not within areas with unstable soil. As a result, construction and operation activities within these areas have a low potential to expose construction workers to risk due to downslope flooding or landslides after a fire event. Impacts would be less than significant.

## References

California Department of Forestry and Fire Protection (CAL FIRE). 2007. Kern County Fire Hazard Severity Zones in LRA Map.  
[https://osfm.fire.ca.gov/media/6686/fhszl06\\_1\\_map15.pdf](https://osfm.fire.ca.gov/media/6686/fhszl06_1_map15.pdf). Accessed April 15, 2021.

City of Tehachapi. 2012. General Plan.  
<https://www.liveuptehachapi.com/DocumentCenter/View/3184/Combined-General-Plan-2015-reduced?bidId=>. Accessed April 6, 2021.

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## 2.2.21 Mandatory Findings of Significance

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>XXI. MANDATORY FINDINGS OF SIGNIFICANCE —</b>				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Discussion

- a) **Less than Significant Impact with Mitigation Incorporated.** As discussed above in Section 2.2.4, *Biological Resources*, the Tehachapi pocket mouse, tricolored blackbird, crotch bumble bee, California legless lizard, coast horned lizard, and loggerhead shrike are all California State Species or Special Concern or California State Threatened Species that have the potential to be impacted by proposed project construction. However, implementation of **Mitigation Measures BIO-1 through BIO-4** would involve surveys and measures to identify and avoid these species. The proposed project could also potentially impact 0.02 acres of riparian vegetation, which could constitute a significant impact to sensitive natural communities. However, **Mitigation Measure BIO-5** would require preparation and implementation of a revegetation plan if sensitive natural communities cannot be avoided. With implementation of these mitigation measures, impacts to special-status species and migratory birds would be reduced to a less than significant impact.

As discussed in Section 2.2.5, *Cultural Resources*, and Section 2.2.7, *Geology and Soils*, proposed ground disturbance has the potential to encounter archaeological and/or paleontological resources, or human remains. However, implementation of **Mitigation Measures CUL-1 through CUL-3** and **Mitigation Measures GEO-1 and GEO-2** would reduce these impacts to less than significant.

### **Mitigation Measures**

Implement **Mitigation Measures BIO-1 through BIO-5; CUL-1 through CUL-3; GEO-1 and GEO-2.**

- b) **Less than Significant Impact with Mitigation Incorporated.** A cumulative impact could occur if the 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. The projects in the cumulative geographic scope include those listed in **Table 2-13** in and around the project site in the City of Tehachapi. While no direct significant impacts were identified for the proposed project that could not be mitigated to a less than significant level, when combined with other projects within the vicinity, the proposed project may result in a contribution to a potentially significant cumulative impact.

**TABLE 2-13**  
**RELATED PROJECTS FOR CUMULATIVE ANALYSIS**

Project No.	Lead Agency	Name	Location	Project Type	Project Description	Status
1	City of Tehachapi	The ADDRESS at Tehachapi	Tucker Road and Highline Road, Tehachapi	Residential	Master planned development request to construct 238 single family residential homes on Planned Development (PD) zoned lots generally ranging from 6,600 to 10,000 square foot with recreational amenities on approximately 57 acres at the northeast corner of Tucker Road and Highline Road.	Approved by Tehachapi City Council on December 7, 2020
2	City of Tehachapi	Oak Tree Village Project	North of Highway 58 and east of the Capital Hills area, Tehachapi	Mixed Use Development	Specific Plan for development of residential, retail/commercial/mixed-use, and open space on approximately 228.5 acres in the Northern Foothills area of Tehachapi.	NOP filed in 2016
3	City of Tehachapi	Sage Ranch Development Project	Between Valley Blvd., Pinon Street, Dennison Rd., and Curry Street, Tehachapi	Residential	Subdivision of 138 acres of land in the City of Tehachapi land for development of 1,000 single family and multi-family residential units and 9 acres of park space.	EIR under review from March to April 2021
5	City of Tehachapi	Tehachapi Marriott Towneplace Suites Hotel Project	Magellan Dr. and Capital Hills Parkway, Tehachapi	Commercial	Construction of a three-story, 83-room hotel (46,540 square feet) with parking lots, paved walkways and landscaping on the north side of State Route 58, at the southeast corner of Magellan Drive and Athens Street.	Under construction
6	City of Tehachapi	Red Apple Pavilion Project	Tucker Road and Red Apple Avenue, Tehachapi	Commercial	Two-phase construction of a single-story retail center, including approximately 120,455 SF of shopping space and restaurants on the southwest corner of Tucker Road and Red Apple Avenue.	Approved by Tehachapi Planning Commission on December 10, 2018

Project No.	Lead Agency	Name	Location	Project Type	Project Description	Status
7	California High Speed Rail Authority	California High-Speed Rail System Bakersfield to Palmdale Project Section	City of Tehachapi and Various Kern County Locations	Railway	<p>The Bakersfield to Palmdale Project Section is part of the first phase of the California High-Speed Rail System connecting the Central Valley to the Antelope Valley, closing the existing passenger rail gap over the Tehachapi Mountains.</p> <p>The approximately 80-mile Project Section would travel from Bakersfield through or near the cities of Edison, Tehachapi, Rosemond, Lancaster and Palmdale with proposed stations in Bakersfield and at the Palmdale Transportation Center.</p>	Design

SOURCE: City of Tehachapi 2021; California High Speed Rail Authority 2021.

The proposed project would result in no impact or less than significant impacts to aesthetics, agriculture/forestry resources, air quality, energy, greenhouse gas emissions, hydrology and water quality, land use and planning, mineral resources, population/housing, public services, recreation, tribal cultural resources, and utilities and service systems. As a result, cumulative impacts related to these resources would not occur.

Biological resources, cultural resources, paleontological resources (geology and soils), hazards, noise, transportation, and wildfire impacts that could result during project-related construction activities would be short-term in nature. Once constructed, the majority of the project components would either be underground (pipelines), at existing facilities (treatment facilities), or consist of earthen basins (recharge facilities). Compared to the other commercial and residential projects in Table 2-13, the proposed project's impacts would result in minimal aboveground facilities and acres of disturbance, and would not have a considerable contribution to cumulative conditions; and any potential impacts would be lessened with the implementation of mitigation measures. When the potential impacts of the proposed project are viewed in connection with past and ongoing projects, impacts would not be considered cumulatively considerable.

### ***Mitigation Measures***

Implement **Mitigation Measures BIO-1 through BIO-5; CUL-1 through CUL-3; GEO-1 and GEO-2, NOI-1, and TRA-1.**

- c) **Less than Significant Impact with Mitigation Incorporated.** 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 NOI-1 and TRA-1.**

## SECTION 3

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### CEQA Plus Considerations

This IS/MND has been prepared in accordance with the CEQA-Plus requirements of the US Environmental Protection Agency (USEPA) to fulfill the requirement of potential federal funding partners to comply with the National Environmental Policy Act (NEPA). Potential federal funding partners could include US Bureau of Reclamation (USBR) or the State Water Resources Control Board (SWRCB) through the State Revolving Fund (SRF) Loan Program, both of which provide funding for construction of publicly owned treatment facilities and water reclamation projects. This funding for capital improvements to wastewater treatment and water recycling facilities is authorized under the federal Clean Water Act. The CEQA-Plus requirements have been established by the USEPA and are intended to supplement the CEQA Guidelines with specific requirements for environmental documents acceptable to the USBR or SWRCB when reviewing applications for wastewater treatment facility loans. They are not intended to supersede or replace the CEQA Guidelines. In order to qualify for federal loan programs administered by the USBR or the SWRCB, the proposed project must comply with the following federal cross-cutting regulations:

- Archaeological and Historic Preservation Act
- Clean Air Act
- Coastal Barriers Resources Act
- Coastal Zone Management Act
- Endangered Species Act
- Environmental Justice Executive Order
- Farmland Protection Policy Act
- Fish and Wildlife Conservation Act
- Floodplain Management
- Magnuson-Stevens Fishery Conservation and Management Act
- Migratory Bird Treaty Act
- National Historic Preservation Act
- Protection of Wetlands
- Rivers and Harbors Act
- Safe Drinking Water Act
- Wild and Scenic Rivers Act

Compliance with the federal laws and relevant executive orders are described below in Sections 3.1 and 3.2. In summary, the proposed project complies with those laws and executive orders, with further evidence provided in other sections of this IS/MND as cross-referenced below.

## 3.1 Federal Regulations

### 3.1.1 Archaeological and Historic Preservation Act

The Archaeological and Historic Preservation Act (AHPA) also known as the Archaeological Recovery Act was passed and signed into law in 1974. The AHPA required that Federal agencies provide for “... the preservation of historical and archeological data (including relics and specimens) which might otherwise be irreparably lost or destroyed as the result of ... any alteration of the terrain caused as a result of any Federal construction project of federally licensed activity or program (Section 1)” (NPS 2020). The impetus for AHPA was the destruction of archaeological sites throughout the country, frequently by actions funded or otherwise supported by Federal agencies, but not covered by the Reservoir Salvage Act, which required archeological salvage as part of dam projects (NPS 2020). The AHPA built upon the national policy, set out in the Historic Sites Act of 1935, “... to provide for the preservation of historic American sites, buildings, objects, and antiquities of national significance ...” The AHPA expanded the policy by focusing attention on significant resources and data, but does not require that they be shown to be of “national” significance. The connection between the 1935 statute and the AHPA is mentioned explicitly in the first section of the statute (NPS 2020).

Compliance with the National Historic Preservation Act (see below), and particularly the implementing regulations for Section 106, as discussed in Section 2 of this IS/MND for *Cultural Resources* and *Tribal Cultural Resources*, fulfill the requirements of the AHPA.

### 3.1.2 Clean Air Act

The federal Clean Air Act (CAA) requires the USEPA to identify National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS have been established for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, PM10, PM2.5, and lead. Pursuant to the 1990 FCAA Amendments, the USEPA classifies air basins (or portions thereof) as “attainment” or “nonattainment” for these criteria air pollutants, based on whether or not the NAAQS have been achieved. The CAA requires each state to prepare a State Implementation Plan (SIP), which is an air quality control plan that includes pollution control measures for states that violate the NAAQS. Clean Air Act compliance is described in Section 2 *Air Quality*. CEQA-Plus requirements include a CAA general conformity analysis for projects in a federal nonattainment area or an attainment area subject to a SIP. A conformity determination is required for each criteria pollutant or precursor where the total of direct emissions of the criteria pollutant or precursor in a federal non-attainment or maintenance area would equal or exceed specified annual emission rates, referred to as “de minimis” thresholds. The Mojave Desert Air Basin is designated under federal ambient air quality standards as nonattainment for ozone as explained in Section 2 *Air Quality*. All other federal ambient air quality standards are designated as attainment or unclassified. The “de minimis” thresholds in the project area for ozone precursors, which are

comprised of VOC and NO<sub>x</sub>, are both 25 tons/year. As demonstrated in Section 2, *Air Quality*, Tables 2-3, 2-4, and 2-5, the proposed project would not result in emissions that exceed established “de minimis” thresholds for ozone precursor emissions (NO<sub>x</sub> and VOCs). As a result, a CAA general conformity analysis is not required. All impacts to air quality would be less than significant without the need for mitigation measures.

### 3.1.3 Coastal Barriers Resources Act

The Coastal Barriers Resources Act (CBRA) was enacted in 1982 to designate relatively undeveloped coastal barriers along the Atlantic, Gulf of Mexico, Great Lakes, US Virgin Islands, and Puerto Rico coasts as part of the John H. Chafee Coastal Barrier Resources System (CBRS). Those areas became ineligible for most new federal expenditures and financial assistance in order to discourage development such as federal flood insurance (USFWS 2019). The goals of the CBRA are to minimize loss of human life by discouraging development in high-risk areas, to reduce wasteful expenditure of federal resources, and to protect the natural resources associated with coastal barriers (USFWS 2020). There are no designated Coastal Barrier Resources System in California. Additionally, the proposed project does not propose any development associated with coastal barriers. Therefore, this Act is not applicable to the proposed project, and no impact would occur.

### 3.1.4 Coastal Zone Management Act

Section 307 of the Coastal Zone Management Act (CZMA) requires activities approved or funded by the federal government that affect any land or water use or natural resource of a state’s coastal zone be consistent with the enforceable policies of the state’s federally approved coastal management program. California’s federally approved coastal management program consists of the California Coastal Act, the McAtteer-Petris Act, and the Suisun Marsh Protection Act. The California Coastal Commission (CCC) implements the California Coastal Act and the federal consistency provisions of the CZMA for activities affecting coastal resources outside of San Francisco Bay. The proposed project does not lie within a State Coastal Zone and would not result in impact to coastal zone natural resources. Therefore, this Act is not applicable to the proposed project, and no impact would occur.

### 3.1.5 Endangered Species Act

The purpose of the Endangered Species Act (ESA) is to protect and recover imperiled wildlife and plant species and the habitats/ecosystems upon which they depend for survival. To comply with the ESA, a project applicant analyzes the project’s effects on threatened and endangered species, as well as any critical habitat designated for any of the species. The applicant uses biological assessments that have been prepared for the project, as well as any documents pertaining to the project’s effects on listed species and designated critical habitat. If a listed species may be adversely affected by a project, USBR or SWRCB staff will confer with the USFWS to inform these agencies of project impacts to any federally listed species or critical habitat. If USFWS staff determine the project will adversely impact a federally listed species or designated critical habitat, formal consultation is initiated, where USEPA assumes the role as the

lead agency. This IS/MND includes the documentation to disclose the proposed project's effects on special-status species and compliance with the federal ESA in Section 2, *Biological Resources*, as well as the Biological Resources Technical Report included in Appendix BIO to this IS/MND.

### 3.1.6 Farmland Protection Policy Act

The purpose of the Farmland Protection Policy Act (FPPA) is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses. It additionally directs federal programs to be compatible with state and local policies for the protection of farmlands. For the purpose of the FPPA, farmland includes Prime Farmland, Unique Farmland, and Land of Statewide or Local Importance. Projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by a federal agency or with assistance from a federal agency (NRCS 2020). As discussed in Section 2, Agriculture and Forestry Resources, the proposed project would not convert farmland to non-agricultural use. As such, the project would not impact farmland and would adhere to the FPPA.

### 3.1.7 Fish and Wildlife Conservation Act

The Fish and Wildlife Conservation Act declares that fish and wildlife are of ecological, educational, esthetic, cultural, recreational, economic, and scientific value to the United States. The purposes of this Act are to encourage all federal departments and agencies to utilize their statutory and administrative authority, to the maximum extent practicable and consistent with each agency's statutory responsibilities and to conserve and to promote conservation of non-game fish and wildlife and their habitats. Another purpose is to provide financial and technical assistance to the states for the development, revision, and implementation of conservation plans and programs for nongame fish and wildlife. This IS/MND evaluates any potential for the proposed project to affect fish and wildlife in Section 2, *Biological Resources*, as well as the Biological Resources Technical Report included in Appendix BIO.

### 3.1.8 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) is the principal law governing marine fisheries in the United States. First enacted in 1976, it was adopted to create a US fishery conservation zone out to 200 nautical miles off the United States coast, to phase out foreign fishing activities within this zone, to prevent overfishing, to allow overfished stocks to recover, and to conserve and manage fishery resources. MSA requires federal agencies to consult with the National Oceanic and Atmospheric Administration (NOAA) Fisheries when their actions or activities may adversely affect habitat identified by federal regional management councils as Essential Fish Habitat (EFH). The MSA defines EFH as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity” (NOAA Fisheries 2020). The proposed project would have no adverse impact on the marine environment or EFH in the Pacific Ocean. Therefore, the MSA is not applicable to the proposed project, and no impact would occur.

### 3.1.9 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) is the domestic law that affirms, or implements, a commitment by the United States 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. 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. This IS/MND evaluates any potential for the proposed project to affect migratory birds in Section 2, *Biological Resources*, as well as the Biological Resources Technical Report included in Appendix BIO.

### 3.1.10 National Historic Preservation Act

CEQA-Plus requires compliance with Section 106 of the National Historic Preservation Act (NHPA). Consultation with the State Historic Preservation Officer (SHPO) is required to demonstrate/confirm that Section 106 compliance has been achieved. This IS/MND and the administrative record includes the information and documentation that is required to provide to the SHPO to initiate the Section 106 consultation, including, (1) identification of the proposed project's Area of Potential Effects (APE), (2) cultural records searches for the APE at the appropriate Information Centers, (3) documentation of Native American consultation, (4) cultural resources field surveys of the APE, (5) evaluations of elements of the built environment in and around the APE that are eligible for the National Register of Historic Places, and (6) Determination of Eligibility for any cultural resources that cannot be avoided during project construction. As discussed in Section 2, *Cultural Resources* and *Tribal Cultural Resources*, the proposed project would not have an adverse effect to historic resources or tribal cultural resources.

### 3.1.11 Rivers and Harbors Act

Section 9 of the Rivers and Harbors Appropriation Act of 1899 (33 U.S.C. 403; Chapter 425, March 3, 1899; 30 Stat. 1151), commonly known as the Rivers and Harbors Act of 1899, prohibits the construction of any bridge, dam, dike, or causeway over or in navigable waterways of the United States without Congressional approval. Under Section 10 of the Act, the building of any wharfs, piers, jetties, and other structures is prohibited without Congressional approval, and excavation or fill within navigable waters requires the approval of the Chief of Engineers. The proposed project does not entail the construction of any wharfs, piers, or jetties, nor is the proposed project located on a federally designated navigable water. As such, this Act is not applicable to the proposed project, and no impact would occur.

### 3.1.12 Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) was established to protect the quality of drinking water in the United States. The SDWA focuses on all waters actually or potentially designed for drinking uses, whether from above ground or underground sources. The principal federal agency involved in drinking water regulation is the USEPA. USEPA is responsible for implementing federal drinking water law and setting national drinking water requirements. The proposed project would



replenish potable aquifers in the Tehachapi Groundwater Basin that are a source for drinking water in the City. The proposed project would be regulated and permitted by the SWRCB's Division of Drinking Water (DDW), which has the primary responsibility for regulating drinking water in California, including compliance with federal requirements. Refer to Section 2, *Hydrology and Water Quality* for a discussion on project impacts to groundwater and regulatory requirements of SWRCB DDW.

SDWA also regulates sole source aquifers, which are aquifers that supply at least 50 percent of the drinking water for its services area and has no reasonably available alternative drinking water sources should the aquifer become contaminated. The aquifers in the project area are not designated as sole source aquifers by the USEPA (USEPA 2021).

### 3.1.13 Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act was created in 1968 to protect and preserve the special character of certain rivers with outstanding natural, cultural and recreational values and recognize their appropriate use and development. Section 5(d)(1) of the Wild and Scenic Rivers Act lists interim protection measures for eligible or suitable rivers. For a river to be eligible for designation in the National Wild and Scenic River System, it must have one or more outstandingly remarkable river values. There are no Wild and Scenic Rivers located within the project area (National Wild and Scenic River System 2021). Therefore, this Act is not applicable to the proposed project, and no impact would occur.

## 3.2 Executive Orders

### 3.2.1 Floodplain Management, Executive Order No. 11988

Executive Order 11988 requires federal agencies avoid, to the extent possible, the long and short-term adverse impacts associated with the occupancy and modification of flood plains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative (FEMA 2020a). The flood zones in the project area are discussed in this IS/MND in Section 2, *Hydrology and Water Quality*.

### 3.2.2 Protection of Wetlands, Executive Order No. 11990, as Amended by Executive Order No. 12608

Under this Executive Order No. 11990, each Federal agency takes action to minimize the destruction, degradation, or modification of wetlands and enhance the natural and beneficial values of wetlands. The Executive Order also directs the avoidance of direct or indirect support of new construction in wetlands and public involvement throughout the wetlands protection decision-making process (HUD 2020). Impacts to wetlands in the project area are considered in this IS/MND in Section 2, *Biological Resources*.

### 3.2.3 Environmental Justice, Executive Order No. 12898

Under Executive Order 12898, federal agencies are directed to make achieving environmental justice a part of their mission by identifying and addressing, as appropriate, disproportionately high adverse human health or environmental effects of its activities on minority and low-income populations (FEMA 2020b). Per Executive Order 12898, each Federal agency must make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health, environmental, economic and social effects of its programs, policies, and activities on minority and low-income populations, particularly when such analysis is required by NEPA. The Executive Order emphasizes the importance of NEPA's public participation process, directing that each Federal agency shall provide opportunities for community input in the NEPA process. Agencies are further directed to identify potential effects and mitigation measures in consultation with affected communities.

For the purposes of this EIR and consistency with NEPA and CEQA-Plus Guidelines, applicable local plans, and agency and professional standards, the proposed project would be considered to have a significant effect on environmental justice if it would affect the health or environment of minority or low-income populations disproportionately. Minority populations are identified where the “total minority population,” which for this analysis is considered to include all residents who reported their race and ethnicity as anything other than non-Hispanic white to the US Census Bureau, is greater than 50 percent, in accordance with the federal Council on Environmental Quality (CEQ) guidelines for environmental justice analyses (CEQ 1997). The CEQ environmental justice guidance encourages agencies to identify low-income populations using the annual statistical poverty thresholds (CEQ 1997). For the City of Tehachapi census tract, non-Hispanic white accounts for 48.6 percent of the population, making the total minority population over 50 percent (US Census Bureau 2021). For the City of Tehachapi, approximately 14.6 percent of the population lives below the poverty threshold (US Census Bureau 2021). The proposed project would upgrade/modify facilities at the existing WWTP, Borrow Pit, and Blackburn Dam and would build a new pipeline along Valley Blvd and Steuber Road that would be belowground once constructed. Other than the temporary construction impacts associated with building the pipeline, which would be in close proximity to several residences along Steuber Road for up to 1-2 weeks, no aspect of project construction or operation would directly affect any communities. As explained in Section 2, *Mandatory Findings of Significance*, with implementation of mitigation for construction noise and traffic (Mitigation Measures NOI-1 and TRA-1), the proposed project would not result in adverse effects to humans or their environments. Therefore, the proposed project would not disproportionately affect the health or environment of any minority or low-income populations.

In addition, the proposed project would augment water supplies in the Tehachapi Groundwater Basin, which would benefit the entire community of Tehachapi by providing water supply reliability, reduce dependency on imported water, and improving water quality. The project would not disproportionately harm the health or environment of any community or residential area.

### 3.3 References

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- \_\_\_\_\_. 2020 CBRA Legislation and Testimony. <https://www.fws.gov/CBRA/Legislation.html>. Updated April 3, 2020.

# Appendix AQ

## **Project Air Quality Calculations**



# Appendix A

## **Assumptions and Calculations**

Project Land Uses						
Land Use Type	CalEEMod LandUse Type	CalEEMod LandUse Subtype	Amount	Unit	Building sq.ft.	Acreage
Treatment Facilities	Industrial	General Light Industry	37.6	1000sqft	37,600	2.00
Recharge Facilities/Basin	Parking	Other Non-Asphalt Surface	8.308	acres	361,896	8.308
Conveyance Facilities	Parking	Other Non-Asphalt Surface	15.56	1000sqft	15,560	0.36
Pump station (effluent)	Parking	Other Non-Asphalt Surface	2.5	1000sqft	2,500	0.06
Pump station (borrow pit)	Parking	Other Non-Asphalt Surface	2.5	1000sqft	2,500	0.06
Pipeline	Parking	Other Non-Asphalt Surface	10.56	1000sqft	10,560	0.24
Total					415,056	

Construction Schedule - Overview		
Start	End	Total Duration (days)
1/1/2022	2/28/2023	423
Total Construction Site Area (acres)		

Construction Schedule - Detail

Construction Phase	CalEEMod Phase Type	Start Date	End Date	Total Calendar Days	Workdays (5 days/week)	Workdays (5 days/week)	Worker Trips/Max Day (In/Out)	Vendor Trips/Max Day (In/Out)	Total Haul Trips (In/Out)	Max Daily Haul Trucks/Day	Max Daily Haul Trips/Day (In/Out)
Treatment Facilities		1/1/2022	9/30/2022	272		195					
Site Preparation	Site Preparation	1/1/2022	1/14/2022	13	10	10	50	0	1,614	81	162
Grading/Excavation	Grading/Excavation	1/15/2022	4/5/2022	80	57	57	50	0	12,908	114	227
Building Construction - Installation of Facilities	Building Construction	4/6/2022	9/9/2022	156	113	113	50	8	0	0	0
Paving	Paving	9/10/2022	9/16/2022	6	5	5	50	130	0	0	0
Testing/Start Up	Testing/Start Up	9/17/2022	9/30/2022	13	10	10	10	0	0	0	0
						195					
Recharge Facilities		10/1/2022	1/31/2023	122	87	87					
Site Preparation	Site Preparation	10/1/2022	11/1/2022	31	22	22	20	0	6,702	153	305
Grading/Excavation	Grading/Excavation	11/2/2022	1/31/2023	90	65	65	20	0	2,682	21	42
		11/2/2022	12/31/2022	59	43	43	20		1,774	21	42
		1/1/2023	1/31/2023	30	22	22	20		908	21	42
						87					
Conveyance Facilities											
Conveyance Facilities - Pipelines		10/1/2022	1/31/2023	122	87	87					
Trenching/Excavation/Shoring	Grading/Excavation	10/1/2022	11/7/2022	37	26	26	20	0	50	1	2
Building Construction - Installation of Pipelines/	Building Construction	11/8/2022	1/19/2023	72	53	53	20	2	0	0	0
		11/8/2022	12/31/2022	53	39	39	20	2			
		1/1/2023	1/19/2023	18	14	14	20	2			
Site Restoration/Paving	Paving	1/20/2023	1/24/2023	4	3	3	20	28	0	0	0
Testing	Testing/Start Up	1/25/2023	1/31/2023	6	5	5	10	0	0	0	0
						87					
Conveyance Facilities - Pump Stations		10/1/2022	2/28/2023	150	107	107					
Site Preparation	Site Preparation	10/1/2022	10/7/2022	6	5	5	20	0	48	5	10
Grading/Excavation	Grading/Excavation	10/8/2022	11/21/2022	44	31	31	20	0	278	5	9
Building Construction - Installation	Building Construction	11/22/2022	2/16/2023	86	63	63	20	2	0	0	0
		11/22/2022	12/31/2022	39	29	29	20	2			
		1/1/2023	2/16/2023	46	34	34	20	2			
Paving	Paving	2/17/2023	2/21/2023	4	3	3	20	8	0	0	0
Testing/Start Up	Testing/Start Up	2/22/2023	2/28/2023	6	5	5	10	0	0	0	0
						107					

Tehapachi GSP  
Construction Equipment List  
Treatment Facilities

	Off-Road Equipment	Number	Hours Per Day	Notes
Site Preparation	Excavator	1	8	
	Haul Truck	81	8	Dump Truck, Modeled Outside CalEEMod
	Tractor/Loader/Backhoe	2	8	
	Off-Highway Truck	1	8	water truck
Grading/Excavation	Excavator	1	8	
	Haul Truck	113.5	8	Dump Truck, Modeled Outside CalEEMod
	Off-Highway Truck	1	8	water truck
	Plate Compactor	1	8	
	Other Construction Equipment	1	8	shoring equipment
	Tractor/Loader/Backhoe	2	8	
Building Construction - Installation of Facilities	Crane	2	8	
	Off-Highway Truck	2	8	water truck, pipe trailer
	Other Construction Equipment	1	8	shoring equipment
	Plate Compactor	1	8	
	Tractor/Loader/Backhoe	2	8	
Paving	Tractor/Loader/Backhoe	2	8	
	Paver	1	8	
	Paving Equipment	1	8	
	Cement and Morter Mixer	1	8	
	Roller	1	8	
Testing/Start Up				

Worker/Vendors Amounts

Phase	# of workers <sup>1</sup>	# of worker trips/day (In/Out)	Vendor Trips/day (In/Out)
Site Preparation	25	50	0
Grading/Excavation	25	50	0
Building Construction - Installation of F	25	50	8
Paving	25	50	130
Testing/Start Up	5	10	0

Site Preparation

Parameters	Amount	
Site Area (acres)	2.00	
Site Area (ft <sup>2</sup> )	87,120	
Area of Site Prep	43,560	
Site Prep Depth (ft)	5	conservative estimate ESA
<b>Site Prep Debris (CY)</b>	<b>8,067</b>	
Haul Truck Capacity (CY)	10	conservative estimate ESA
Total Haul Trucks Required	807	
Site Prep Hauling Days	10	
<b>Total Haul Truck Trips (In/Out)</b>	<b>1,614</b>	
Total Haul Truck Trips (In/Out) per day	162	

Excavation Quantities

Parameters	Amount	
Site Area (acres)	2.00	
Site Area (ft <sup>2</sup> )	87,120	
Grading Depth (ft)	20	From project PD
<b>Excavation Volume (Export) (CY)</b>	<b>64,533</b>	conservative estimate ESA
Haul Truck Capacity (CY)	10	
Total Haul Trucks Required	6,454	
Excavation Hauling Days	57	
<b>Total Haul Truck Trips (In/Out)</b>	<b>12,908</b>	
Total Haul Truck Trips (In/Out) per day	227	

Paving Asphalt Quantities

Parameters	Amount	
Area of Paving (acres)	2.00	From construction data needs
Thickness (ft)	1.00	Assumption by ESA
<b>Required Asphalt Volume (CY)</b>	<b>3,227</b>	
Asphalt Truck Capacity (CY)	10	
Total Asphalt Trucks Required	323	
Total Asphalt Truck Trips (In/Out)	646	
Paving Days	5	
Total Paving Truck Trips (In/Out) per day	130	Included as vendor truck trips during paving phase.



Tehapachi GSP  
Construction Equipment List  
Recharge Facilities

	Off-Road Equipment	Number	Hours Per Day	Notes
Site Preparation	Haul Truck	1	8	Dump Truck, Modeled Outside CalEEMod water truck
	Tractor/Loader/Backhoe	3	8	
	Scraper	1	8	
	Off-Highway Truck	1	8	
Grading/Excavation	Excavator	1	8	Dump Truck, Modeled Outside CalEEMod water truck
	Haul Truck	21	8	
	Off-Highway Truck	1	8	
	Other Construction Equipment	1	8	
	Plate Compactor	1	8	
	Scraper	1	8	
	Tractor/Loader/Backhoe	3	8	

Worker/Vendors Amounts

Phase	# of workers <sup>1</sup>	# of worker trips/day (In/Out)	Vendor Trips/day (In/Out)
Site Preparation	10	20	0
Grading/Excavation	10	20	0

Site Preparation

Parameters	Amount
Site Area (acres)	8.308
Site Area (ft <sup>2</sup> )	361,896
Area of Site Prep	180,948
Site Prep Depth (ft)	5
<b>Site Prep Debris (CY)</b>	<b>33,509</b>
Haul Truck Capacity (CY)	10
Total Haul Trucks Required	3,351
Site Prep Hauling Days	22
<b>Total Haul Truck Trips (In/Out)</b>	<b>6,702</b>
Total Haul Truck Trips (In/Out) per day	305

conservative estimate ESA

conservative estimate ESA

Excavation Quantities

Parameters	Amount
Site Area (acres)	8.31
Site Area (ft <sup>2</sup> )	361,896
Grading Depth (ft)	10
<b>Excavation Volume (Export) (CY)</b>	<b>13,404</b>
Haul Truck Capacity (CY)	10
Total Haul Trucks Required	1,341
Excavation Hauling Days	65
<b>Total Haul Truck Trips (In/Out)</b>	<b>2,682</b>
Total Haul Truck Trips (In/Out) per day	42

From project PD

Conservatively assumed 10% of grading/excavation volume exported. The rest balance on :  
conservative estimate ESA

Tehapachi GSP  
Construction Equipment List  
Conveyance Facilities - Pipelines

	Off-Road Equipment	Number	Hours Per Day	Notes
Trenching/Excavation/Shoring	Concrete/Industrial Saw	1	8	not currently in equipment list Dump Truck, Modeled Outside CalEEMod water truck
	Excavator	1	8	
	Haul Truck	2	8	
	Off-Highway Truck	1	8	
	Plate Compactor	1	8	
	Other Construction Equipment	1	8	
	Tractor/Loader/Backhoe	2	8	
Building Construction - Installation of Pipelines/Backfill	Crane	1	8	not currently in equipment list water truck, pipe trailer shoring equipment
	Off-Highway Truck	2	8	
	Other Construction Equipment	1	8	
	Plate Compactor	1	8	
	Tractor/Loader/Backhoe	2	8	
Site Restoration/Paving	Tractor/Loader/Backhoe	2	8	not currently in equipment list not currently in equipment list not currently in equipment list
	Paver	1	8	
	Cement and Morter Mixer	4	8	
	Roller	1	8	
Testing/Start Up				

**Worker/Vendors Amounts**

Phase	# of workers <sup>1</sup>	# of worker trips/day (In/Out)	Vendor Trips/day (In/Out)
Trenching/Excavation/Shoring	10	20	0
Building Construction - Installation of Pipelines/Backfill	10	20	2
Site Restoration/Paving	10	20	28
Testing/Start Up	5	10	0

**Excavation Quantities**

Parameters	Amount	
Excavation Volume (Export) (CY)	250	From project PD conservative estimate ESA
Haul Truck Capacity (CY)	10	
Total Haul Trucks Required	25	
Excavation Hauling Days	26	
<b>Total Haul Truck Trips (In/Out)</b>	<b>50</b>	
Total Haul Truck Trips (In/Out) per day	2	

**Paving Asphalt Quantities**

Parameters	Amount	
Area of Paving (acres)	0.24	From construction data needs Assumption by ESA
Thickness (ft)	1.00	
<b>Required Asphalt Volume (CY)</b>	<b>392</b>	conservative estimate ESA
Asphalt Truck Capacity (CY)	10	
Total Asphalt Trucks Required	40	
Total Asphalt Truck Trips (In/Out)	80	Included as vendor truck trips during paving phase.
Paving Days	3	
Total Paving Truck Trips (In/Out) per day	28	

Tehapachi GSP  
Construction Equipment List  
Conveyance Facilities - Pump Stations  
Equipment for 1 Pump Station

	Off-Road Equipment	Number	Hours Per Day	Notes
Site Preparation	Excavator	1	8	
	Haul Truck	5	8	
	Tractor/Loader/Backhoe	2	8	
	Off-Highway Truck	1	8	water truck
Grading/Excavation	Excavator	1	8	
	Tractor/Loader/Backhoe	2	8	
	Haul Truck	4.5	8	Dump Truck, Modeled Outside CalEEMod
	Off-Highway Truck	1	8	Water Truck
	Other Construction Equipment	1	8	
Building Construction - Installation	Crane	1	8	not currently in equipment list
	Off-Highway Truck	2	8	water truck, pipe trailer
	Other Construction Equipment	1	8	shoring equipment
	Plate Compactor	1	8	
	Tractor/Loader/Backhoe	2	8	
Paving	Tractor/Loader/Backhoe	2	8	
	Paver	1	8	not currently in list
	Cement and Morter Mixer	4	8	not currently in list
	Roller	1	8	not currently in list
Testing/Start Up				

Worker/Vendors Amounts

Phase	# of workers <sup>1</sup>	# of worker trips/day (In/Out)	Vendor Trips/day (In/Out)
Site Preparation	10	20	0
Grading/Excavation	10	20	0
Building Construction - Installation	10	20	2
Paving	10	20	8
Testing/Start Up	5	10	0

Assumptions for 1 Pump Station

Site Preparation		
Parameters	Amount	
Site Area (acres)	0.06	From project PD
Site Area (ft <sup>2</sup> )	2,500	
Area of Site Prep	1,250	
Site Prep Depth (ft)	5	conservative estimate ESA
Site Prep Debris (CY)	231	
Haul Truck Capacity (CY)	10	conservative estimate ESA
Total Haul Trucks Required	24	
Site Prep Hauling Days	5	From construction data needs
Total Haul Truck Trips (In/Out)	48	
Total Haul Truck Trips (In/Out) per day	10	

Excavation Quantities

Parameters	Amount	
Site Area (ft <sup>2</sup> )	2,500	From project PD
Grading Depth (ft)	15	From project PD
Excavation Volume (Export) (CY)	1,389	
Haul Truck Capacity (CY)	10	conservative estimate ESA
Total Haul Trucks Required	139	
Excavation Hauling Days	31	
Total Haul Truck Trips (In/Out)	278	
Total Haul Truck Trips (In/Out) per day	9	

Paving Asphalt Quantities

Parameters	Amount	
Area of Paving (acres)	0.06	From project PD
Thickness (ft)	1.00	Assumption by ESA
Required Asphalt Volume (CY)	93	
Asphalt Truck Capacity (CY)	10	conservative estimate ESA
Total Asphalt Trucks Required	10	
Total Asphalt Truck Trips (In/Out)	20	
Paving Days	3	
Total Paving Truck Trips (In/Out) per day	8	Included as vendor truck trips during paving phase.

Tehachapi GSP  
Unmitigated AQ Emissions Summary of Construction

Unmitigated Construction Emissions in Tons/Year

YEAR		EMISSIONS (TONS/YEAR)					
		VOC	NOx	CO	SO <sub>x</sub>	PM10	PM2.5
2022							
Treatment Facilities	Off-Road	0.195	1.827	1.615	0.004	0.084	0.074
	On-Road	0.011	2.026	1.733	0.008	0.190	0.058
	Subtotal	0.205	3.853	3.348	0.012	0.274	0.132
Recharge Facilities	Off-Road	0.073	0.710	0.696	0.001	0.051	0.031
	On-Road	0.005	1.079	0.881	0.004	0.093	0.029
	Subtotal	0.078	1.790	1.576	0.006	0.144	0.060
Conveyance Facilities - Pipeline	Off-Road	0.066	0.591	0.585	0.001	0.027	0.025
	On-Road	1.31E-04	0.007	0.012	3.52E-05	0.002	4.81E-04
	Subtotal	0.066	0.597	0.596	0.001	0.029	0.025
Conveyance Facilities - Pump Stations	Off-Road	0.113	1.017	1.026	0.002	0.046	0.042
	On-Road	0.001	0.094	0.113	4.38E-04	0.017	0.005
	Subtotal	0.114	1.110	1.139	0.003	0.063	0.047
Subtotal	Off-Road	0.447	4.145	3.921	0.009	0.208	0.172
Subtotal	On-Road	0.017	3.205	2.738	0.013	0.301	0.092
Total		0.464	7.350	6.659	0.022	0.509	0.264
2023							
Recharge Facilities	Off-Road	0.026	0.239	0.260	0.001	0.024	0.011
	On-Road	0.001	0.108	0.109	4.80E-04	0.013	0.004
	Subtotal	0.026	0.347	0.368	0.001	0.037	0.015
Conveyance Facilities - Pipeline	Off-Road	0.016	0.136	0.135	3.40E-04	0.006	0.005
	On-Road	1.31E-04	0.007	0.012	3.52E-05	0.002	4.81E-04
	Subtotal	0.016	0.143	0.147	3.75E-04	0.008	0.006
Conveyance Facilities - Pump Stations	Off-Road	0.072	0.626	0.612	0.002	0.027	0.025
	On-Road	4.38E-04	0.012	0.033	9.21E-05	0.007	0.002
	Subtotal	0.073	0.638	0.645	0.002	0.034	0.026
Subtotal	Off-Road	0.114	1.001	1.007	0.002	0.057	0.041
Subtotal	On-Road	0.001	0.126	0.154	0.001	0.022	0.006
Total		0.115	1.127	1.161	0.003	0.079	0.047
Maximum		0.464	7.350	6.659	0.022	0.509	0.264
De Minimis Thresholds		25	25	NA	27	15	15
Exceeds De Minimis?		NO	NO	NO	NO	NO	NO

Tehachapi GSP  
Unmitigated AQ Emissions Summary of Construction

Construction and Operational Emissions During Year 2023 and Operational Emissions For the First Full Year of Operations In Year 2024 in Tons/Year

YEAR		EMISSIONS (TONS/YEAR)					
		VOC	NOx	CO	SO <sub>x</sub>	PM10	PM2.5
Construction							
2023							
Recharge Facilities	Off-Road	0.026	0.239	0.260	0.001	0.024	0.011
	On-Road	0.001	0.108	0.109	4.80E-04	0.013	0.004
	Subtotal	0.026	0.347	0.368	0.001	0.037	0.015
Conveyance Facilities - Pipeline	Off-Road	0.016	0.136	0.135	3.40E-04	0.006	0.005
	On-Road	1.31E-04	0.007	0.012	3.52E-05	0.002	4.81E-04
	Subtotal	0.016	0.143	0.147	3.75E-04	0.008	0.006
Conveyance Facilities - Pump Stations	Off-Road	0.072	0.626	0.612	0.002	0.027	0.025
	On-Road	4.38E-04	0.012	0.033	9.21E-05	0.007	0.002
	Subtotal	0.073	0.638	0.645	0.002	0.034	0.026
Subtotal	Off-Road	0.114	1.001	1.007	0.002	0.057	0.041
Subtotal	On-Road	0.001	0.126	0.154	0.001	0.022	0.006
Construction Subtotal		0.115	1.127	1.161	0.003	0.079	0.047
Operations							
2023							
	Area	0.159	0.00E+00	2.92E-04	0.00E+00	0.00E+00	0.00E+00
	Energy	2.81E-03	0.03	0.02	1.50E-04	0.002	0.002
	Mobile	0.021	0.001	0.010	2.58E-05	0.002	0.001
	Emergency Generator	0.05	0.93	0.53	1.12E-05	0.029	0.029
Operation Subtotal		0.232	0.957	0.564	1.87E-04	0.034	0.031
Construction + Operation Total - 2023		0.35	2.08	1.72	0.003	0.112	0.079
De Minimis Thresholds		25	25	NA	27	15	15
Exceeds De Minimis?		NO	NO	NO	NO	NO	NO
Operations							
2024							
	Area	0.19	0.00E+00	3.50E-04	0.00E+00	0.00E+00	0.00E+00
	Energy	3.37E-03	0.03	0.03	1.80E-04	2.33E-03	2.33E-03
	Mobile	0.03	1.44E-03	0.01	3.09E-05	2.84E-03	7.17E-04
	Emergency Generator	0.06	1.12	0.64	0.00	0.04	0.03
Operation Total -2024		0.28	1.15	0.68	0.00	0.04	0.04
De Minimis Thresholds		25	25	NA	27	15	15
Exceeds De Minimis?		NO	NO	NO	NO	NO	NO

For year 2023, area and energy emissions are conservatively taken from the year 2023 modeling run and apportioned to 10 months of the year as the proposed project would be completed in the first quarter of year 2023. Emergency generator emissions are apportioned to 10 months of the year as the proposed project would be completed in the first quarter of year 2023. For year 2024, area and energy emissions are conservatively taken from 2023 modeling run which is conservative as impacts would be lower than those analyzed due to the use of a more energy-efficient buildings and cleaner burning landscaping and employee vehicle fleet mix over time pursuant to State regulations.

# Tehachapi - Treatment Facilities

## Total On-Road Emissions

# Tehachapi - Treatment Facility

## 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) and total in (tons/year)									
						ROG	NOX	CO	SO2	PM10 Dust	PM10 Exh	Total PM10	PM2.5 Dust	PM2.5 Exh	Total PM2.5
<u>Site Preparation</u>	2022														
Total Haul Trips	1614														
Hauling	162	10	8	20	15	1.59	409.32	319.45	1.57	29.37	2.43	31.80	7.78	2.32	10.10
Vendor	0	10	8	7.3	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	50	10	8	10.8	0	0.27	1.40	15.95	0.04	3.75	0.02	3.77	0.93	0.02	0.95
Total						0.001	0.205	0.168	0.001	0.017	0.001	0.018	0.004	0.001	0.006
<u>Grading/Excavation</u>	2022														
Total Haul Trips	12908														
Hauling	227	57	8	20	15	12.70	3269.24	2551.42	12.56	234.56	19.39	253.95	62.16	18.55	80.71
Vendor	0	57	8	7.3	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	50	57	8	10.8	0	1.52	7.98	90.90	0.21	21.37	0.11	21.48	5.30	0.10	5.40
Total						0.007	1.639	1.321	0.006	0.128	0.010	0.138	0.034	0.009	0.043
<u>Building Construction</u>	2022														
Total Haul Trips	0														
Hauling	0	113	8	20	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	8	113	8	7.3	15	0.83	106.17	97.59	0.35	5.58	0.40	5.97	1.46	0.38	1.84
Worker	50	113	8	10.8	0	3.02	15.82	180.20	0.42	42.37	0.22	42.59	10.50	0.20	10.71
Total						0.002	0.061	0.139	0.000	0.024	0.000	0.024	0.006	0.000	0.006
<u>Pavings</u>	2022														
Total Haul Trips	646														
Hauling	130	5	8	20	15	0.64	164.23	128.17	0.63	11.78	0.97	12.76	3.12	0.93	4.05
Vendor	130	5	8	7.3	15	0.59	76.34	70.17	0.25	4.01	0.28	4.30	1.05	0.27	1.32
Worker	50	5	8	10.8	0	0.13	0.70	7.97	0.02	1.87	0.01	1.88	0.46	0.01	0.47
Total						0.0007	0.1206	0.1032	0.0004	0.0088	0.0006	0.0095	0.0023	0.0006	0.0029
<u>Testing/Start Up</u>	2022														
Total Haul Trips	0														
Hauling	0	10	8	20	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	10	8	7.3	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	10	10	8	10.8	0	0.05	0.28	3.19	0.01	0.75	0.00	0.75	0.19	0.00	0.19
Total						0.00003	0.00014	0.00159	0.00000	0.00037	0.00000	0.00038	0.00009	0.00000	0.00009

Tehachapi - Treatment Facilities  
Running Emissions

	Running Emissions Factor (grams/mile)					
	ROG	NOX	CO	SO2	PM10	PM2.5
2021Hauling Hauling	0.0395716	2.327268345	0.18373293	0.01515211	0.04442025	0.04249858
2021Vendor Vendor	0.05816345	1.952322708	0.57764063	0.01361162	0.03320923	0.03176555
2021Worker Worker	0.02529672	0.132411333	1.4605115	0.00319661	0.00172238	0.00158626
2022Hauling Hauling	0.02221105	1.957614023	0.10395598	0.01499499	0.03258598	0.03117626
2022Vendor Vendor	0.0398915	1.632518344	0.41425165	0.01348657	0.02358956	0.02256274
2022Worker Worker	0.02244418	0.117588513	1.33949287	0.00313252	0.00162469	0.00149613
2023Hauling Hauling	0.01358939	1.622184301	0.06874988	0.01480486	0.03157555	0.03020959
2023Vendor Vendor	0.02806275	1.304652432	0.31496285	0.01333293	0.0217403	0.02079394
2023Worker Worker	0.01984082	0.104305497	1.22753123	0.00306581	0.00153092	0.0014096
2024Hauling Hauling	0.01306409	1.563417945	0.06337611	0.01454344	0.03109779	0.0297525
2024Vendor Vendor	0.02430362	1.222522154	0.25787792	0.01311262	0.02081985	0.01991365
2024Worker Worker	0.01754328	0.092674612	1.13084156	0.00299516	0.00144347	0.00132889
GWP	N/A	N/A	N/A	N/A	N/A	N/A

Construction Phase	Daily One-Way Trips	Haul Days per Phase  (days)	Work Hours per Day  (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day)					
					ROG	NOX	CO	SO2	PM10	PM2.5
<u>Site Prepration</u>										
Total Haul Trips	2022 1614									
Hauling	162	10	8	20	1.59	139.83	7.43	1.07	2.33	2.23
Vendor	0	10	8	7.3	0.00	0.00	0.00	0.00	0.00	0.00
Worker	50	10	8	10.8	0.27	1.40	15.95	0.04	0.02	0.02
<u>Grading Excavation</u>										
Total Haul Trips	2022 12908									
Hauling	227	57	8	20	12.67	1116.84	59.31	8.55	18.59	17.79
Vendor	0	57	8	7.3	0.00	0.00	0.00	0.00	0.00	0.00
Worker	50	57	8	10.8	1.52	7.98	90.90	0.21	0.11	0.10
<u>Building Construction</u>										
Total Haul Trips	2022 0									
Hauling	0	113	8	20	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	8	113	8	7.3	0.58	23.75	6.03	0.20	0.34	0.33
Worker	50	113	8	10.8	3.02	15.82	180.20	0.42	0.22	0.20
<u>Pavings</u>										
Total Haul Trips	2022 646									
Hauling	130	5	8	20	0.64	56.11	2.98	0.43	0.93	0.89
Vendor	130	5	8	7.3	0.42	17.08	4.33	0.14	0.25	0.24
Worker	50	5	8	10.8	0.13	0.70	7.97	0.02	0.01	0.01
<u>Testing/Start Up</u>										
Total Haul Trips	2022 0									
Hauling	0	10	8	20	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	10	8	7.3	0.00	0.00	0.00	0.00	0.00	0.00
Worker	10	10	8	10.8	0.05	0.28	3.19	0.01	0.00	0.00

Tehachapi - Treatment Facilities  
Idling Emissions

		Idling Emissions Factor (grams/minute)					
		ROG	NOX	CO	SO2	PM10	PM2.5
2021Hauling	Hauling	8.1875E-05	5.063610313	5.65149471	0.00944593	0.00448602	0.00429182
2021Vendor	Vendor	0.00879528	2.789851243	2.97819615	0.00505507	0.00323997	0.00309974
2021Worker	Worker	0	0	0	0	0	0
2022Hauling	Hauling	7.5252E-05	5.030316524	5.82427678	0.00935216	0.00185705	0.00177658
2022Vendor	Vendor	0.00819172	2.757072377	3.06289542	0.00500622	0.00174979	0.00167402
2022Worker	Worker	0	0	0	0	0	0
2023Hauling	Hauling	6.5457E-05	4.812125553	5.98095779	0.00901739	0.0017833	0.00170611
2023Vendor	Vendor	0.00759994	2.617125331	3.14458622	0.00483015	0.00156618	0.00149841
2023Worker	Worker	0	0	0	0	0	0
2024Hauling	Hauling	0.00029403	4.782468554	5.95136477	0.00879302	0.00176536	0.00168894
2024Vendor	Vendor	0.00728249	2.594135758	3.12776209	0.00471507	0.0014447	0.00138218
2024Worker	Worker	0	0	0	0	0	0
GWP		N/A	N/A	N/A	N/A	N/A	N/A

Construction Phase	Daily One-Way Trips	Haul Days per Phase	Work Hours per Day	Idling minutes per Day (miles)	Regional Emissions (pounds/day)					
					ROG	NOX	CO	SO2	PM10	PM2.5
<u>Site Preparation</u>		<u>2022</u>								
Total Haul Trips		1614								
Hauling	162	10	8	15	0.00	269.49	312.02	0.50	0.10	0.10
Vendor	0	10	8	15	0.00	0.00	0.00	0.00	0.00	0.00
Worker	50	10	8	0	0.00	0.00	0.00	0.00	0.00	0.00
<u>Grading/Excavation</u>		<u>2022</u>								
Total Haul Trips		12908								
Hauling	227	57	8	15	0.03	2152.39	2492.12	4.00	0.79	0.76
Vendor	0	57	8	15	0.00	0.00	0.00	0.00	0.00	0.00
Worker	50	57	8	0	0.00	0.00	0.00	0.00	0.00	0.00
<u>Building Construction</u>		<u>2022</u>								
Total Haul Trips		0								
Hauling	0	113	8	15	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	8	113	8	15	0.24	82.42	91.56	0.15	0.05	0.05
Worker	50	113	8	0	0.00	0.00	0.00	0.00	0.00	0.00
<u>Pavings</u>		<u>2022</u>								
Total Haul Trips		646								
Hauling	130	5	8	15	0.00	108.13	125.19	0.20	0.04	0.04
Vendor	130	5	8	15	0.18	59.26	65.84	0.11	0.04	0.04
Worker	50	5	8	0	0.00	0.00	0.00	0.00	0.00	0.00
<u>Testing/Start Up</u>		<u>2022</u>								
Total Haul Trips		0								
Hauling	0	10	8	15	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	10	8	15	0.00	0.00	0.00	0.00	0.00	0.00
Worker	10	10	8	0	0.00	0.00	0.00	0.00	0.00	0.00



**Tehachapi - Treatment Facilities**  
**Road Dust, Break Wear, and Tire wear Emissions**

	Emission Factors (grams/mile)					
	RD	PM10 BW	TW	RD	PM2.5 BW	TW
2021Hauling Hauling	3.00E-01	0.076096765	0.03595182	7.36E-02	0.02663387	0.00898796
2021Vendor Vendor	3.00E-01	0.060038861	0.02397591	7.36E-02	0.0210136	0.00599398
2021Worker Worker	3.00E-01	0.00707876	0.008	7.36E-02	0.00247757	0.002
2022Hauling Hauling	3.00E-01	0.075345605	0.03595192	7.36E-02	0.02637096	0.00898798
2022Vendor Vendor	3.00E-01	0.05966092	0.02397596	7.36E-02	0.02088132	0.00599399
2022Worker Worker	3.00E-01	0.00710143	0.008	7.36E-02	0.0024855	0.002
2023Hauling Hauling	3.00E-01	0.074674603	0.03595204	7.36E-02	0.02613611	0.00898801
2023Vendor Vendor	3.00E-01	0.059320323	0.02397602	7.36E-02	0.02076211	0.00599401
2023Worker Worker	3.00E-01	0.007083712	0.008	7.36E-02	0.0024793	0.002
2024Hauling Hauling	3.00E-01	0.074611756	0.03595213	7.36E-02	0.02611411	0.00898803
2024Vendor Vendor	3.00E-01	0.059247865	0.02397607	7.36E-02	0.02073675	0.00599402
2024Worker Worker	3.00E-01	0.00712155	0.008	7.36E-02	0.00249254	0.002

Construction Phase	Daily One-Way Trips	Haul Days per Phase  (days)	Work Hours per Day  (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day)					
					RD	PM10 BW	TW	RD	PM2.5 BW	TW
<u>Site Preparation</u>	2022									
Total Haul Trips	1614									
Hauling	162	10	8	20	21.42	5.38	2.57	5.26	1.88	0.64
Vendor	0	10	8	7.3	0.00	0.00	0.00	0.00	0.00	0.00
Worker	50	10	8	10.8	3.57	0.08	0.10	0.88	0.03	0.02
<u>Grading/Excavation</u>	2022									
Total Haul Trips	12908									
Hauling	227	57	8	20	171.07	42.99	20.51	41.99	15.04	5.13
Vendor	0	57	8	7.3	0.00	0.00	0.00	0.00	0.00	0.00
Worker	50	57	8	10.8	20.35	0.48	0.54	4.99	0.17	0.14
<u>Building Construction</u>	2022									
Total Haul Trips	0									
Hauling	0	113	8	20	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	8	113	8	7.3	4.36	0.87	0.35	1.07	0.30	0.09
Worker	50	113	8	10.8	40.34	0.96	1.08	9.90	0.33	0.27
<u>Pavings</u>	2022									
Total Haul Trips	646									
Hauling	130	5	8	20	8.59	2.16	1.03	2.11	0.76	0.26
Vendor	130	5	8	7.3	3.14	0.62	0.25	0.77	0.22	0.06
Worker	50	5	8	10.8	1.78	0.04	0.05	0.44	0.01	0.01
<u>Testing/Start Up</u>	2022									
Total Haul Trips	0									
Hauling	0	10	8	20	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	10	8	7.3	0.00	0.00	0.00	0.00	0.00	0.00
Worker	10	10	8	10.8	0.71	0.02	0.02	0.18	0.01	0.00

# Tehachapi - Recharge Facilities

## Total On-Road Emissions

# Tehachapi - Recharge Facilities

## 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) and total in (tons/year)									
						ROG	NOX	CO	SO2	PM10 Dust	PM10 Exh	Total PM10	PM2.5 Dust	PM2.5 Exh	Total PM2.5
<u>Site Preparation</u>	2022														
Total Haul Trips	6702														
Hauling	305	22	8	20	15	6.59	1695.38	1323.14	6.51	121.64	10.05	131.70	32.24	9.62	41.85
Vendor	0	22	8	7.3	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	20	22	8	10.8	0	0.24	1.23	14.03	0.03	3.30	0.02	3.32	0.82	0.02	0.83
					Total	0.003	0.848	0.669	0.003	0.062	0.005	0.068	0.017	0.005	0.021
<u>Grading Excavation</u>	2022														
Total Haul Trips	1774														
Hauling	42	43	8	20	15	1.77	456.31	356.12	1.75	32.74	2.71	35.45	8.68	2.59	11.27
Vendor	0	43	8	7.3	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	50	43	8	10.8	0	1.15	6.02	68.57	0.16	16.12	0.08	16.21	4.00	0.08	4.07
					Total	0.001	0.231	0.212	0.001	0.024	0.001	0.026	0.006	0.001	0.008
<u>Grading Excavation</u>	2023														
Total Haul Trips	908														
Hauling	42	22	8	20	15	0.56	213.13	185.56	0.88	16.72	1.34	18.06	4.43	1.28	5.71
Vendor	0	22	8	7.3	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	50	22	8	10.8	0	0.52	2.73	32.15	0.08	8.25	0.04	8.29	2.04	0.04	2.08
					Total	0.001	0.108	0.109	0.000	0.012	0.001	0.013	0.003	0.001	0.004

Tehachapi - Recharge Facilities  
Running Emissions

	Running Emissions Factor (grams/mile)					
	ROG	NOX	CO	SO2	PM10	PM2.5
2021Hauling Hauling	0.0395716	2.327268345	0.18373293	0.01515211	0.04442025	0.04249858
2021Vendor Vendor	0.05816345	1.952322708	0.57764063	0.01361162	0.03320923	0.03176555
2021Worker Worker	0.02529672	0.132411333	1.4605115	0.00319661	0.00172238	0.00158626
2022Hauling Hauling	0.02221105	1.957614023	0.10395598	0.01499499	0.03258598	0.03117626
2022Vendor Vendor	0.0398915	1.632518344	0.41425165	0.01348657	0.02358956	0.02256274
2022Worker Worker	0.02244418	0.117588513	1.33949287	0.00313252	0.00162469	0.00149613
2023Hauling Hauling	0.01358939	1.622184301	0.06874988	0.01480486	0.03157555	0.03020959
2023Vendor Vendor	0.02806275	1.304652432	0.31496285	0.01333293	0.0217403	0.02079394
2023Worker Worker	0.01984082	0.104305497	1.22753123	0.00306581	0.00153092	0.0014096
2024Hauling Hauling	0.01306409	1.563417945	0.06337611	0.01454344	0.03109779	0.0297525
2024Vendor Vendor	0.02430362	1.222522154	0.25787792	0.01311262	0.02081985	0.01991365
2024Worker Worker	0.01754328	0.092674612	1.13084156	0.00299516	0.00144347	0.00132889
GWP	N/A	N/A	N/A	N/A	N/A	N/A

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day)					
					ROG	NOX	CO	SO2	PM10	PM2.5
Site Prepration	2022									
Total Haul Trips	6702									
Hauling	305	22	8	20	6.57	579.18	30.76	4.44	9.64	9.22
Vendor	0	22	8	7.3	0.00	0.00	0.00	0.00	0.00	0.00
Worker	20	22	8	10.8	0.24	1.23	14.03	0.03	0.02	0.02
Grading Excavation	2022									
Total Haul Trips	1774									
Hauling	42	43	8	20	1.77	155.89	8.28	1.19	2.59	2.48
Vendor	0	43	8	7.3	0.00	0.00	0.00	0.00	0.00	0.00
Worker	50	43	8	10.8	1.15	6.02	68.57	0.16	0.08	0.08
Grading Excavation	2023									
Total Haul Trips	908									
Hauling	42	22	8	20	0.55	66.09	2.80	0.60	1.29	1.23
Vendor	0	22	8	7.3	0.00	0.00	0.00	0.00	0.00	0.00
Worker	50	22	8	10.8	0.52	2.73	32.15	0.08	0.04	0.04

Tehachapi - Recharge Facilities  
Idling Emissions

		Idling Emissions Factor (grams/minute)					
		ROG	NOX	CO	SO2	PM10	PM2.5
2021Hauling	Hauling	8.1875E-05	5.063610313	5.65149471	0.00944593	0.00448602	0.00429182
2021Vendor	Vendor	0.00879528	2.789851243	2.97819615	0.00505507	0.00323997	0.00309974
2021Worker	Worker	0	0	0	0	0	0
2022Hauling	Hauling	7.5252E-05	5.030316524	5.82427678	0.00935216	0.00185705	0.00177658
2022Vendor	Vendor	0.00819172	2.757072377	3.06289542	0.00500622	0.00174979	0.00167402
2022Worker	Worker	0	0	0	0	0	0
2023Hauling	Hauling	6.5457E-05	4.812125553	5.98095779	0.00901739	0.0017833	0.00170611
2023Vendor	Vendor	0.00759994	2.617125331	3.14458622	0.00483015	0.00156618	0.00149841
2023Worker	Worker	0	0	0	0	0	0
2024Hauling	Hauling	0.00029403	4.782468554	5.95136477	0.00879302	0.00176536	0.00168894
2024Vendor	Vendor	0.00728249	2.594135758	3.12776209	0.00471507	0.0014447	0.00138218
2024Worker	Worker	0	0	0	0	0	0
GWP		N/A	N/A	N/A	N/A	N/A	N/A

Construction Phase	Daily One-Way Trips	Haul Days per Phase	Work Hours per Day	Idling minutes per Day	Regional Emissions (pounds/day)					
					ROG	NOX	CO	SO2	PM10	PM2.5
		(days)	(hours/day)	(miles)						
<u>Site Preparation</u>										
2022										
Total Haul Trips	6702									
Hauling	305	22	8	15	0.02	1116.20	1292.38	2.08	0.41	0.39
Vendor	0	22	8	15	0.00	0.00	0.00	0.00	0.00	0.00
Worker	20	22	8	0	0.00	0.00	0.00	0.00	0.00	0.00
<u>Grading Excavation</u>										
2022										
Total Haul Trips	1774									
Hauling	42	43	8	15	0.00	300.43	347.84	0.56	0.11	0.11
Vendor	0	43	8	15	0.00	0.00	0.00	0.00	0.00	0.00
Worker	50	43	8	0	0.00	0.00	0.00	0.00	0.00	0.00
<u>Grading Excavation</u>										
2023										
Total Haul Trips	908									
Hauling	42	22	8	15	0.00	147.04	182.75	0.28	0.05	0.05
Vendor	0	22	8	15	0.00	0.00	0.00	0.00	0.00	0.00
Worker	50	22	8	0	0.00	0.00	0.00	0.00	0.00	0.00

**Tehachapi - Recharge Facilities**  
**Road Dust, Break Wear, and Tire wear Emissions**

	Emission Factors (grams/mile)					
	RD	PM10 BW	TW	RD	PM2.5 BW	TW
2021Hauling Hauling	3.00E-01	0.076096765	0.03595182	7.36E-02	0.02663387	0.00898796
2021Vendor Vendor	3.00E-01	0.060038861	0.02397591	7.36E-02	0.0210136	0.00599398
2021Worker Worker	3.00E-01	0.00707876	0.008	7.36E-02	0.00247757	0.002
2022Hauling Hauling	3.00E-01	0.075345605	0.03595192	7.36E-02	0.02637096	0.00898798
2022Vendor Vendor	3.00E-01	0.05966092	0.02397596	7.36E-02	0.02088132	0.00599399
2022Worker Worker	3.00E-01	0.00710143	0.008	7.36E-02	0.0024855	0.002
2023Hauling Hauling	3.00E-01	0.074674603	0.03595204	7.36E-02	0.02613611	0.00898801
2023Vendor Vendor	3.00E-01	0.059320323	0.02397602	7.36E-02	0.02076211	0.00599401
2023Worker Worker	3.00E-01	0.007083712	0.008	7.36E-02	0.0024793	0.002
2024Hauling Hauling	3.00E-01	0.074611756	0.03595213	7.36E-02	0.02611411	0.00898803
2024Vendor Vendor	3.00E-01	0.059247865	0.02397607	7.36E-02	0.02073675	0.00599402
2024Worker Worker	3.00E-01	0.00712155	0.008	7.36E-02	0.00249254	0.002

Construction Phase	Daily One-Way Trips	Haul Days per Phase  (days)	Work Hours per Day  (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day)					
					RD	PM10 BW	TW	RD	PM2.5 BW	TW
<u>Site Prepration</u>	2022									
Total Haul Trips	6702									
Hauling	305	22	8	20	88.71	22.29	10.64	21.78	7.80	2.66
Vendor	0	22	8	7.3	0.00	0.00	0.00	0.00	0.00	0.00
Worker	20	22	8	10.8	3.14	0.07	0.08	0.77	0.03	0.02
<u>Grading Excavation</u>	2022									
Total Haul Trips	1774									
Hauling	42	43	8	20	23.88	6.00	2.86	5.86	2.10	0.72
Vendor	0	43	8	7.3	0.00	0.00	0.00	0.00	0.00	0.00
Worker	50	43	8	10.8	15.35	0.36	0.41	3.77	0.13	0.10
<u>Grading Excavation</u>	2023									
Total Haul Trips	908									
Hauling	42	22	8	20	12.22	3.04	1.46	3.00	1.06	0.37
Vendor	0	22	8	7.3	0.00	0.00	0.00	0.00	0.00	0.00
Worker	50	22	8	10.8	7.85	0.19	0.21	1.93	0.06	0.05

### Total On-Road Emissions

### Total On-Road Emissions

260

[illegible]

Tehachapi - Conveyance Facilities - Pump Stations  
Running Emissions

	Running Emissions Factor					
	(grams/mile)					
	(pounds/day) and total in (tons/year)					
	ROG	NOX	CO	SO2	PM10	PM2.5
2021Hauling Hauling	0.0395716	2.327268345	0.1837329	0.0151521	0.0444202	0.0424986
2021Vendor Vendor	0.0581634	1.952322708	0.5776406	0.0136116	0.0332092	0.0317655
2021Worker Worker	0.0252967	0.137411333	1.4605115	0.0031966	0.0017224	0.0015863
2022Hauling Hauling	0.022211	1.957614023	0.103956	0.014995	0.032386	0.0311763
2022Vendor Vendor	0.0398915	1.632518344	0.4142516	0.0134866	0.0235896	0.0225627
2022Worker Worker	0.0224442	0.117588513	1.3394929	0.0031325	0.0016247	0.0014961
2023Hauling Hauling	0.0135894	1.622184301	0.0687499	0.0148049	0.0315756	0.0302096
2023Vendor Vendor	0.0280627	1.304652432	0.3149629	0.0133329	0.0217403	0.0207939
2023Worker Worker	0.0198408	0.104305497	1.2275312	0.0030658	0.0015309	0.0014096
2024Hauling Hauling	0.0130641	1.563417945	0.0633761	0.0145434	0.0310978	0.0297525
2024Vendor Vendor	0.0243036	1.222522154	0.2578779	0.0131126	0.0208199	0.0199136
2024Worker Worker	0.0175433	0.092674612	1.1308416	0.0028952	0.0014435	0.0013289
GWP	N/A	N/A	N/A	N/A	N/A	N/A

Construction Phase	Daily One-Way Trips	Haul Days per Phase	Work Hours per Day	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day)					
					ROG	NOX	CO	SO2	PM10	PM2.5
<u>Site Preparation</u>										
Total Haul Trips	2022									
Hauling	48									
Vendor	10	5	8	20	0.05	4.32	0.23	0.03	0.07	0.07
Worker	0	5	8	7.3	0.00	0.00	0.00	0.00	0.00	0.00
	20	5	8	10.8	0.05	0.28	3.19	0.01	0.00	0.00
<u>Grading</u>										
Total Haul Trips	2022									
Hauling	278									
Vendor	9	31	8	20	0.27	24.08	1.28	0.18	0.40	0.38
Worker	0	31	8	7.3	0.00	0.00	0.00	0.00	0.00	0.00
	20	31	8	10.8	0.33	1.74	19.77	0.05	0.02	0.02
<u>Building Construction</u>										
Total Haul Trips	2022									
Hauling	0									
Vendor	0	29	8	20	0.00	0.00	0.00	0.00	0.00	0.00
Worker	2	29	8	7.3	0.04	1.52	0.39	0.01	0.02	0.02
	20	29	8	10.8	0.31	1.62	18.50	0.04	0.02	0.02
<u>Building Construction</u>										
Total Haul Trips	2023									
Hauling	0									
Vendor	0	34	8	20	0.00	0.00	0.00	0.00	0.00	0.00
Worker	2	34	8	7.3	0.03	1.43	0.34	0.01	0.02	0.02
	20	34	8	10.8	0.32	1.69	19.87	0.05	0.02	0.02
<u>Pavings</u>										
Total Haul Trips	2023									
Hauling	0									
Vendor	0	3	8	20	0.00	0.00	0.00	0.00	0.00	0.00
Worker	8	3	8	7.3	0.01	0.50	0.12	0.01	0.01	0.01
	20	3	8	10.8	0.03	0.15	1.75	0.00	0.00	0.00
<u>Testing/Start Up</u>										
Total Haul Trips	2023									
Hauling	0									
Vendor	0	5	8	20	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	5	8	7.3	0.00	0.00	0.00	0.00	0.00	0.00
	10	5	8	10.8	0.02	0.12	1.46	0.00	0.00	0.00

Tehachapi - Conveyance Facilities - Pump Stations  
Idling Emissions

	Idling Emissions Factor					
	(grams/minute)					
	(pounds/day) and total in (tons/year)					
	ROG	NOX	CO	SO2	PM10	PM2.5
2021Hauling Hauling	8.188E-05	5.063610313	5.6514947	0.0094459	0.004486	0.0042918
2021Vendor Vendor	0.0087953	2.789851243	2.9781961	0.0050551	0.00324	0.0030997
2021Worker Worker	0	0	0	0	0	0
2022Hauling Hauling	7.525E-05	5.030316524	5.8242768	0.0093522	0.001857	0.0017766
2022Vendor Vendor	0.0081917	2.757072377	3.0628954	0.0050062	0.0017498	0.001674
2022Worker Worker	0	0	0	0	0	0
2023Hauling Hauling	6.546E-05	4.812125553	5.9809578	0.0090174	0.0017833	0.0017061
2023Vendor Vendor	0.0075999	2.617125331	3.1445862	0.0048302	0.0015662	0.0014984
2023Worker Worker	0	0	0	0	0	0
2024Hauling Hauling	0.000294	4.782468554	5.9513648	0.008793	0.0017654	0.0016889
2024Vendor Vendor	0.0072825	2.594135758	3.1277621	0.0047151	0.0014447	0.0013822
2024Worker Worker	0	0	0	0	0	0
GWP	N/A	N/A	N/A	N/A	N/A	N/A

Construction Phase	Daily One-Way Trips	Haul Days per Phase  (days)	Work Hours per Day  (hours/day)	Idling minutes per Day (miles)	Regional Emissions (pounds/day)					
					ROG	NOX	CO	SO2	PM10	PM2.5
<u>Site Preparation</u>										
	2022									
Total Haul Trips	48									
Hauling	10	5	8	15	0.00	8.32	9.63	0.02	0.00	0.00
Vendor	0	5	8	15	0.00	0.00	0.00	0.00	0.00	0.00
Worker	20	5	8	0	0.00	0.00	0.00	0.00	0.00	0.00
<u>Grading</u>										
	2022									
Total Haul Trips	278									
Hauling	9	31	8	15	0.00	46.41	53.74	0.09	0.02	0.02
Vendor	0	31	8	15	0.00	0.00	0.00	0.00	0.00	0.00
Worker	20	31	8	0	0.00	0.00	0.00	0.00	0.00	0.00
<u>Building Construction</u>										
	2022									
Total Haul Trips	0									
Hauling	0	29	8	15	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	2	29	8	15	0.02	5.29	5.87	0.01	0.00	0.00
Worker	20	29	8	0	0.00	0.00	0.00	0.00	0.00	0.00
<u>Building Construction</u>										
	2023									
Total Haul Trips	0									
Hauling	0	34	8	15	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	2	34	8	15	0.02	5.89	7.07	0.01	0.00	0.00
Worker	20	34	8	0	0.00	0.00	0.00	0.00	0.00	0.00
<u>Pavings</u>										
	2023									
Total Haul Trips	0									
Hauling	0	3	8	15	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	8	3	8	15	0.01	2.08	2.50	0.00	0.00	0.00
Worker	20	3	8	0	0.00	0.00	0.00	0.00	0.00	0.00
<u>Testing/Start Up</u>										
	2023									
Total Haul Trips	0									
Hauling	0	5	8	15	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	5	8	15	0.00	0.00	0.00	0.00	0.00	0.00
Worker	10	5	8	0	0.00	0.00	0.00	0.00	0.00	0.00



**Tehachapi - Conveyance Facilities - Pump Stations**  
**Road Dust, Break Wear, and Tire wear Emissions**

	Emission Factors (grams/mile)					
	RD	PM10 BW	TW	RD	PM2.5 BW	TW
2021Hauling Hauling	3.00E-01	0.076096765	0.0359518	7.36E-02	0.0266339	0.008988
2021Vendor Vendor	3.00E-01	0.060038861	0.0239759	7.36E-02	0.0210136	0.005994
2021Worker Worker	3.00E-01	0.00707876	0.008	7.36E-02	0.0024776	0.002
2022Hauling Hauling	3.00E-01	0.075345605	0.0359519	7.36E-02	0.026371	0.008988
2022Vendor Vendor	3.00E-01	0.05966092	0.023976	7.36E-02	0.0208813	0.005994
2022Worker Worker	3.00E-01	0.00710143	0.008	7.36E-02	0.0024855	0.002
2023Hauling Hauling	3.00E-01	0.074674603	0.035952	7.36E-02	0.0261361	0.008988
2023Vendor Vendor	3.00E-01	0.059320323	0.023976	7.36E-02	0.0207621	0.005994
2023Worker Worker	3.00E-01	0.007083712	0.008	7.36E-02	0.0024793	0.002
2024Hauling Hauling	3.00E-01	0.074611756	0.0359521	7.36E-02	0.0261141	0.008988
2024Vendor Vendor	3.00E-01	0.059247865	0.0239761	7.36E-02	0.0207368	0.005994
2024Worker Worker	3.00E-01	0.00712155	0.008	7.36E-02	0.0024925	0.002

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day)					
					RD	PM10 BW	TW	RD	PM2.5 BW	TW
<u>Site Preparation</u>	2022									
Total Haul Trips	48									
Hauling	10	5	8	20	0.66	0.17	0.08	0.16	0.06	0.02
Vendor	0	5	8	7.3	0.00	0.00	0.00	0.00	0.00	0.00
Worker	20	5	8	10.8	0.71	0.02	0.02	0.18	0.01	0.00
<u>Grading</u>	2022									
Total Haul Trips	278									
Hauling	9	31	8	20	3.69	0.93	0.44	0.91	0.32	0.11
Vendor	0	31	8	7.3	0.00	0.00	0.00	0.00	0.00	0.00
Worker	20	31	8	10.8	4.43	0.10	0.12	1.09	0.04	0.03
<u>Building Construction</u>	2022									
Total Haul Trips	0									
Hauling	0	29	8	20	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	2	29	8	7.3	0.28	0.06	0.02	0.07	0.02	0.01
Worker	20	29	8	10.8	4.14	0.10	0.11	1.02	0.03	0.03
<u>Building Construction</u>	2023									
Total Haul Trips	0									
Hauling	0	34	8	20	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	2	34	8	7.3	0.33	0.06	0.03	0.08	0.02	0.01
Worker	20	34	8	10.8	4.85	0.11	0.13	1.19	0.04	0.03
<u>Pavings</u>	2023									
Total Haul Trips	0									
Hauling	0	3	8	20	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	8	3	8	7.3	0.12	0.02	0.01	0.03	0.01	0.00
Worker	20	3	8	10.8	0.43	0.01	0.01	0.11	0.00	0.00
<u>Testine/Start Up</u>	2023									
Total Haul Trips	0									
Hauling	0	5	8	20	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	5	8	7.3	0.00	0.00	0.00	0.00	0.00	0.00
Worker	10	5	8	10.8	0.36	0.01	0.01	0.09	0.00	0.00

# Tehachapi - Conveyance Facilities - Pipelines

## Total On-Road Emissions

# Tehachapi - Conveyance Facilities - Pipelines

## 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) and total in (tons/year)									
						ROG	NOX	CO	SO2	PM10 Dust	PM10 Exh	Total PM10	PM2.5 Dust	PM2.5 Exh	Total PM2.5
<u>Trenching/Excavation/Shoring</u>	2022														
Total Haul Trips	50														
Hauling	2	26	8	20	15	0.05	13.14	10.25	0.05	0.94	0.08	1.02	0.25	0.07	0.32
Vendor	0	26	8	7.3	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	20	26	8	10.8	0	0.28	1.46	16.58	0.04	3.90	0.02	3.92	0.97	0.02	0.99
Total						0.000	0.007	0.013	0.000	0.002	0.000	0.002	0.001	0.000	0.001
<u>Building Construction</u>	2022														
Total Haul Trips	0														
Hauling	0	39	8	20	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	2	39	8	7.3	15	2.07	9.16	8.42	0.03	0.48	0.03	0.52	0.13	0.03	0.16
Worker	20	39	8	10.8	0	0.42	2.18	24.88	0.06	5.85	0.03	5.88	1.45	0.03	1.48
Total						0.001	0.006	0.017	0.000	0.003	0.000	0.003	0.001	0.000	0.001
<u>Building Construction</u>	2023														
Total Haul Trips	0														
Hauling	0	14	8	20	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	2	14	8	7.3	15	0.02	3.01	3.05	0.01	0.17	0.01	0.18	0.05	0.01	0.06
Worker	20	14	8	10.8	0	0.13	0.70	8.18	0.02	2.10	0.01	2.11	0.52	0.01	0.53
Total						0.000	0.002	0.006	0.000	0.001	0.000	0.001	0.000	0.000	0.000
<u>Pavings</u>	2023														
Total Haul Trips	0														
Hauling	0	3	8	20	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	28	3	8	7.3	15	0.06	9.03	9.16	0.03	0.52	0.03	0.55	0.14	0.03	0.17
Worker	20	3	8	10.8	0	0.03	0.15	1.75	0.00	0.45	0.00	0.45	0.11	0.00	0.11
Total						0.0000	0.0046	0.0055	0.0000	0.0005	0.0000	0.0005	0.0001	0.0000	0.0001
<u>Testing/Start Up</u>	2023														
Total Haul Trips	0														
Hauling	0	5	8	20	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	5	8	7.3	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	10	5	8	10.8	0	0.02	0.12	1.46	0.00	0.37	0.00	0.38	0.09	0.00	0.09
Total						0.00001	0.00006	0.00073	0.00000	0.00019	0.00000	0.00019	0.00005	0.00000	0.00005

Tehachapi - Conveyance Facilities - Pipelines  
Running Emissions

		Running Emissions Factor (grams/mile)					
		ROG	NOX	CO	SO2	PM10	PM2.5
2021Hauling	Hauling	0.039571601	2.327268345	0.18373293	0.01515211	0.04442025	0.04249858
2021Vendor	Vendor	0.05816345	1.952322708	0.57764063	0.01361162	0.03320923	0.03176555
2021Worker	Worker	0.025296718	0.132411333	1.4605115	0.00319661	0.00172238	0.00158626
2022Hauling	Hauling	0.022211046	1.957614023	0.10395598	0.01499499	0.03258598	0.03117626
2022Vendor	Vendor	0.039891503	1.632518344	0.41425165	0.01348657	0.02358956	0.02256274
2022Worker	Worker	0.022444184	0.117588513	1.33949287	0.00313252	0.00162469	0.00149613
2023Hauling	Hauling	0.013589391	1.622184301	0.06874988	0.01480486	0.03157555	0.03020959
2023Vendor	Vendor	0.028062746	1.304652432	0.31496285	0.01333293	0.0217403	0.02079394
2023Worker	Worker	0.019840818	0.104305497	1.22753123	0.00306581	0.00153092	0.0014096
2024Hauling	Hauling	0.013064088	1.563417945	0.06337611	0.01454344	0.03109779	0.0297525
2024Vendor	Vendor	0.024303622	1.222522154	0.25787792	0.01311262	0.02081985	0.01991365
2024Worker	Worker	0.017543282	0.092674612	1.13084156	0.00299516	0.00144347	0.00132889
GWP		0.013589391	N/A	N/A	N/A	N/A	N/A

Construction Phase	Daily One-Way Trips	Haul Days per Phase	Work Hours per Day	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day)					
					ROG	NOX	CO	SO2	PM10	PM2.5
<u>Trenching/Excavation/Short</u>										
	2022									
Total Haul Trips	50									
Hauling	2	26	8	20	0.05	4.49	0.24	0.03	0.07	0.07
Vendor	0	26	8	7.3	0.00	0.00	0.00	0.00	0.00	0.00
Worker	20	26	8	10.8	0.28	1.46	16.58	0.04	0.02	0.02
<u>Building Construction</u>										
	2022									
Total Haul Trips	0									
Hauling	0	39	8	20	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	2	39	8	7.3	2.05	2.05	0.52	0.02	0.03	0.03
Worker	20	39	8	10.8	0.42	2.18	24.88	0.06	0.03	0.03
<u>Building Construction</u>										
	2023									
Total Haul Trips	0									
Hauling	0	14	8	20	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	2	14	8	7.3	0.01	0.59	0.14	0.01	0.01	0.01
Worker	20	14	8	10.8	0.13	0.70	8.18	0.02	0.01	0.01
<u>Pavings</u>										
	2023									
Total Haul Trips	0									
Hauling	0	3	8	20	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	28	3	8	7.3	0.04	1.76	0.43	0.02	0.03	0.03
Worker	20	3	8	10.8	0.03	0.15	1.75	0.00	0.00	0.00
<u>Testing/Start Up</u>										
	2023									
Total Haul Trips	0									
Hauling	0	5	8	20	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	5	8	7.3	0.00	0.00	0.00	0.00	0.00	0.00
Worker	10	5	8	10.8	0.02	0.12	1.46	0.00	0.00	0.00

Tehachapi - Conveyance Facilities - Pipelines  
Idling Emissions

		Idling Emissions Factor (grams/minute)					
		ROG	NOX	CO	SO2	PM10	PM2.5
2021Hauling	Hauling	8.18753E-05	5.063610313	5.65149471	0.00944593	0.00448602	0.00429182
2021Vendor	Vendor	0.008795277	2.789851243	2.97819615	0.00505507	0.00323997	0.00309974
2021Worker	Worker	0	0	0	0	0	0
2022Hauling	Hauling	7.52517E-05	5.030316524	5.82427678	0.00935216	0.00185705	0.00177658
2022Vendor	Vendor	0.008191719	2.757072377	3.06289542	0.00500622	0.00174979	0.00167402
2022Worker	Worker	0	0	0	0	0	0
2023Hauling	Hauling	6.54569E-05	4.812125553	5.98095779	0.00901739	0.0017833	0.00170611
2023Vendor	Vendor	0.007599936	2.617125331	3.14458622	0.00483015	0.00156618	0.00149841
2023Worker	Worker	0	0	0	0	0	0
2024Hauling	Hauling	0.000294029	4.782468554	5.95136477	0.00879302	0.00176536	0.00168894
2024Vendor	Vendor	0.007282489	2.594135758	3.12776209	0.00471507	0.0014447	0.00138218
2024Worker	Worker	0	0	0	0	0	0
GWP		6.54569E-05	N/A	N/A	N/A	N/A	N/A

Construction Phase	Daily	Haul Days	Work Hours	Idling	Regional Emissions					
	One-Way	per Phase	per Day	minutes	(pounds/day)					
	Trips			per Day	ROG	NOX	CO	SO2	PM10	PM2.5
		(days)	(hours/day)	per Day (miles)						
<u>Trenching/Excavation/Short</u>										
	2022									
Total Haul Trips	50									
Hauling	2	26	8	15	0.00	8.65	10.02	0.02	0.00	0.00
Vendor	0	26	8	15	0.00	0.00	0.00	0.00	0.00	0.00
Worker	20	26	8	0	0.00	0.00	0.00	0.00	0.00	0.00
<u>Building Construction</u>										
	2022									
Total Haul Trips	0									
Hauling	0	39	8	15	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	2	39	8	15	0.02	7.11	7.90	0.01	0.00	0.00
Worker	20	39	8	0	0.00	0.00	0.00	0.00	0.00	0.00
<u>Building Construction</u>										
	2023									
Total Haul Trips	0									
Hauling	0	14	8	15	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	2	14	8	15	0.01	2.42	2.91	0.00	0.00	0.00
Worker	20	14	8	0	0.00	0.00	0.00	0.00	0.00	0.00
<u>Pavings</u>										
	2023									
Total Haul Trips	0									
Hauling	0	3	8	15	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	28	3	8	15	0.02	7.27	8.74	0.01	0.00	0.00
Worker	20	3	8	0	0.00	0.00	0.00	0.00	0.00	0.00
<u>Testing/Start Up</u>										
	2023									
Total Haul Trips	0									
Hauling	0	5	8	15	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	5	8	15	0.00	0.00	0.00	0.00	0.00	0.00
Worker	10	5	8	0	0.00	0.00	0.00	0.00	0.00	0.00

**Tehachapi - Conveyance Facilities - Pipelines**  
**Road Dust, Break Wear, and Tire wear Emissions**

		Emission Factors (grams/mile)					
		PM10			PM2.5		
		RD	BW	TW	RD	BW	TW
2021Hauling Hauling	3.00E-01	0.076096765	0.03595182	7.36E-02	0.02663387	0.00898796	
2021Vendor Vendor	3.00E-01	0.060038861	0.02397591	7.36E-02	0.0210136	0.00599398	
2021Worker Worker	3.00E-01	0.00707876	0.008	7.36E-02	0.00247757	0.002	
2022Hauling Hauling	3.00E-01	0.075345605	0.03595192	7.36E-02	0.02637096	0.00898798	
2022Vendor Vendor	3.00E-01	0.05966092	0.02397596	7.36E-02	0.02088132	0.00599399	
2022Worker Worker	3.00E-01	0.00710143	0.008	7.36E-02	0.0024855	0.002	
2023Hauling Hauling	3.00E-01	0.074674603	0.03595204	7.36E-02	0.02613611	0.00898801	
2023Vendor Vendor	3.00E-01	0.059320323	0.02397602	7.36E-02	0.02076211	0.00599401	
2023Worker Worker	3.00E-01	0.007083712	0.008	7.36E-02	0.0024793	0.002	
2024Hauling Hauling	3.00E-01	0.074611756	0.03595213	7.36E-02	0.02611411	0.00898803	
2024Vendor Vendor	3.00E-01	0.059247865	0.02397607	7.36E-02	0.02073675	0.00599402	
2024Worker Worker	3.00E-01	0.00712155	0.008	7.36E-02	0.00249254	0.002	
		3.00E-01					

Construction Phase	Daily One-Way Trips	Haul Days per Phase	Work Hours per Day	One-Way Trip Distance per Day	Regional Emissions (pounds/day)						
					RD	PM10 BW	TW	RD	PM2.5 BW	TW	
											(days)
<b>Trenching/Excavation/Short</b>											
Total Haul Trips	2022 50										
Hauling	2	26	8	20	0.69	0.17	0.08	0.17	0.06	0.02	
Vendor	0	26	8	7.3	0.00	0.00	0.00	0.00	0.00	0.00	
Worker	20	26	8	10.8	3.71	0.09	0.10	0.91	0.03	0.02	
<b>Building Construction</b>											
Total Haul Trips	2022 0										
Hauling	0	39	8	20	0.00	0.00	0.00	0.00	0.00	0.00	
Vendor	2	39	8	7.3	0.38	0.07	0.03	0.09	0.03	0.01	
Worker	20	39	8	10.8	5.57	0.13	0.15	1.37	0.05	0.04	
<b>Building Construction</b>											
Total Haul Trips	2023 0										
Hauling	0	14	8	20	0.00	0.00	0.00	0.00	0.00	0.00	
Vendor	2	14	8	7.3	0.14	0.03	0.01	0.03	0.01	0.00	
Worker	20	14	8	10.8	2.00	0.05	0.05	0.49	0.02	0.01	
<b>Pavings</b>											
Total Haul Trips	2023 0										
Hauling	0	3	8	20	0.00	0.00	0.00	0.00	0.00	0.00	
Vendor	28	3	8	7.3	0.41	0.08	0.03	0.10	0.03	0.01	
Worker	20	3	8	10.8	0.43	0.01	0.01	0.11	0.00	0.00	
<b>Testing/Start Up</b>											
Total Haul Trips	2023 0										
Hauling	0	5	8	20	0.00	0.00	0.00	0.00	0.00	0.00	
Vendor	0	5	8	7.3	0.00	0.00	0.00	0.00	0.00	0.00	
Worker	10	5	8	10.8	0.36	0.01	0.01	0.09	0.00	0.00	

**Tehachapi**  
**Road Dust Emission Factors**

**Paved Road Dust Emission Factors (Assumes No Precipitation)**

Formula:  $EF_{Dust,P} = (k (sL)^{0.91} \times (W)^{1.02})$

Where:

$EF_{Dust,P}$  = Paved Road Dust Emission Factor (having the same units as k)  
k = particle size multiplier  
sL = road surface silt loading (g/m<sup>2</sup>)  
W = average fleet vehicle weight (tons) (CARB uses 2.4 tons as a fleet average vehicle weight factor)

	Emission Factor (grams per VMT)	
	PM10	PM2.5
k	0.9979	0.2449
sL	0.1	0.1
W	2.4	2.4
$EF_{Dust,P}$	3.00E-01	7.36E-02

**Unpaved Road Dust Emission Factors (Assumes No Precipitation)**

Formula:  $EF_{Dust,U} = (k (s / 12)^1 \times (Sp / 30)^{0.5} / (M / 0.5)^{0.2}) - C$

Where:

$EF_{Dust,U}$  = Unpaved Road Dust Emission Factor (having the same units as k)  
k = particle size multiplier  
s = surface material silt content (%)  
Sp = mean vehicle speed (mph)  
M = surface material moisture content (%)  
C = Emission Factor for 1980s vehicle fleet exhaust, brake wear, and tire wear

	Emission Factor (grams per VMT)	
	PM10	PM2.5
k	816.47	81.65
s	4.3%	4.3%
Sp	15	15
M	0.5%	0.5%
C	0.00047	0.00036
$EF_{Dust,U}$	5.20E+00	5.19E-01

Sources:

SCAQMD, CalEEMod, Version 2011.1.

CARB, *Entrained Dust from Paved Road Travel: Emission Estimation Methodology Background Document*, (1997).

USEPA, *AP-42*, Fifth Edition, Volume I, Chapter 13.2.1 - Paved Roads, (2011).

ESA, 2020.

**Tehachapi GSP  
Air Quality Assessment**

**Emergency Generator Emissions**

**Conversion Factors**

HP/kW	1.3410	
PM10 Fraction of Total PM	0.960	Table A - Updated CEIDARS Table with PM2.5 Fractions, INTERNAL COMBUSTION - DISTILLATE AND DIESEL-ELECTRIC GENERATION
PM2.5 Fraction of Total PM	0.937	Table A - Updated CEIDARS Table with PM2.5 Fractions, INTERNAL COMBUSTION - DISTILLATE AND DIESEL-ELECTRIC GENERATION
CO2 g/gal	10.21	Climate Registry, Table 13.1: <a href="https://www.theclimateregistry.org/wp-content/uploads/2014/11/2016-Climate-Registry-Default-Emission-Factors.pdf">https://www.theclimateregistry.org/wp-content/uploads/2014/11/2016-Climate-Registry-Default-Emission-Factors.pdf</a>
CH4 g/gal	0.58	Climate Registry, Table 13.7: <a href="https://www.theclimateregistry.org/wp-content/uploads/2014/11/2016-Climate-Registry-Default-Emission-Factors.pdf">https://www.theclimateregistry.org/wp-content/uploads/2014/11/2016-Climate-Registry-Default-Emission-Factors.pdf</a>
N2O g/gal	0.26	Climate Registry, Table 13.7: <a href="https://www.theclimateregistry.org/wp-content/uploads/2014/11/2016-Climate-Registry-Default-Emission-Factors.pdf">https://www.theclimateregistry.org/wp-content/uploads/2014/11/2016-Climate-Registry-Default-Emission-Factors.pdf</a>
GWP CH4	25	IPCC AR4
GWP N2O	298	IPCC AR4
CO2e g/gal	10,302	
CO2 g/gal	10,210	
CO2/CO2e	0.9911	

**Step1 Emergency Generator**

Ratings:	559	kW	(Source: Project Description)
	750	HP	(based on conservative engineering assumptions; conversion from kW to hp)
	-	kW	(based on conservative engineering assumptions)
	-	HP	(conversion from kW to hp)
Load Factor:	0.74		(based on CalEEMod Generator Set Load Factor)
Engine Emissions Tier:			(compliance with CARB diesel regulations)
Operating Hours per Unit:	2	hours/day	(testing/maintenance -max daily. Number of hours permitted for testing and maintenance consistent with BAAQMD Regulation 9-8-
	200	hours/year	
	0.55	hours/day	(testing/maintenance -average daily)

**Emergency Generator Emissions for 1 generator**

Units	Criteria Pollutants <sup>1, 2, 3</sup>					
	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM10	PM2.5
g/kW-hr	—	—	3.50	—	—	—
g/HP-hr	0.24	4.56	2.61	5.50E-05	0.1440	0.1406
lbs/hr	0.29	5.58	3.19	0.00	0.18	0.17
<b>lbs/day (max daily)</b>	<b>0.59</b>	<b>11.16</b>	<b>6.39</b>	<b>0.00013</b>	<b>0.35</b>	<b>0.34</b>
lbs/yr	58.73	1115.89	638.69	0.01	35.24	34.39
tons/yr	0.03	0.56	0.32	0.00	0.02	0.02
<b>metric tons/yr</b>	—	—	—	—	—	—

**Two Generator Emissions**

<b>lbs/day (max daily)</b>	<b>1.17</b>	<b>22.32</b>	<b>12.77</b>	<b>0.00027</b>	<b>0.70</b>	<b>0.69</b>
lbs/yr	117.46	2231.78	1277.38	0.03	70.48	68.79
tons/yr	0.06	1.12	0.64	0.00	0.04	0.03
<b>metric tons/yr</b>	—	—	—	—	—	—

**Notes:**

- Emission factors for VOC and NO<sub>x</sub>: ARB 2011 Final Regulation Order for the ATCM for stationary engines, Table 1, Model year 2008+: <https://www.arb.ca.gov/regact/2010/atcm2010/finalregorder.pdf>; Policy: CARB Emission Fact Percent HC in Relation to NMHC + Nox: [http://www.baaqmd.gov/~media/Files/Engineering/policy\\_and\\_procedures/Engines/EmissionFactorsforDieselEngines.aspx](http://www.baaqmd.gov/~media/Files/Engineering/policy_and_procedures/Engines/EmissionFactorsforDieselEngines.aspx)
- Emission factors for CO, PM10, and PM2.5: ARB 2011 Final Regulation Order for the ATCM for stationary engines, Table 1, Model year 2008+: <https://www.arb.ca.gov/regact/2010/atcm2010/finalregorder.pdf>
- Emission factor for SO<sub>2</sub>: U.S. Environmental Protection Agency, AP-42 Compilation of Air Pollutant Emission Factors, Fifth Edition, Section 3.4, Table 3.4-1.  
Emission Factor for SO<sub>2</sub> is based on 15 ppm (0.0015%) S1 from the EPA Nonroad Diesel Fuel Program, and assumes complete conversion to SO<sub>2</sub>.
- Emission factor for CO<sub>2</sub>: U.S. Environmental Protection Agency, AP-42 Compilation of Air Pollutant Emission Factors, Fifth Edition, Section 3.4, Table 3.4-1.  
Emissions of GHGs assume 99.11% of the CO<sub>2</sub>e emissions occur as CO<sub>2</sub>, based on Climate Registry emission factors as referenced above.

Source: ESA 2021.

Project

Criteria Pollutant Emission Factors (tons/mile)														Criteria Pollutant Emissions (tons/year)									
Year	Vehicle Type	Max Daily VMT	Max Annual VMT	ROG	NOx	CO	SOx	PM10 Road Dust	PM10	PM10 Total	PM2_5 Road Dust	PM2_5	PM2.5 Total	ROG	NOx	CO	SOx	PM10 Road Dust	PM10	PM10 Total	PM2_5 Road Dust	PM2_5	PM2.5 Total
2024	Passenger	21.6	7,884	1.70E-07	1.24E-07	1.51E-06	3.54E-09	3.31E-07	1.83E-08	3.49E-07	8.11E-08	6.47E-09	8.76E-08	0.0013	0.0010	0.0119	2.79E-05	0.0026	0.0001	0.0027	0.0006	5.10E-05	0.0007
2024	Heavy Duty Truck	14.6	175	1.37E-04	2.64E-06	8.66E-07	1.72E-08	3.31E-07	1.56E-07	4.87E-07	8.11E-08	7.17E-08	1.53E-07	0.0240	0.0005	0.0002	3.02E-06	0.0001	2.74E-05	0.0001	1.42E-05	1.26E-05	2.68E-05

Assumes default worker and vendor trip lengths for Kern APCD. Assumes 1 new worker round trip for worker to operate GSP facilities and one heavy duty truck delivery of chemicals per month.



Source: EMFAC2021 (v1.0.0) Emissions Inventory

Region Type: Air District

Region: Kern County APCD

Calendar Year: 2021, 2022, 2023, 2024, 2025

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/year for CVMT and EVMT, trips/year for Trips, kWh/year for Energy Consumption, tons/year for Emissions, 1000 gallons/year for Fuel Consumption

**Emissions Factors**

		tons/mile				
	ROG	NOx	CO	SOx	PM10	PM2_5
2023						
HHDT	0.000137521	2.69442E-06	8.68345E-07	1.75143E-08	1.56987E-07	7.22441E-08
LDA	121.209789	75.05076804	1124.689341	2.588669091	14.83071302	5.221328879
LDT1	42.21173094	28.60556836	322.3710101	0.338429618	1.820933506	0.719585314
LDT2	66.22702579	60.21384952	661.0982123	1.595828678	7.607527947	2.6963816
MDV	72.19760353	64.60709505	591.793674	1.41780033	5.705246662	2.071374262
Passenger Car	1.84619E-07	1.39745E-07	1.65138E-06	3.63355E-09	1.83273E-08	6.54979E-09
2024						
HHDT	0.00013676	2.63633E-06	8.65881E-07	1.72102E-08	1.56391E-07	7.17158E-08
LDA	113.9583822	68.59514984	1056.042963	2.555703578	15.02125338	5.244049865
LDT1	38.07460427	25.26082298	288.1559848	0.32530437	1.764304631	0.686689445
LDT2	63.94303584	55.47351559	634.8542933	1.618703355	7.894442921	2.782307272
MDV	67.89070989	57.41077658	542.6228792	1.398959815	5.736148672	2.06377699
Passenger Car	1.70498E-07	1.24174E-07	1.51459E-06	3.5429E-09	1.82687E-08	6.47285E-09
2025						
HHDT	0.000135788	2.58205E-06	8.6096E-07	1.68693E-08	1.55849E-07	7.11454E-08
LDA	108.3904517	62.99604038	992.0106666	2.510962165	15.10275591	5.234885086
LDT1	34.23553414	22.20664167	256.4267639	0.311407619	1.6982694	0.651805633
LDT2	62.19691135	51.26701363	608.5195353	1.631561129	8.106922627	2.84269352
MDV	64.21154928	51.13113531	502.0692443	1.373200328	5.722438348	2.044681924
Passenger Car	1.5954E-07	1.11249E-07	1.39892E-06	3.45554E-09	1.81641E-08	6.38911E-09

**Tehachapi**  
**Road Dust Emission Factors**

**Paved Road Dust Emission Factors (Assumes No Precipitation)**

Formula:  $EF_{Dust,P} = (k (sL)^{0.91} \times (W)^{1.02})$

Where:

$EF_{Dust,P}$  = Paved Road Dust Emission Factor (having the same units as k)  
k = particle size multiplier  
sL = road surface silt loading (g/m<sup>2</sup>)  
W = average fleet vehicle weight (tons) (CARB uses 2.4 tons as a fleet average vehicle weight factor)

	Emission Factor (grams per VMT)	
	PM10	PM2.5
k	0.9979	0.2449
sL	0.1	0.1
W	2.4	2.4
$EF_{Dust,P}$	3.00E-01	7.36E-02

**Unpaved Road Dust Emission Factors (Assumes No Precipitation)**

Formula:  $EF_{Dust,U} = (k (s / 12)^1 \times (Sp / 30)^{0.5} / (M / 0.5)^{0.2}) - C$

Where:

$EF_{Dust,U}$  = Unpaved Road Dust Emission Factor (having the same units as k)  
k = particle size multiplier  
s = surface material silt content (%)  
Sp = mean vehicle speed (mph)  
M = surface material moisture content (%)  
C = Emission Factor for 1980s vehicle fleet exhaust, brake wear, and tire wear

	Emission Factor (grams per VMT)	
	PM10	PM2.5
k	816.47	81.65
s	4.3%	4.3%
Sp	15	15
M	0.5%	0.5%
C	0.00047	0.00036
$EF_{Dust,U}$	5.20E+00	5.19E-01

Sources:

SCAQMD, CalEEMod, Version 2011.1.

CARB, *Entrained Dust from Paved Road Travel: Emission Estimation Methodology Background Document*, (1997).

USEPA, *AP-42*, Fifth Edition, Volume I, Chapter 13.2.1 - Paved Roads, (2011).

ESA, 2020.

# Appendix B

## **CalEEMod Output**



Tehachapi GSP - Treatment Facilities - Construction - Kern County APCD Air District, Annual

## Tehachapi GSP - Treatment Facilities - Construction

### Kern County APCD Air District, Annual

## 1.0 Project Characteristics

### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	37.60	1000sqft	2.00	37,600.00	0

### 1.2 Other Project Characteristics

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.7	<b>Precipitation Freq (Days)</b>	32
<b>Climate Zone</b>	7			<b>Operational Year</b>	2022
<b>Utility Company</b>	Southern California Edison				
<b>CO2 Intensity (lb/MW hr)</b>	702.44	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - see construction assumptions

Construction Phase - See construction assumptions. Start/Testing phase not included as no heavy duty equipment is required and mobile emissions calculated outside of CalEEMod.

Off-road Equipment - see construction assumptions

Off-road Equipment - see construction assumptions

Off-road Equipment - see construction assumptions

Off-road Equipment - see construction assumptions

Trips and VMT - construction mobile emissions calculated outside of CalEEMod.

Grading - see construction assumptions

# Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	200.00	113.00
tblConstructionPhase	NumDays	4.00	57.00
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	2.00	10.00
tblGrading	AcresOfGrading	0.00	2.00
tblGrading	AcresOfGrading	0.00	2.00
tblGrading	MaterialExported	0.00	64,533.00
tblGrading	MaterialExported	0.00	8,067.00
tblLandUse	LotAcreage	0.86	2.00
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00

tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	HaulingTripNumber	1,008.00	0.00
tblTripsAndVMT	HaulingTripNumber	8,067.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	16.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00

2.0 Emissions Summary

2.1 Overall Construction  
Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1948	1.8270	1.6151	4.0400e-003	9.7400e-003	0.0791	0.0889	1.6900e-003	0.0729	0.0746	0.0000	354.6560	354.6560	0.1120	0.0000	357.4550
Maximum	0.1948	1.8270	1.6151	4.0400e-003	9.7400e-003	0.0791	0.0889	1.6900e-003	0.0729	0.0746	0.0000	354.6560	354.6560	0.1120	0.0000	357.4550

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1948	1.8270	1.6151	4.0400e-003	5.1800e-003	0.0791	0.0843	1.0600e-003	0.0729	0.0739	0.0000	354.6556	354.6556	0.1120	0.0000	357.4546
Maximum	0.1948	1.8270	1.6151	4.0400e-003	5.1800e-003	0.0791	0.0843	1.0600e-003	0.0729	0.0739	0.0000	354.6556	354.6556	0.1120	0.0000	357.4546

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	46.82	0.00	5.14	37.28	0.00	0.85	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	1-1-2022	3-31-2022	0.4497	0.4497
2	4-1-2022	6-30-2022	0.8560	0.8560
3	7-1-2022	9-30-2022	0.7106	0.7106
		Highest	0.8560	0.8560

### 3.0 Construction Detail

#### Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2022	1/14/2022	5	10	
2	Grading	Grading	1/15/2022	4/5/2022	5	57	
3	Building Construction	Building Construction	4/6/2022	9/9/2022	5	113	
4	Paving	Paving	9/10/2022	9/16/2022	5	5	

Acres of Grading (Site Preparation Phase): 2

Acres of Grading (Grading Phase): 2

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

#### OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Excavators	1	8.00	158	0.38
Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Scrapers	0	8.00	367	0.48

Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	0	8.00	187	0.41
Grading	Off-Highway Trucks	1	8.00	402	0.38
Grading	Other Construction Equipment	1	8.00	172	0.42
Grading	Plate Compactors	1	8.00	8	0.43
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	2	8.00	231	0.29
Building Construction	Forklifts	0	7.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Building Construction	Off-Highway Trucks	2	8.00	402	0.38
Building Construction	Other Construction Equipment	1	8.00	172	0.42
Building Construction	Plate Compactors	1	8.00	8	0.43
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	0	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Off-Highway Trucks	1	8.00	402	0.38

### 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
Site Preparation	3	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	0.00	6.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT



3.1 Mitigation Measures Construction

- Use Soil Stabilizer
- Water Exposed Area
- Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.6600e-003	0.0000	1.6600e-003	2.0000e-004	0.0000	2.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.3100e-003	0.0458	0.0555	1.2000e-004		2.0600e-003	2.0600e-003		1.9000e-003	1.9000e-003	0.0000	10.8312	10.8312	3.5000e-003	0.0000	10.9188
Total	5.3100e-003	0.0458	0.0555	1.2000e-004	1.6600e-003	2.0600e-003	3.7200e-003	2.0000e-004	1.9000e-003	2.1000e-003	0.0000	10.8312	10.8312	3.5000e-003	0.0000	10.9188

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					6.5000e-004	0.0000	6.5000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.3100e-003	0.0458	0.0555	1.2000e-004		2.0600e-003	2.0600e-003		1.9000e-003	1.9000e-003	0.0000	10.8312	10.8312	3.5000e-003	0.0000	10.9188

Total	5.3100e-003	0.0458	0.0555	1.2000e-004	6.5000e-004	2.0600e-003	2.7100e-003	8.0000e-005	1.9000e-003	1.9800e-003	0.0000	10.8312	10.8312	3.5000e-003	0.0000	10.9188
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3.3 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					5.8200e-003	0.0000	5.8200e-003	8.4000e-004	0.0000	8.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0421	0.3764	0.4366	8.9000e-004		0.0177	0.0177		0.0163	0.0163	0.0000	77.9337	77.9337	0.0250	0.0000	78.5590
Total	0.0421	0.3764	0.4366	8.9000e-004	5.8200e-003	0.0177	0.0235	8.4000e-004	0.0163	0.0171	0.0000	77.9337	77.9337	0.0250	0.0000	78.5590

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					2.2700e-003	0.0000	2.2700e-003	3.3000e-004	0.0000	3.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0421	0.3764	0.4366	8.9000e-004		0.0177	0.0177		0.0163	0.0163	0.0000	77.9336	77.9336	0.0250	0.0000	78.5589
Total	0.0421	0.3764	0.4366	8.9000e-004	2.2700e-003	0.0177	0.0200	3.3000e-004	0.0163	0.0166	0.0000	77.9336	77.9336	0.0250	0.0000	78.5589

### 3.4 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	0.1440	1.3455	1.0853	2.8700e-003		0.0581	0.0581		0.0535	0.0535	0.0000	251.7138	251.7138	0.0810	0.0000	253.7393
<b>Total</b>	<b>0.1440</b>	<b>1.3455</b>	<b>1.0853</b>	<b>2.8700e-003</b>		<b>0.0581</b>	<b>0.0581</b>		<b>0.0535</b>	<b>0.0535</b>	<b>0.0000</b>	<b>251.7138</b>	<b>251.7138</b>	<b>0.0810</b>	<b>0.0000</b>	<b>253.7393</b>

#### 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	0.1440	1.3455	1.0853	2.8700e-003		0.0581	0.0581		0.0535	0.0535	0.0000	251.7135	251.7135	0.0810	0.0000	253.7390
<b>Total</b>	<b>0.1440</b>	<b>1.3455</b>	<b>1.0853</b>	<b>2.8700e-003</b>		<b>0.0581</b>	<b>0.0581</b>		<b>0.0535</b>	<b>0.0535</b>	<b>0.0000</b>	<b>251.7135</b>	<b>251.7135</b>	<b>0.0810</b>	<b>0.0000</b>	<b>253.7390</b>

3.5 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	2.3500e-003	0.0232	0.0302	5.0000e-005		1.2000e-003	1.2000e-003		1.1000e-003	1.1000e-003	0.0000	3.9844	3.9844	1.2600e-003	0.0000	4.0160
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	2.3500e-003	0.0232	0.0302	5.0000e-005		1.2000e-003	1.2000e-003		1.1000e-003	1.1000e-003	0.0000	3.9844	3.9844	1.2600e-003	0.0000	4.0160

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.3500e-003	0.0232	0.0302	5.0000e-005		1.2000e-003	1.2000e-003		1.1000e-003	1.1000e-003	0.0000	3.9844	3.9844	1.2600e-003	0.0000	4.0160
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	2.3500e-003	0.0232	0.0302	5.0000e-005		1.2000e-003	1.2000e-003		1.1000e-003	1.1000e-003	0.0000	3.9844	3.9844	1.2600e-003	0.0000	4.0160

Tehachapi GPS - Recharge Facilities - Construction - Kern County APCD Air District, Annual

## Tehachapi GPS - Recharge Facilities - Construction

### Kern County APCD Air District, Annual

## 1.0 Project Characteristics

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### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	8.31	Acre	8.31	361,896.48	0

### 1.2 Other Project Characteristics

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.7	<b>Precipitation Freq (Days)</b>	32
<b>Climate Zone</b>	7			<b>Operational Year</b>	2023
<b>Utility Company</b>	Southern California Edison				
<b>CO2 Intensity (lb/MW hr)</b>	702.44	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - see construction assumptions

Off-road Equipment - see construction assumptions

Off-road Equipment - see construction assumptions

Trips and VMT - construction mobile emissions calculated outside of CalEEMod.

Grading -

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	65.00
tblConstructionPhase	NumDays	10.00	22.00
tblGrading	MaterialExported	0.00	13,404.00
tblGrading	MaterialExported	0.00	33,509.00
tblLandUse	LandUseSquareFeet	361,983.60	361,896.48
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	3.00
tblTripsAndVMT	HaulingTripNumber	4,189.00	0.00
tblTripsAndVMT	HaulingTripNumber	1,676.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00

2.0 Emissions Summary

2.1 Overall Construction  
Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0732	0.7101	0.6955	1.4800e-003	0.0496	0.0312	0.0808	5.5100e-003	0.0287	0.0342	0.0000	129.7983	129.7983	0.0418	0.0000	130.8441
2023	0.0255	0.2387	0.2595	5.5000e-004	0.0355	0.0104	0.0459	3.8700e-003	9.5800e-003	0.0135	0.0000	47.7756	47.7756	0.0154	0.0000	48.1600
Maximum	0.0732	0.7101	0.6955	1.4800e-003	0.0496	0.0312	0.0808	5.5100e-003	0.0287	0.0342	0.0000	129.7983	129.7983	0.0418	0.0000	130.8441

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0732	0.7101	0.6955	1.4800e-003	0.0193	0.0312	0.0506	2.1500e-003	0.0287	0.0309	0.0000	129.7981	129.7981	0.0418	0.0000	130.8439
2023	0.0255	0.2387	0.2595	5.5000e-004	0.0138	0.0104	0.0242	1.5100e-003	9.5800e-003	0.0111	0.0000	47.7755	47.7755	0.0154	0.0000	48.1599
Maximum	0.0732	0.7101	0.6955	1.4800e-003	0.0193	0.0312	0.0506	2.1500e-003	0.0287	0.0309	0.0000	129.7981	129.7981	0.0418	0.0000	130.8439

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	61.00	0.00	40.96	60.98	0.00	11.99	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	10-1-2022	12-31-2022	0.7899	0.7899
2	1-1-2023	3-31-2023	0.2659	0.2659
		Highest	0.7899	0.7899

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/1/2022	11/1/2022	5	22	
2	Grading	Grading	11/2/2022	1/31/2023	5	65	

Acres of Grading (Site Preparation Phase): 22

Acres of Grading (Grading Phase): 65

Acres of Paving: 8.31

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Off-Highway Trucks	1	8.00	402	0.38
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	0	8.00	187	0.41
Grading	Off-Highway Trucks	1	8.00	402	0.38
Grading	Other Construction Equipment	1	8.00	172	0.42
Grading	Plate Compactors	1	8.00	8	0.43
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	1	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	5	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

- Use Soil Stabilizer
- Water Exposed Area
- Reduce Vehicle Speed on Unpaved Roads



### 3.2 Site Preparation - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0141	0.0000	0.0141	1.6300e-003	0.0000	1.6300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0203	0.1978	0.1809	4.2000e-004		8.4200e-003	8.4200e-003		7.7500e-003	7.7500e-003	0.0000	36.4534	36.4534	0.0118	0.0000	36.7481
<b>Total</b>	<b>0.0203</b>	<b>0.1978</b>	<b>0.1809</b>	<b>4.2000e-004</b>	<b>0.0141</b>	<b>8.4200e-003</b>	<b>0.0226</b>	<b>1.6300e-003</b>	<b>7.7500e-003</b>	<b>9.3800e-003</b>	<b>0.0000</b>	<b>36.4534</b>	<b>36.4534</b>	<b>0.0118</b>	<b>0.0000</b>	<b>36.7481</b>

#### 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					5.5100e-003	0.0000	5.5100e-003	6.4000e-004	0.0000	6.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0203	0.1978	0.1809	4.2000e-004		8.4200e-003	8.4200e-003		7.7500e-003	7.7500e-003	0.0000	36.4533	36.4533	0.0118	0.0000	36.7481
<b>Total</b>	<b>0.0203</b>	<b>0.1978</b>	<b>0.1809</b>	<b>4.2000e-004</b>	<b>5.5100e-003</b>	<b>8.4200e-003</b>	<b>0.0139</b>	<b>6.4000e-004</b>	<b>7.7500e-003</b>	<b>8.3900e-003</b>	<b>0.0000</b>	<b>36.4533</b>	<b>36.4533</b>	<b>0.0118</b>	<b>0.0000</b>	<b>36.7481</b>

### 3.3 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					0.0355	0.0000	0.0355	3.8700e-003	0.0000	3.8700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0529	0.5123	0.5146	1.0700e-003		0.0228	0.0228		0.0210	0.0210	0.0000	93.3449	93.3449	0.0300	0.0000	94.0960
<b>Total</b>	<b>0.0529</b>	<b>0.5123</b>	<b>0.5146</b>	<b>1.0700e-003</b>	<b>0.0355</b>	<b>0.0228</b>	<b>0.0583</b>	<b>3.8700e-003</b>	<b>0.0210</b>	<b>0.0249</b>	<b>0.0000</b>	<b>93.3449</b>	<b>93.3449</b>	<b>0.0300</b>	<b>0.0000</b>	<b>94.0960</b>

#### 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					0.0138	0.0000	0.0138	1.5100e-003	0.0000	1.5100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0529	0.5123	0.5146	1.0700e-003		0.0228	0.0228		0.0210	0.0210	0.0000	93.3448	93.3448	0.0300	0.0000	94.0959
<b>Total</b>	<b>0.0529</b>	<b>0.5123</b>	<b>0.5146</b>	<b>1.0700e-003</b>	<b>0.0138</b>	<b>0.0228</b>	<b>0.0366</b>	<b>1.5100e-003</b>	<b>0.0210</b>	<b>0.0225</b>	<b>0.0000</b>	<b>93.3448</b>	<b>93.3448</b>	<b>0.0300</b>	<b>0.0000</b>	<b>94.0959</b>

### 3.3 Grading - 2023

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0355	0.0000	0.0355	3.8700e-003	0.0000	3.8700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0255	0.2387	0.2595	5.5000e-004		0.0104	0.0104		9.5800e-003	9.5800e-003	0.0000	47.7756	47.7756	0.0154	0.0000	48.1600
<b>Total</b>	<b>0.0255</b>	<b>0.2387</b>	<b>0.2595</b>	<b>5.5000e-004</b>	<b>0.0355</b>	<b>0.0104</b>	<b>0.0459</b>	<b>3.8700e-003</b>	<b>9.5800e-003</b>	<b>0.0135</b>	<b>0.0000</b>	<b>47.7756</b>	<b>47.7756</b>	<b>0.0154</b>	<b>0.0000</b>	<b>48.1600</b>

#### 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					0.0138	0.0000	0.0138	1.5100e-003	0.0000	1.5100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0255	0.2387	0.2595	5.5000e-004		0.0104	0.0104		9.5800e-003	9.5800e-003	0.0000	47.7755	47.7755	0.0154	0.0000	48.1599
<b>Total</b>	<b>0.0255</b>	<b>0.2387</b>	<b>0.2595</b>	<b>5.5000e-004</b>	<b>0.0138</b>	<b>0.0104</b>	<b>0.0242</b>	<b>1.5100e-003</b>	<b>9.5800e-003</b>	<b>0.0111</b>	<b>0.0000</b>	<b>47.7755</b>	<b>47.7755</b>	<b>0.0154</b>	<b>0.0000</b>	<b>48.1599</b>

Tehapachi GSP - Coveyance Facilities - Pump Station - Construction - Kern County APCD Air District, Annual

**Tehapachi GSP - Coveyance Facilities - Pump Station - Construction**  
**Kern County APCD Air District, Annual**

**1.0 Project Characteristics****1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	2.50	1000sqft	0.06	2,500.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.7	<b>Precipitation Freq (Days)</b>	32
<b>Climate Zone</b>	7			<b>Operational Year</b>	2023
<b>Utility Company</b>	Southern California Edison				
<b>CO2 Intensity (lb/MW hr)</b>	702.44	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use -

Construction Phase - See construction assumptions. Start/Testing phase not included as no heavy duty equipment is required and mobile emissions calculated outside of CalEEMod.

Off-road Equipment - see construction assumptions

Off-road Equipment - see construction assumptions

Off-road Equipment - see construction assumptions

Off-road Equipment - see construction assumptions

Trips and VMT - construction mobile emissions calculated outside of CalEEMod.

Grading - see construction assumptions

# Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	100.00	63.00
tblConstructionPhase	NumDays	2.00	31.00
tblConstructionPhase	NumDays	5.00	3.00
tblConstructionPhase	NumDays	1.00	5.00
tblGrading	AcresOfGrading	0.00	0.06
tblGrading	AcresOfGrading	0.00	0.06
tblGrading	MaterialExported	0.00	1,389.00
tblGrading	MaterialExported	0.00	231.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	HaulingTripNumber	29.00	0.00
tblTripsAndVMT	HaulingTripNumber	174.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	1.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0565	0.5083	0.5130	1.1900e-003	1.8000e-004	0.0229	0.0231	2.0000e-005	0.0211	0.0211	0.0000	104.5495	104.5495	0.0337	0.0000	105.3923
2023	0.0362	0.3132	0.3061	7.9000e-004	0.0000	0.0135	0.0135	0.0000	0.0124	0.0124	0.0000	69.2165	69.2165	0.0222	0.0000	69.7717
Maximum	0.0565	0.5083	0.5130	1.1900e-003	1.8000e-004	0.0229	0.0231	2.0000e-005	0.0211	0.0211	0.0000	104.5495	104.5495	0.0337	0.0000	105.3923

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0565	0.5083	0.5130	1.1900e-003	7.0000e-005	0.0229	0.0230	1.0000e-005	0.0211	0.0211	0.0000	104.5493	104.5493	0.0337	0.0000	105.3922
2023	0.0362	0.3132	0.3061	7.9000e-004	0.0000	0.0135	0.0135	0.0000	0.0124	0.0124	0.0000	69.2164	69.2164	0.0222	0.0000	69.7717
Maximum	0.0565	0.5083	0.5130	1.1900e-003	7.0000e-005	0.0229	0.0230	1.0000e-005	0.0211	0.0211	0.0000	104.5493	104.5493	0.0337	0.0000	105.3922

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	61.11	0.00	0.30	50.00	0.00	0.03	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)
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1	10-1-2022	12-31-2022	0.5683	0.5683
2	1-1-2023	3-31-2023	0.3477	0.3477
		Highest	0.5683	0.5683

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/1/2022	10/7/2022	5	5	
2	Grading	Grading	10/8/2022	11/21/2022	5	31	
3	Building Construction	Building Construction	11/22/2022	2/16/2023	5	63	
4	Paving	Paving	2/17/2023	2/21/2023	5	3	

Acres of Grading (Site Preparation Phase): 0.06

Acres of Grading (Grading Phase): 0.06

Acres of Paving: 0.06

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Excavators	1	8.00	158	0.38
Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Off-Highway Trucks	1	8.00	402	0.38
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Excavators	1	8.00	158	0.38
Grading	Off-Highway Trucks	1	8.00	402	0.38
Grading	Other Construction Equipment	1	8.00	172	0.42
Grading	Rubber Tired Dozers	0	1.00	247	0.40

Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	0	6.00	89	0.20
Building Construction	Off-Highway Trucks	2	8.00	402	0.38
Building Construction	Other Construction Equipment	1	8.00	172	0.42
Building Construction	Plate Compactors	1	8.00	8	0.43
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	2	8.00	97	0.37

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	4	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

- Use Soil Stabilizer
- Water Exposed Area
- Reduce Vehicle Speed on Unpaved Roads



### 3.2 Site Preparation - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6500e-003	0.0229	0.0277	6.0000e-005		1.0300e-003	1.0300e-003		9.5000e-004	9.5000e-004	0.0000	5.4011	5.4011	1.7500e-003	0.0000	5.4448
<b>Total</b>	<b>2.6500e-003</b>	<b>0.0229</b>	<b>0.0277</b>	<b>6.0000e-005</b>	<b>5.0000e-005</b>	<b>1.0300e-003</b>	<b>1.0800e-003</b>	<b>1.0000e-005</b>	<b>9.5000e-004</b>	<b>9.6000e-004</b>	<b>0.0000</b>	<b>5.4011</b>	<b>5.4011</b>	<b>1.7500e-003</b>	<b>0.0000</b>	<b>5.4448</b>

#### 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					2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6500e-003	0.0229	0.0277	6.0000e-005		1.0300e-003	1.0300e-003		9.5000e-004	9.5000e-004	0.0000	5.4011	5.4011	1.7500e-003	0.0000	5.4448
<b>Total</b>	<b>2.6500e-003</b>	<b>0.0229</b>	<b>0.0277</b>	<b>6.0000e-005</b>	<b>2.0000e-005</b>	<b>1.0300e-003</b>	<b>1.0500e-003</b>	<b>0.0000</b>	<b>9.5000e-004</b>	<b>9.5000e-004</b>	<b>0.0000</b>	<b>5.4011</b>	<b>5.4011</b>	<b>1.7500e-003</b>	<b>0.0000</b>	<b>5.4448</b>

### 3.3 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					1.3000e-004	0.0000	1.3000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0223	0.2008	0.2342	4.8000e-004		9.4700e-003	9.4700e-003		8.7200e-003	8.7200e-003	0.0000	41.9002	41.9002	0.0136	0.0000	42.2390
<b>Total</b>	<b>0.0223</b>	<b>0.2008</b>	<b>0.2342</b>	<b>4.8000e-004</b>	<b>1.3000e-004</b>	<b>9.4700e-003</b>	<b>9.6000e-003</b>	<b>2.0000e-005</b>	<b>8.7200e-003</b>	<b>8.7400e-003</b>	<b>0.0000</b>	<b>41.9002</b>	<b>41.9002</b>	<b>0.0136</b>	<b>0.0000</b>	<b>42.2390</b>

#### 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					5.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0223	0.2008	0.2342	4.8000e-004		9.4700e-003	9.4700e-003		8.7200e-003	8.7200e-003	0.0000	41.9001	41.9001	0.0136	0.0000	42.2389
<b>Total</b>	<b>0.0223</b>	<b>0.2008</b>	<b>0.2342</b>	<b>4.8000e-004</b>	<b>5.0000e-005</b>	<b>9.4700e-003</b>	<b>9.5200e-003</b>	<b>1.0000e-005</b>	<b>8.7200e-003</b>	<b>8.7300e-003</b>	<b>0.0000</b>	<b>41.9001</b>	<b>41.9001</b>	<b>0.0136</b>	<b>0.0000</b>	<b>42.2389</b>

### 3.4 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	0.0315	0.2846	0.2511	6.5000e-004		0.0124	0.0124		0.0114	0.0114	0.0000	57.2482	57.2482	0.0184	0.0000	57.7086
<b>Total</b>	<b>0.0315</b>	<b>0.2846</b>	<b>0.2511</b>	<b>6.5000e-004</b>		<b>0.0124</b>	<b>0.0124</b>		<b>0.0114</b>	<b>0.0114</b>	<b>0.0000</b>	<b>57.2482</b>	<b>57.2482</b>	<b>0.0184</b>	<b>0.0000</b>	<b>57.7086</b>

#### 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	0.0315	0.2846	0.2511	6.5000e-004		0.0124	0.0124		0.0114	0.0114	0.0000	57.2481	57.2481	0.0184	0.0000	57.7085
<b>Total</b>	<b>0.0315</b>	<b>0.2846</b>	<b>0.2511</b>	<b>6.5000e-004</b>		<b>0.0124</b>	<b>0.0124</b>		<b>0.0114</b>	<b>0.0114</b>	<b>0.0000</b>	<b>57.2481</b>	<b>57.2481</b>	<b>0.0184</b>	<b>0.0000</b>	<b>57.7085</b>

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0349	0.3011	0.2905	7.7000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	67.1556	67.1556	0.0216	0.0000	67.6956
Total	0.0349	0.3011	0.2905	7.7000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	67.1556	67.1556	0.0216	0.0000	67.6956

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	0.0349	0.3011	0.2905	7.7000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	67.1555	67.1555	0.0216	0.0000	67.6956
Total	0.0349	0.3011	0.2905	7.7000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	67.1555	67.1555	0.0216	0.0000	67.6956

### 3.5 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	1.3300e-003	0.0121	0.0157	2.0000e-005		5.8000e-004	5.8000e-004		5.4000e-004	5.4000e-004	0.0000	2.0610	2.0610	6.1000e-004	0.0000	2.0761
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.3300e-003	0.0121	0.0157	2.0000e-005		5.8000e-004	5.8000e-004		5.4000e-004	5.4000e-004	0.0000	2.0610	2.0610	6.1000e-004	0.0000	2.0761

### Unmitigated Construction Off-Site

[illegible]

### 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										M1/yr					
Off-Road	1.3300e-003	0.0121	0.0157	2.0000e-005		5.8000e-004	5.8000e-004		5.4000e-004	5.4000e-004	0.0000	2.0610	2.0610	6.1000e-004	0.0000	2.0761
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.3300e-003	0.0121	0.0157	2.0000e-005		5.8000e-004	5.8000e-004		5.4000e-004	5.4000e-004	0.0000	2.0610	2.0610	6.1000e-004	0.0000	2.0761

### Mitigated Construction Off-Site

[illegible]

Tehachapi GSP - Coveyance Facilities - Pipeline - Construction - Kern County APCD Air District, Annual

## Tehachapi GSP - Coveyance Facilities - Pipeline - Construction

### Kern County APCD Air District, Annual

## 1.0 Project Characteristics

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### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	10.56	1000sqft	0.24	10,560.00	0

### 1.2 Other Project Characteristics

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.7	<b>Precipitation Freq (Days)</b>	32
<b>Climate Zone</b>	7			<b>Operational Year</b>	2023
<b>Utility Company</b>	Southern California Edison				
<b>CO2 Intensity (lb/MWhr)</b>	702.44	<b>CH4 Intensity (lb/MWhr)</b>	0.029	<b>N2O Intensity (lb/MWhr)</b>	0.006

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - See construction assumptions. Start/Testing phase not included as no heavy duty equipment is required and mobile emissions calculated outside of CalEEMod.

Off-road Equipment - see construction assumptions

Off-road Equipment - see construction assumptions

Off-road Equipment - see construction assumptions

Trips and VMT - construction mobile emissions calculated outside of CalEEMod.

Grading - see construction assumptions

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	100.00	53.00
tblConstructionPhase	NumDays	2.00	26.00
tblConstructionPhase	NumDays	5.00	3.00
tblGrading	AcresOfGrading	0.00	0.24
tblGrading	MaterialExported	0.00	250.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	HaulingTripNumber	31.00	0.00
tblTripsAndVMT	VendorTripNumber	2.00	0.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00
tblTripsAndVMT	WorkerTripNumber	4.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00



2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0663	0.5909	0.5845	1.3700e-003	1.5000e-004	0.0267	0.0268	2.0000e-005	0.0247	0.0248	0.0000	119.5272	119.5272	0.0366	0.0000	120.4410
2023	0.0157	0.1360	0.1353	3.4000e-004	0.0000	5.8800e-003	5.8800e-003	0.0000	5.4200e-003	5.4200e-003	0.0000	29.7133	29.7133	9.5000e-003	0.0000	29.9508
Maximum	0.0663	0.5909	0.5845	1.3700e-003	1.5000e-004	0.0267	0.0268	2.0000e-005	0.0247	0.0248	0.0000	119.5272	119.5272	0.0366	0.0000	120.4410

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0663	0.5909	0.5845	1.3700e-003	6.0000e-005	0.0267	0.0268	1.0000e-005	0.0247	0.0247	0.0000	119.5270	119.5270	0.0366	0.0000	120.4409
2023	0.0157	0.1360	0.1353	3.4000e-004	0.0000	5.8800e-003	5.8800e-003	0.0000	5.4200e-003	5.4200e-003	0.0000	29.7132	29.7132	9.5000e-003	0.0000	29.9508
Maximum	0.0663	0.5909	0.5845	1.3700e-003	6.0000e-005	0.0267	0.0268	1.0000e-005	0.0247	0.0247	0.0000	119.5270	119.5270	0.0366	0.0000	120.4409

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	60.00	0.00	0.28	50.00	0.00	0.03	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)
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1	10-1-2022	12-31-2022	0.6627	0.6627
2	1-1-2023	3-31-2023	0.1500	0.1500
		Highest	0.6627	0.6627

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	10/1/2022	11/7/2022	5	26	
2	Building Construction	Building Construction	11/8/2022	1/19/2023	5	53	
3	Paving	Paving	1/20/2023	1/24/2023	5	3	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0.24

Acres of Paving: 0.24

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	1	8.00	158	0.38
Grading	Off-Highway Trucks	1	8.00	402	0.38
Grading	Other Construction Equipment	1	8.00	172	0.42
Grading	Plate Compactors	1	8.00	8	0.43
Grading	Rubber Tired Dozers	0	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	0	6.00	89	0.20
Building Construction	Off-Highway Trucks	2	8.00	402	0.38

Building Construction	Other Construction Equipment	1	8.00	172	0.42
Building Construction	Plate Compactors	1	8.00	8	0.43
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

- Use Soil Stabilizer
- Water Exposed Area
- Reduce Vehicle Speed on Unpaved Roads

3.2 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					1.5000e-004	0.0000	1.5000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0238	0.2081	0.2468	4.9000e-004		0.0100	0.0100		9.3900e-003	9.3900e-003	0.0000	42.5383	42.5383	0.0118	0.0000	42.8330
Total	0.0238	0.2081	0.2468	4.9000e-004	1.5000e-004	0.0100	0.0102	2.0000e-005	9.3900e-003	9.4100e-003	0.0000	42.5383	42.5383	0.0118	0.0000	42.8330

### 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					6.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0238	0.2081	0.2468	4.9000e-004		0.0100	0.0100		9.3900e-003	9.3900e-003	0.0000	42.5382	42.5382	0.0118	0.0000	42.8329
Total	0.0238	0.2081	0.2468	4.9000e-004	6.0000e-005	0.0100	0.0101	1.0000e-005	9.3900e-003	9.4000e-003	0.0000	42.5382	42.5382	0.0118	0.0000	42.8329

### 3.3 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	0.0424	0.3828	0.3377	8.8000e-004		0.0167	0.0167		0.0154	0.0154	0.0000	76.9889	76.9889	0.0248	0.0000	77.6081
Total	0.0424	0.3828	0.3377	8.8000e-004		0.0167	0.0167		0.0154	0.0154	0.0000	76.9889	76.9889	0.0248	0.0000	77.6081

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	0.0424	0.3828	0.3377	8.8000e-004		0.0167	0.0167		0.0154	0.0154	0.0000	76.9888	76.9888	0.0248	0.0000	77.6080
Total	0.0424	0.3828	0.3377	8.8000e-004		0.0167	0.0167		0.0154	0.0154	0.0000	76.9888	76.9888	0.0248	0.0000	77.6080

3.3 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0144	0.1240	0.1196	3.2000e-004		5.3000e-003	5.3000e-003		4.8900e-003	4.8900e-003	0.0000	27.6523	27.6523	8.9000e-003	0.0000	27.8747
Total	0.0144	0.1240	0.1196	3.2000e-004		5.3000e-003	5.3000e-003		4.8900e-003	4.8900e-003	0.0000	27.6523	27.6523	8.9000e-003	0.0000	27.8747

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	0.0144	0.1240	0.1196	3.2000e-004		5.3000e-003	5.3000e-003		4.8900e-003	4.8900e-003	0.0000	27.6523	27.6523	8.9000e-003	0.0000	27.8746
Total	0.0144	0.1240	0.1196	3.2000e-004		5.3000e-003	5.3000e-003		4.8900e-003	4.8900e-003	0.0000	27.6523	27.6523	8.9000e-003	0.0000	27.8746

3.4 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	1.3300e-003	0.0121	0.0157	2.0000e-005		5.8000e-004	5.8000e-004		5.4000e-004	5.4000e-004	0.0000	2.0610	2.0610	6.1000e-004	0.0000	2.0761
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.3300e-003	0.0121	0.0157	2.0000e-005		5.8000e-004	5.8000e-004		5.4000e-004	5.4000e-004	0.0000	2.0610	2.0610	6.1000e-004	0.0000	2.0761

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	1.3300e-003	0.0121	0.0157	2.0000e-005		5.8000e-004	5.8000e-004		5.4000e-004	5.4000e-004	0.0000	2.0610	2.0610	6.1000e-004	0.0000	2.0761
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.3300e-003	0.0121	0.0157	2.0000e-005		5.8000e-004	5.8000e-004		5.4000e-004	5.4000e-004	0.0000	2.0610	2.0610	6.1000e-004	0.0000	2.0761

Tehachapi GSP - Treatment Facilities - Operations - Kern County APCD Air District, Annual

## Tehachapi GSP - Treatment Facilities - Operations

### Kern County APCD Air District, Annual

## 1.0 Project Characteristics

---

### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	37.60	1000sqft	2.00	37,600.00	0

### 1.2 Other Project Characteristics

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.7	<b>Precipitation Freq (Days)</b>	32
<b>Climate Zone</b>	7			<b>Operational Year</b>	2023
<b>Utility Company</b>	Southern California Edison				
<b>CO2 Intensity (lb/MW hr)</b>	355.26	<b>CH4 Intensity (lb/MW hr)</b>	0	<b>N2O Intensity (lb/MW hr)</b>	0

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2e intensity factor linearly adjusted to account for SB100 RPS by year 2023.

Land Use - see operational assumptions

Construction Phase -

Vehicle Trips - operational mobile emissions calculated outside of CalEEMod.

Energy Use - Adjusted to account for 2019 Title 24 Standards. Project operational electricity consumption related emissions calculated outside of CalEEMod.

Waste Mitigation - consistent with AB939.



Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	0.65	0.00
tblEnergyUse	NT24E	1.31	0.00
tblEnergyUse	T24E	0.40	0.00
tblEnergyUse	T24NG	16.68	16.51
tblLandUse	LotAcreage	0.86	2.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0
tblProjectCharacteristics	CO2IntensityFactor	702.44	355.26
tblProjectCharacteristics	N2OIntensityFactor	0.006	0
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	WD_TR	6.97	0.00

2.0 Emissions Summary

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	0.1905	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.7000e-004	6.7000e-004	0.0000	0.0000	7.2000e-004
Energy	3.3700e-003	0.0307	0.0258	1.8000e-004		2.3300e-003	2.3300e-003		2.3300e-003	2.3300e-003	0.0000	33.3678	33.3678	6.4000e-004	6.1000e-004	33.5660
Waste						0.0000	0.0000		0.0000	0.0000	9.4634	0.0000	9.4634	0.5593	0.0000	23.4453
Water						0.0000	0.0000		0.0000	0.0000	2.7585	18.2443	21.0028	0.2833	6.6900e-003	30.0796

Mitigated Operational



4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.490526	0.031452	0.181589	0.105458	0.018536	0.005406	0.011222	0.141571	0.002199	0.001433	0.008294	0.001173	0.001143

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	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	3.3700e-003	0.0307	0.0258	1.8000e-004		2.3300e-003	2.3300e-003		2.3300e-003	2.3300e-003	0.0000	33.3678	33.3678	6.4000e-004	6.1000e-004	33.5660
NaturalGas Unmitigated	3.3700e-003	0.0307	0.0258	1.8000e-004		2.3300e-003	2.3300e-003		2.3300e-003	2.3300e-003	0.0000	33.3678	33.3678	6.4000e-004	6.1000e-004	33.5660

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas s 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	625288	3.3700e- 003	0.0307	0.0258	1.8000e- 004		2.3300e- 003	2.3300e- 003		2.3300e- 003	2.3300e- 003	0.0000	33.3678	33.3678	6.4000e- 004	6.1000e- 004	33.5660
Total		3.3700e- 003	0.0307	0.0258	1.8000e- 004		2.3300e- 003	2.3300e- 003		2.3300e- 003	2.3300e- 003	0.0000	33.3678	33.3678	6.4000e- 004	6.1000e- 004	33.5660

Mitigated

	NaturalGas s 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	625288	3.3700e- 003	0.0307	0.0258	1.8000e- 004		2.3300e- 003	2.3300e- 003		2.3300e- 003	2.3300e- 003	0.0000	33.3678	33.3678	6.4000e- 004	6.1000e- 004	33.5660
Total		3.3700e- 003	0.0307	0.0258	1.8000e- 004		2.3300e- 003	2.3300e- 003		2.3300e- 003	2.3300e- 003	0.0000	33.3678	33.3678	6.4000e- 004	6.1000e- 004	33.5660

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1905	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.7000e-004	6.7000e-004	0.0000	0.0000	7.2000e-004
Unmitigated	0.1905	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.7000e-004	6.7000e-004	0.0000	0.0000	7.2000e-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	0.0436					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1469					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.7000e-004	6.7000e-004	0.0000	0.0000	7.2000e-004
Total	0.1905	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.7000e-004	6.7000e-004	0.0000	0.0000	7.2000e-004

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	0.0436					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1469					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.7000e-004	6.7000e-004	0.0000	0.0000	7.2000e-004
Total	0.1905	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.7000e-004	6.7000e-004	0.0000	0.0000	7.2000e-004

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	21.0028	0.2833	6.6900e-003	30.0796
Unmitigated	21.0028	0.2833	6.6900e-003	30.0796

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	8.695 / 0	21.0028	0.2833	6.6900e-003	30.0796
Total		21.0028	0.2833	6.6900e-003	30.0796

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	8.695 / 0	21.0028	0.2833	6.6900e-003	30.0796
Total		21.0028	0.2833	6.6900e-003	30.0796



8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	4.7317	0.2796	0.0000	11.7226
Unmitigated	9.4634	0.5593	0.0000	23.4453

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	46.62	9.4634	0.5593	0.0000	23.4453
Total		9.4634	0.5593	0.0000	23.4453

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	23.31	4.7317	0.2796	0.0000	11.7226
Total		4.7317	0.2796	0.0000	11.7226

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

Appendix BIO

**City of Tehachapi Groundwater  
Sustainability Project Biological  
Resources Technical Report**



# CITY OF TEHACHAPI GROUNDWATER SUSTAINABILITY PROJECT

## Biological Resources Technical Report

Prepared for  
City of Tehachapi

November 2021



# CITY OF TEHACHAPI GROUNDWATER SUSTAINABILITY PROJECT

## Biological Resources Technical Report

Prepared for  
City of Tehachapi

November 2021

626 Wilshire Boulevard  
Suite 1100  
Los Angeles, CA 90017  
213.599.4300  
esassoc.com



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# EXECUTIVE SUMMARY

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The City of Tehachapi (City) is proposing to implement the Groundwater Sustainability Project (GSP; proposed project), an Indirect Potable Reuse (IPR) project to increase local water supply, maximize recycled water use, improve water quality to support higher levels of recycled water, and decrease reliance on imported water. Through a literature review, desktop GIS analysis, and field reconnaissance, this Biological Resources Technical Report (BRTR) assesses the GSP proposal to construct new facilities at the City's existing Tehachapi Wastewater Treatment Plant (WWTP) to produce tertiary-treated recycled water, construct new pump stations at the WWTP and existing Borrow Pit, construct a pipeline to convey recycled water from the WWTP to the existing Borrow Pit and Blackburn Dam, and construct new spreading grounds at Blackburn Dam to allow for recharge of the tertiary-treated recycled water into the local Tehachapi Groundwater Basin.

A background investigation of the proposed project sites (project sites) was conducted that included queries of the California Natural Diversity Database (CNDDB) and California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants. A biological resource reconnaissance was conducted on February 4 and 5, 2021 for the proposed project to gather baseline biological resources data prior to project commencement. Results of the reconnaissance, in combination with the findings of the background investigation, were used to assess the potential for project sites to support special-status plant and wildlife species and sensitive natural communities and to investigate the potential for aquatic resources to occur on the proposed project sites. Also provided is an analysis of the potential impacts to these biological resources that may result from implementing the proposed project.

The project sites are mostly developed or disturbed; however, several vegetation communities were observed or documented during the field reconnaissance and data review. The project sites currently support 12 vegetation communities and five land cover types. Two sensitive natural communities were identified within the project sites during the reconnaissance.

The project sites currently support a diversity of common and special-status wildlife and plant species that may be impacted during construction, operations, and maintenance. Special-status wildlife species that have a moderate potential to occur on-site include Crotch bumble bee, California legless lizard, coast horned lizard, California condor, golden eagle, loggerhead shrike, tricolored blackbird, and Tehachapi pocket mouse. No special-status plant species were observed or detected and no species have a moderate potential to occur based on lack of suitable habitat on site.

The proposed project has the potential to result in adverse impacts to biological resources during project construction, operations, and maintenance. This includes the potential for significant impacts to special-status wildlife, nesting avian species, sensitive natural communities, aquatic resources, and local ordinances. Impacts were evaluated in terms of the California Environmental Quality Act (CEQA) thresholds of significance for biological resources. For those thresholds for

which the proposed project would result in significant adverse impacts, mitigation measures were proposed. Mitigation measures were designed to reduce these potentially significant impacts to less than significant. For all potential impacts, implementation of mitigation measures would reduce impacts to a level that is less than significant.

# CHAPTER 1

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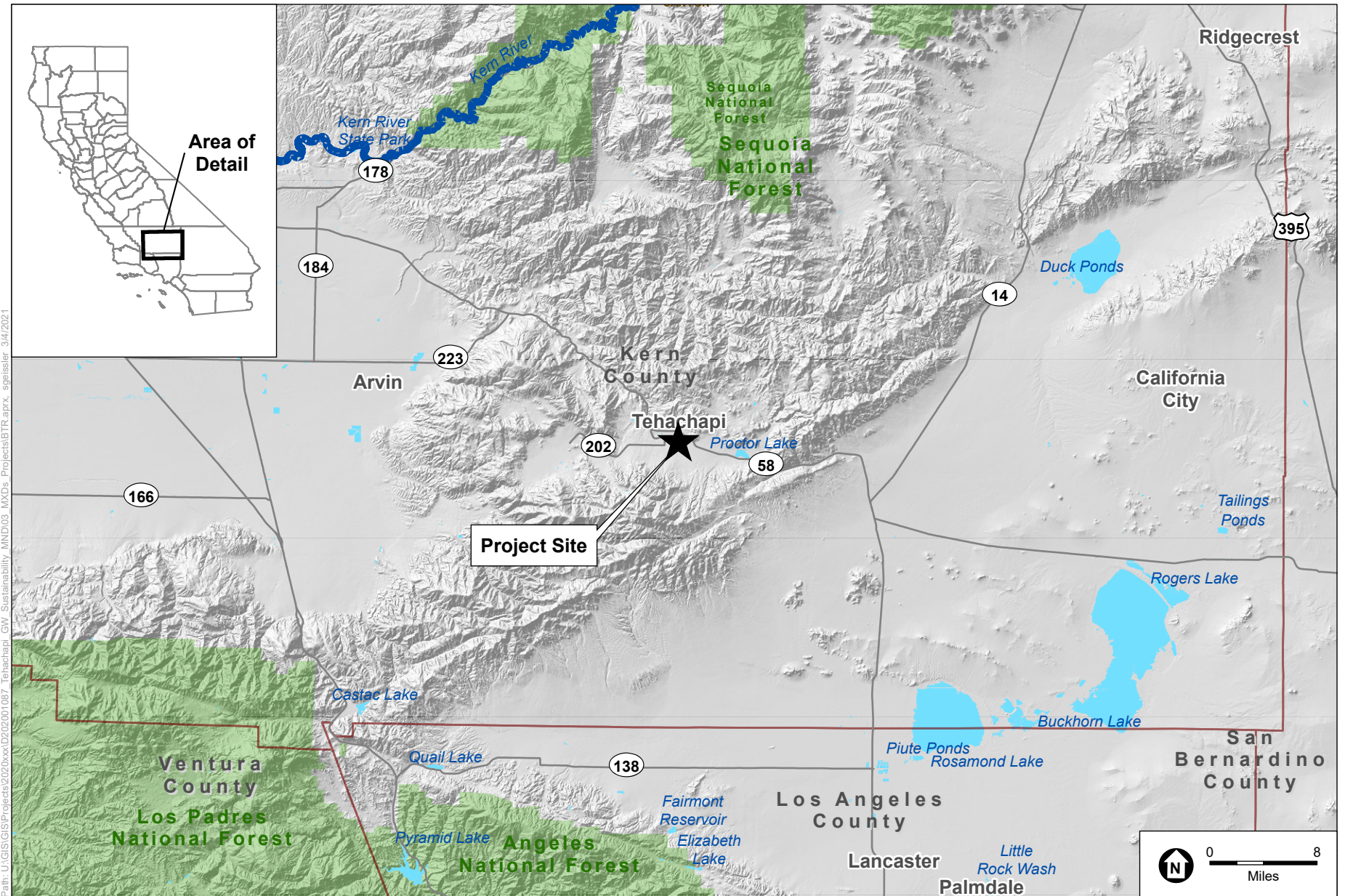
## Introduction

### 1.1 Project Location and Background

The City of Tehachapi (City) as lead agency under the California Environmental Quality Act (CEQA) is proposing to implement the Groundwater Sustainability Project (GSP; proposed project), an Indirect Potable Reuse (IPR) project that would allow the City to increase local water supply, maximize recycled water use, improve water quality to support higher levels of recycled water, and decrease reliance on imported water. The GSP would construct new facilities at the City's existing Tehachapi Wastewater Treatment Plant (WWTP) to produce tertiary-treated recycled water, construct new pump stations and pipelines to convey recycled water from the WWTP to the existing Borrow Pit and Blackburn Dam, and construct new spreading grounds at Blackburn Dam to allow for recharge of the tertiary-treated recycled water into the local Tehachapi Groundwater Basin. The existing and proposed project components are collectively referred to as the "project sites." The water would be extracted at existing domestic supply wells.

The proposed project is located both within the jurisdiction of the City of Tehachapi, as well as unincorporated Kern County, located in southeastern Kern County as shown on **Figure 1**. The City is approximately 35 miles southeast of the City of Bakersfield and 50 miles northwest of the City of Lancaster. The City lies in a mountainous area between the San Joaquin Valley and the Mojave Desert, at an elevation of approximately 3,970 feet above mean sea level (amsl). It is surrounded by prominent hills and ridgelines to the north, west, and south.

This Biological Resources Technical Report (BRTR) assesses the construction of upgraded treatment facilities at the existing WWTP, proposed new pump stations at the WWTP and existing Borrow Pit, construction of a new pipeline from the existing Borrow Pit to Blackburn Dam, and proposed new spreading grounds at Blackburn Dam. All project components of the proposed project are depicted on **Figure 2**. Figure 2 also shows the biological study area (BSA), which includes the project sites, plus a 500-foot buffer around the WWTP and staging area, proposed effluent pump station, the existing Borrow Pit and proposed pump station, and the existing Blackburn Dam, as well as a 100-foot buffer around the proposed 12-inch pipeline.

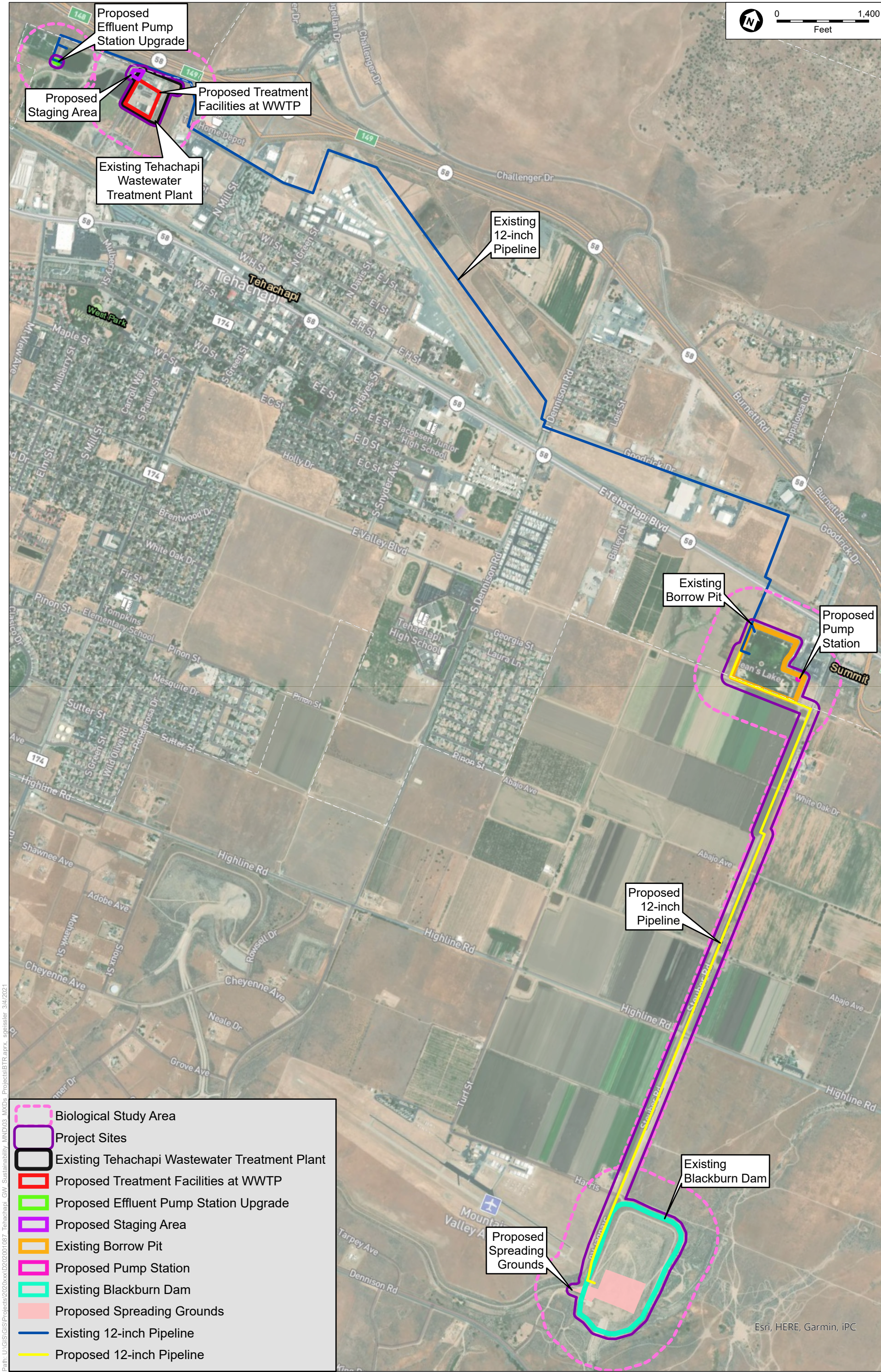


SOURCE: ESRI; National Hydrography Dataset; DWR

Tehachapi Groundwater Sustainability Project

**Figure 1**  
Regional Location





SOURCE: Mapbox/NearMap, 2020; ESA, 2021.

Tehachapi Groundwater Sustainability Project  
**Figure 2**  
 Project Components and Biological Study Area



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## 1.2 Project Description

The proposed project would construct new facilities at the City's existing Tehachapi WWTP to produce tertiary-treated recycled water, construct new pump stations and pipelines to convey recycled water from the WWTP to the Blackburn Dam, and construct new spreading grounds at Blackburn Dam to allow for recharge of the tertiary-treated recycled water to the local Tehachapi Groundwater Basin. The water would be extracted at existing domestic supply wells at a future date. The main components are described below and shown on Figure 2.

As an IPR project, the GSP would be a Groundwater Recharge Reuse Project (GRRP), which would require adherence to all California Water Code Title 22 Recycled Water Regulations, and preparation and submittal of a Title 22 Engineering Report to the State Department of Drinking Water (DDW) and the Central Valley Regional Water Quality Control Board (RWQCB).

### 1.2.1 Treatment Facilities

The City owns and operates the existing Tehachapi WWTP which receives, treats, and disposes of wastewater by land application, either by discharging effluent to irrigate farmland (reclamation areas) north of Tehachapi Municipal Airport or by discharging effluent to storage ponds onsite at the WWTP or to the Borrow Pit. Treatment at the WWTP consists of primary treatment and secondary treatment provided by way of the head works, an oxidation ditch, a secondary clarifier, sludge drying beds, sludge dewatering facilities, and storage ponds. The WWTP design capacity is 1.25 million gallons per day (MGD), and the plant is currently operating at an average daily flow of approximately 0.66 MGD (2020).

As part of the proposed project, the City would upgrade the Tehachapi WWTP processes to produce disinfected tertiary recycled water for groundwater recharge, which is filtered and disinfected wastewater. The recycled water would meet the requirements of California Water Code Title 22 Recycled Water Regulations. All proposed upgrades would occur within the existing property boundaries of the WWTP. The proposed WWTP improvements required to produce the tertiary effluent and operate the plant at full 1.25 MGD capacity would be located in the area shown in Figure 2.

### 1.2.2 Recharge Facilities

The proposed project would augment the City's existing groundwater supply by recharging up to 1,400 AFY of tertiary-treated recycled water into the Tehachapi Groundwater Basin. The proposed project includes surface spreading at the proposed spreading grounds to be constructed behind the existing Blackburn Dam. Blackburn Dam is owned and operated by TCCWD and was completed in 1990 as part of the Tehachapi Flood Control Project (AECOM 2017). At Blackburn Dam, recharge basins would be installed within the inner limits of the dam, as shown in Figure 2.



### 1.2.3 Conveyance Facilities

The City currently conveys secondary treated effluent from the WWTP to the reclamation areas and to the Borrow Pit. As part of the proposed project, the City would convey tertiary-treated recycled water to new spreading grounds at Blackburn Dam. Secondary effluent would no longer be produced at the Tehachapi WWTP.

To convey recycled water from the Tehachapi WWTP to the Blackburn Dam, the existing effluent pump station west of the Tehachapi WWTP at Pond 13 as shown on Figure 2 would need to be upgraded or replaced. An existing 12-inch force main would be used to convey the tertiary-treated recycled water to the Borrow Pit area. A new pump station would be installed within the existing boundary of the Borrow Pit as shown in Figure 2. From the Borrow Pit, a new 2-mile transmission pipeline would be needed to convey recycled water to the spreading basins behind the Blackburn Dam.

# CHAPTER 2

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## Methodology

### 2.1 Biological Study Area

For purposes of this analysis, the BSA includes the approximately 85-acre project sites, as defined in Chapter 1.1, plus a 500-foot buffer around the WWTP and staging area, proposed effluent pump station, the existing Borrow Pit and proposed pump station, and the existing Blackburn Dam, as well as a 100-foot buffer around the proposed 12-inch pipeline (Figure 2). The project vicinity includes the area shown on Figure 2 and may be used interchangeably with “immediate vicinity.”

### 2.2 Existing Literature and Database Review

Prior to conducting the reconnaissance, Environmental Science Associates (ESA) conducted a thorough review of available information regarding the present biological conditions of the BSA. The following resources were referenced for the analyses of this report:

- California Department of Fish and Wildlife (CDFW) California Natural Diversity Data Base (CNDDB) was queried for special-status species records within the Tehachapi North and Tehachapi South United States Geological Survey (USGS) topographic quadrangle and surrounding 10 quadrangles. These 10 quadrangles include: Oiler Peak, Loraine, Emerald Mtn., Keene, Tehachapi NE, Cummings Mtn., Monolith, Liebre Twins, Tylerhorse Canyon, and Willow Springs (CDFW 2021).
- California Native Plant Society (CNPS), Inventory of Rare and Endangered Vascular Plants of California was queried for special-status species records within the Tehachapi North and South USGS topographic quadrangle and surrounding 10 quadrangles. These 10 quadrangles include: Oiler Peak, Loraine, Emerald Mtn., Keene, Tehachapi NE, Cummings Mtn., Monolith, Liebre Twins, Tylerhorse Canyon, and Willow Springs (CNPS 2021).
- United States Fish and Wildlife Service (USFWS) Environmental Conservation Online System for Critical Habitat (USFWS 2021a).
- USFWS National Wetlands Inventory (NWI) online mapper (USFWS 2021b).
- United States Department of Agriculture (USDA) Soil Survey Geographic Data Base (USDA 2021).
- United States Geological Survey (USGS) National Hydrography Dataset (NHD) (USGS 2021).

## 2.3 Field Surveys

### 2.3.1 Special-Status Species Habitat Assessment

ESA biologists Karla Flores and Amanda French conducted a general biological reconnaissance survey and a burrowing owl habitat assessment of the BSA to characterize natural communities and evaluate the potential for burrowing owl presence. The field surveys took place on February 4 and 5, 2021. The temperature ranged from 41 degrees Fahrenheit in the mornings to 59 degrees Fahrenheit in the afternoons on both days with an average of 3 miles per hour (mph) winds and no cloud cover.

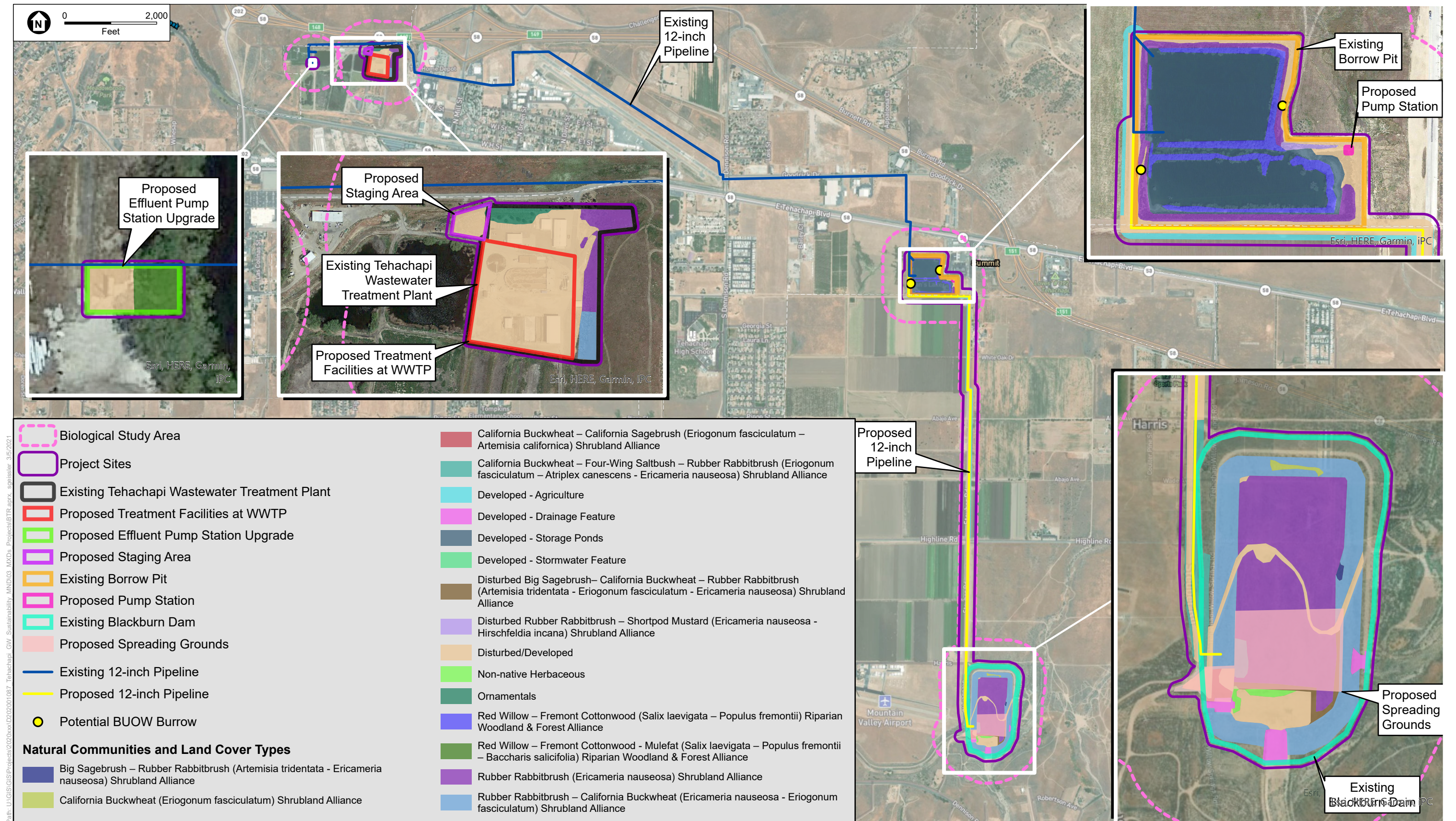
The potential of the BSA to support special-status plant or wildlife species was evaluated based on previously documented occurrence records, habitat suitability (i.e., soils, vegetation communities, disturbances, adjacent land uses, etc.), geographic range restrictions, and the overall ecological value of the BSA. Areas where the project may include crossing jurisdictional and/or aquatic resources under the potential regulation of the U.S. Army Corps of Engineers (USACE), RWQCB, or the California Department of Fish and Wildlife (CDFW) were mapped and evaluated.

All incidental, visual observations of flora and fauna, including sign (e.g., presence of scat) and any audible detections of wildlife, were noted during the assessment and are described in Chapter 4 of this report. All native and non-native natural communities and existing conditions were characterized and delineated on aerial photographs and ArcCollector during the field survey, and subsequently digitized using a Geographic Information System (GIS) software (ArcGIS). The field map was digitized using GIS technology and the resultant baseline mapping used to determine the extent of potential project effects on each plant community. Most descriptions of vegetation were characterized in the field in accordance with *A Manual of California Vegetation*, Second Edition (Sawyer 2009), or characterized based on species dominance when not recognized in the *Manual*. A detailed description of each natural community and land use is provided in Section 4.3 of this report. Photographs were taken during the field survey and are provided in **Appendix A – Representative Site Photos**.

### 2.3.2 Burrowing Owl Habitat Assessment

A burrowing owl habitat assessment was conducted within the BSA concurrently with the biological resources assessment. The habitat assessment followed the guidelines outlined in the *2012 California Department of Fish and Wildlife (CDFW) Staff Report on Burrowing Owl Mitigation*. Potentially suitable burrows observed during the habitat assessment were mapped using ArcCollector (**Figure 3**).





SOURCE: Mapbox/NearMap, 2020; ESA, 2021.

Tehachapi Groundwater Sustainability Project

**Figure 3**  
Natural Communities and Land Cover Types



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## CHAPTER 3

# Regulatory Framework

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This section provides a summary of the federal, state, and regional or local environmental regulations that govern the biological resources applicable to the BSA. This section also provides a summary of other state and local environmental guidelines or listings that evaluate the rarity of species or the habitats they depend on.

### 3.1 Federal

#### 3.1.1 Federal Endangered Species Act

The United States Congress passed the Federal Endangered Species Act (FESA) in 1973 to protect those species that are endangered or threatened with extinction. FESA is intended to operate in conjunction with the National Environmental Policy Act to help protect the ecosystems upon which endangered and threatened species depend. FESA prohibits the “take” of endangered or threatened wildlife species. “Take” is defined to include harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such conduct (FESA Section 3 [(3)(19)]). Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns (50 Code of Federal Regulations [CFR] Section 17.3). “Harass” is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns (50 CFR Section 17.3). Actions that result in take can result in civil or criminal penalties.

#### 3.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) generally prohibits the killing, possessing, or trading of migratory birds, bird parts, eggs, and nests, except as provided by the statute. The MBTA authorizes the Secretary of the Interior to regulate the taking of migratory birds. It further provides that it is unlawful, except as permitted by regulations, “to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird...” (16 United States Code [USC] Section 703). As amended by U.S. Department of the Interior Solicitor’s Opinion M-37050 in December 22, 2017 and subsequently by USFWS guidance issued on April 11, 2018, the accidental or incidental take of birds resulting from an activity is not prohibited by the MBTA when the underlying purpose is not to take birds. If the purpose of the action is not to take birds, Opinion M-37050 allows both the direct take of birds and their nests and indirect or incidental take that results in the direct loss of birds, nests, or eggs (USDOI 2017). Thus, the federal MBTA definition of “take” does not prohibit or penalize the incidental take of migratory birds that results

from actions that are performed without motivation to harm birds. This interpretation differs from the prior federal interpretation of “take”, which prohibited all incidental take of migratory birds, whether intentional or incidental.

The MBTA, first enacted in 1916, prohibits any person, unless permitted by regulations, to “pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention... for the protection of migratory birds...or any part, nest, or egg of any such bird” (16 U.S. Code 703).

### 3.1.3 Fish and Wildlife Conservation Act

The Fish and Wildlife Conservation Act declares that fish and wildlife are of ecological, educational, aesthetic, cultural, recreational, economic, and scientific value to the United States. The purposes of this Act are to encourage all federal departments and agencies to utilize their statutory and administrative authority, to the maximum extent practicable and consistent with each agency's statutory responsibilities and to conserve and to promote conservation of non-game fish and wildlife and their habitats. Another purpose is to provide financial and technical assistance to the states for the development, revision, and implementation of conservation plans and programs for nongame fish and wildlife.

## 3.2 State

### 3.2.1 Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act, waters of the state fall under the jurisdiction of the appropriate RWQCB. Under the act, the RWQCB must prepare and periodically update water quality control basin plans. Each basin plan sets forth water quality standards for surface water and groundwater, as well as actions to control nonpoint and point sources of pollution to achieve and maintain these standards. Projects that affect wetlands or waters must meet waste discharge requirements of the RWQCB, which may be issued in addition to a water quality certification or waiver under Section 401 of the Clean Water Act (CWA). The RWQCB requires projects to avoid impacts to wetlands if feasible and requires that projects do not result in a net loss of wetland acreage or a net loss of wetland function and values. The RWQCB typically requires compensatory mitigation for impacts to wetlands and/or waters of the state. The RWQCB also has jurisdiction over waters deemed ‘isolated’ or not subject to Section 404 jurisdiction under *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (SWANCC). Dredging, filling, or excavation of isolated waters constitutes a discharge of waste to waters of the state and prospective dischargers are required obtain authorization through an Order of Waste Discharge or waiver thereof from the RWQCB and comply with other requirements of Porter-Cologne Act.

The State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (State Wetland Procedures), as prepared by the State Water Resources Control Board (SWRCB), was implemented on May 28, 2020. The State Wetland 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.

### 3.2.2 CEQA Guidelines Section 15380

Although threatened and endangered species are protected by specific federal and state statutes, 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 was included in the CEQA Guidelines 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 CNDDDB as sensitive are considered by CDFW to be significant resources and fall under the CEQA Guidelines for addressing impacts. Local planning documents such as general plans often identify these resources as well.

### 3.2.3 California Endangered Species Act

Under the California Endangered Species Act (CESA), the CDFW is responsible for maintaining a list of threatened and endangered species (California Fish and Game Code 2007), candidate species, and species of special concern. Pursuant to the requirements of CESA, an agency reviewing a project within its jurisdiction must determine whether any state listed endangered or threatened species may be present on the project region and determine whether the project would have a potentially significant impact on such species. In addition, the CDFW encourages informal consultation on any project that may impact a candidate species. If there were project-related impacts to species on the CESA threatened and endangered list, they would be considered “significant.” Impacts to “species of concern” would be considered “significant” under certain circumstances, discussed below.



### 3.2.4 California Fish and Game Code

#### **Section 2080 – Threatened and Endangered Species**

Section 2080 of the California Fish and Game Code states, “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 [California 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, any state-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through permits or Memoranda of Understanding if: (1) the take is incidental to an otherwise lawful activity; (2) impacts of the authorized take are minimized and fully mitigated; (3) the permit is consistent with any regulations adopted pursuant to any recovery plan for the species; and (4) the applicant ensures adequate funding to implement the measures required by CDFW. CDFW makes this determination based on available scientific information and considers the ability of the species to survive and reproduce.

#### **Section 3503 – Nesting Birds and Raptors**

Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (i.e., species in the orders Falconiformes and Strigiformes), including their nests or eggs. Typical violations of these codes include destruction of active nests resulting from removal of vegetation in which the nests are located. Violation of Section 3503.5 could also include failure of active raptor nests resulting from disturbance of nesting pairs by nearby project construction. This statute does not provide for the issuance of any type of incidental take permit.

#### **Section 1600 – Lake and Streambed Alteration**

Pursuant to Division 2, Chapter 6, Section 1600 et seq. of the California Fish and Game Code, CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel or bank of any river, stream, or lake which supports fish or wildlife. A notification of a Lake or Streambed Alteration Agreement must be submitted to CDFW for “any activity that may substantially change the bed, channel, or bank of any river, stream, or lake.” In addition, CDFW has authority under California Fish and Game Code over wetland and riparian habitats associated with lakes and streams. The CDFW reviews proposed actions, and if necessary, submits to the applicant a proposal that includes measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFW and the applicant is the Lake or Streambed Alteration Agreement.

## Sections 3511, 4700, 5050 and 5515 – Fully Protected Species

Protection of fully protected species is described in Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code. These statutes prohibit take or possession of fully protected species. CDFW is unable to authorize incidental take of fully protected species when activities are proposed in areas inhabited by those species. CDFW has informed nonfederal agencies and private parties that they must avoid take of any fully protected species in carrying out projects.

### 3.2.5 Native Plant Protection Act

The Native Plant Protection Act (California Fish and Game Code Sections 1900 et seq.) includes measures to preserve, protect, and enhance rare and endangered native plants. The list of native plants afforded protection pursuant to the Native Plant Protection Act includes those listed as rare and endangered under the CESA. The Native Plant Protection Act provides limitations on take as follows: “No person will import into this State, or take, possess, or sell within this State” any rare or endangered native plant, except in compliance with provisions of the act. Individual landowners are required to notify the CDFW at least 10 days in advance of changing land uses to allow the CDFW to salvage any rare or endangered native plant material.

## 3.3 Regional or Local

No habitat conservation plans or natural community conservation plans are applicable to the BSA. The City of Tehachapi and Kern County local planning documents applicable to the BSA are described below.

### 3.3.1 City of Tehachapi General Plan

The City of Tehachapi General Plan includes the following objectives and policies related to biological resources:

#### **Objective 1. Protect Important Natural Habitat for It to Function Appropriately in Support of Wildlife**

##### **Policies**

NR26. As part of the discretionary review process for development proposals, identify significant resources through project design;

NR27. Maintain Antelope Run as a natural corridor to foster wildlife while being flanked by recreational trails and appropriate, low-intensity urban uses;

NR28. Protect and/or restore identified resources and areas.

## **Objective 2. Require The Use of Native Plant Species in Rural and Urban Areas**

### **Policies**

NR30. Enhance the existing tree resources through regulations that set forth thresholds for identifying and protecting a significant tree resource;

NR31. Maintain planting standards that:

- a. minimize the need for water;
- b. reflect the various intended physical contexts to which they will be applied.

## **3.3.2 Kern County General Plan**

This regulatory framework identifies the policies that govern the conservation and protection of biological resources that must be considered by the County during the decision-making process for projects that have the potential to affect biological resources. The Kern County General Plan includes the following goals related to biological resources:

### **1.10.5 Threatened and Endangered Species**

#### **Policies**

**Policy 27:** Threatened or endangered plant and wildlife species should be protected in accordance with State and federal laws.

**Policy 32:** Riparian areas will be managed in accordance with the USACE and the CDFW rules and regulations to enhance the drainage, flood control, biological, recreational, and other beneficial uses while acknowledging existing land use patterns.

# CHAPTER 4

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## Existing Conditions

The BSA is located in the City of Tehachapi and in Kern County (Figures 1 and 2). This area is north of the Tehachapi Mountains between the San Joaquin Valley and the Mojave Desert. Land use within the immediate vicinity of the proposed project is primarily developed and agriculture.

### 4.1 Soils

Based on a review of the Natural Resources Conservation Services (NRCS) Web Soil Survey, seven soil types are known to occur within the BSA. Each is described in detail below.

#### **Havala sandy loam, 0 to 2 percent slopes**

This soil type formed from a parent material of alluvium derived from granite and is characterized as being prime farmland if irrigated as it is well drained with a moderate water capacity of 7.3 inches. Bedrock is usually present within more than 80 inches of the surface. The typical soil profile is as follows: 0 to 24 inches, sandy loam; 24 to 48 inches, sandy clay loam; and 48 to 65 inches, sandy loam. This soil type is situated in the southwest portion of the WWTP, surrounding the Borrow Pit, and along the northern section of the proposed 12-inch pipeline.

#### **Pits**

These soils consist of areas that have been excavated for sand or gravel. The areas are mostly on broad outwash plains and terraces of stream valleys and generally range from 3 to 30 acres. These areas have sparse vegetation consisting of drought-resistant plants. Slopes range mostly from 0 to 25 percent and steep escarpments are along the edges of the pits. This soil type is located in the south-central portion of Blackburn Dam and the center of the Borrow Pit.

#### **Psamments-Xerolls complex, nearly level**

This soil type formed from a parent material of alluvium derived from granite and is characterized as being somewhat excessively drained with a low water capacity of 4.6 inches. Bedrock is usually present within more than 80 inches of the surface. The typical soil profile is as follows: 0 to 12 inches, loamy sand; 12 to 48 inches, loamy sand; and 48 to 60 inches, stratified gravelly sand to gravelly loamy sand. This soil type is located along the east and west edges of Blackburn Dam.

### **Steuber sandy loam, 0 to 2 and 2 to 5 percent slopes**

These soil types formed from a parent material of alluvium derived from granite and are characterized as being prime farmland if irrigated as they are well drained with a low water capacity of 6.0 inches. Bedrock is usually present within more than 80 inches of the surface. The typical soil profile is as follows: 0 to 12 inches, sandy loam, and 12 to 60 inches, sandy loam. Steuber sandy loam, 0 to 2 percent slopes, is located along the central portion of the proposed 12-inch pipeline alignment. Steuber sandy loam, 2 to 5 percent slopes, is located throughout the central portion of the WWTP, southern portion of the proposed 12-inch pipeline alignment, and northern portion of Blackburn Dam;

### **Tehachapi sandy loam, 2 to 15 percent slopes**

This soil type formed from a parent material of alluvium derived from granite and is characterized as being prime farmland if irrigated as it is well drained with a moderate water capacity of 8.1 inches. Bedrock is usually present within more than 80 inches of the surface. The typical soil profile is as follows: 0 to 11 inches, sandy loam; 11 to 19 inches, sandy clay loam; 19 to 32 inches, clay loam; 32 to 44 inches, sandy loam; and 44 to 60 inches, stratified loamy sand to sandy clay loam. This soil type is situated in the northern portion of the WWTP.

### **Tehachapi variant sandy clay loam, 15 to 50 percent slopes**

This soil type formed from a parent material of alluvium derived from granite and is characterized as being well drained with a high water capacity of 9.6 inches. Bedrock is usually present within more than 80 inches of the surface. The typical soil profile is as follows: 0 to 17 inches, sandy clay loam, and 17 to 60 inches, sandy clay loam. This soil type is located on the eastern edge of the WWTP.

### **Tujunga loamy sand, 2 to 5 percent slopes**

This soil type formed from a parent material of alluvium derived from granite and is characterized as being farmland of statewide importance as it is somewhat excessively drained with a low water capacity of 4.8 inches. Bedrock is usually present within more than 80 inches of the surface. The typical soil profile is 0 to 60 inches, loamy sand. This soil type is situated throughout the center of Blackburn Dam.

## **4.2 Topography and Watersheds**

The BSA is located within the Tehachapi Valley on the northeastern end of the Tehachapi Mountain Range, which divides the San Joaquin Valley and Mojave Desert. In general, the topography of the BSA is relatively flat ranging from 4,000 amsl at the WWTP to 4,200 feet amsl at Blackburn Dam. The BSA is located within two watersheds: Upper Tehachapi Creek watershed (HUC 180300030202) and Proctor Lake watershed (HUC180902060102) (EPA 2021). The WWTP, Borrow Pit, southern portion of the 12-inch proposed pipeline, and southwest edge of Blackburn Dam are located in the Upper Tehachapi Creek watershed, while the remainder of the 12-inch proposed pipeline alignment and Blackburn Dam are located within the Proctor Lake watershed.

## 4.3 Natural Communities and Land Cover Types

All natural communities and land cover types were characterized and delineated on aerial photographs and ArcCollector during the field survey, and then digitized on aerial maps using a Geographic Information System software (ArcGIS). The nomenclature used to describe the vegetation is based on *A Manual of California Vegetation*, Second Edition (Sawyer 2009), or characterized based on species dominance when not recognized in the *Manual*. Natural communities and land cover types located on the project sites are described in detail below and are depicted on Figure 3. The natural community and land cover classification locations and acreages are listed in **Table 1**, below.

**TABLE 1**  
**NATURAL COMMUNITIES AND LAND COVER TYPES WITHIN THE PROJECT SITES**

Natural Community/Land Cover Type	Acreage
<b>Aquatic/Riparian</b>	
Red Willow – Fremont Cottonwood – Mulefat Riparian Woodland & Forest Alliance	0.01
Red Willow – Fremont Cottonwood Riparian Woodland & Forest Alliance	2.23
<b>Terrestrial</b>	
Big Sagebrush – Rubber Rabbitbrush Shrubland Alliance	0.01
California Buckwheat – California Sagebrush Shrubland Alliance	0.33
California Buckwheat – Four-Wing Saltbush – Rubber Rabbitbrush Shrubland Alliance	2.32
California Buckwheat Shrubland Alliance	0.22
Rubber Rabbitbrush – California Buckwheat Shrubland Alliance	12.06
Rubber Rabbitbrush Shrubland Alliance	19.42
Disturbed Big Sagebrush – California Buckwheat – Rubber Rabbitbrush Shrubland Alliance	0.84
Disturbed Rubber Rabbitbrush – Shortpod Mustard Shrubland Alliance	0.13
Non-native Herbaceous	0.36
Ornamentals	0.83
<b>Developed/Disturbed Land Cover Types</b>	
Disturbed/Developed	28.97
Developed – Agriculture	5.92
Developed – Drainage Feature	1.17
Developed – Storage Ponds	9.92
Developed – Stormwater Feature	0.02
<b>TOTAL</b>	<b>84.76</b>

### 4.3.1 Natural Communities

#### Non-native Herbaceous

This vegetation community was characterized and mapped in a small area within the southern portion of Blackburn Dam project site where the proposed spreading grounds will be located. The areas adjacent to this community are predominately comprised of disturbed or developed areas.

Species observed within this community included shortpod mustard (*Hirschfeldia incana*) and prickly Russian thistle (*Salsola tragus*).

### **Rubber Rabbitbrush (*Ericameria nauseosa*) Shrubland Alliance**

This vegetation community was characterized and mapped throughout Blackburn Dam, along the surrounding sloped edge of the Borrow Pit pond, and along the east edge of the WWTP. Species observed within this community included rubber rabbitbrush (*Ericameria nauseosa*), California buckwheat (*Eriogonum fasciculatum*), and four-wing saltbush (*Atriplex canescens*).

### **Rubber Rabbitbrush – California Buckwheat (*Ericameria nauseosa* - *Eriogonum fasciculatum*) Shrubland Alliance**

This vegetation community was characterized and mapped along the embankments surrounding Blackburn Dam and a small patch in the southeast corner of the WWTP. Species observed within this community included rubber rabbitbrush and California buckwheat.

### **Disturbed Rubber Rabbitbrush – Shortpod Mustard (*Ericameria nauseosa* - *Hirschfeldia incana*) Shrubland Alliance**

This vegetation community was characterized and mapped in small patch along the northeast east edge of the Borrow Pit. Species observed within this community included rubber rabbitbrush and shortpod mustard.

### **Disturbed Big Sagebrush– California Buckwheat – Rubber Rabbitbrush (*Artemisia tridentata* - *Eriogonum fasciculatum* - *Ericameria nauseosa*) Shrubland Alliance**

This vegetation community was characterized and mapped within Blackburn Dam along an old dirt road. Species observed within this community included big sagebrush (*Artemisia tridentata*), California buckwheat, rubber rabbitbrush, and non-native herbaceous species.

### **California Buckwheat (*Eriogonum fasciculatum*) Shrubland Alliance**

This vegetation community was characterized and mapped in a small patch on the north slope of Blackburn Dam. Species observed within this community included California buckwheat and rubber rabbitbrush.

### **California Buckwheat – California Sagebrush (*Eriogonum fasciculatum* – *Artemisia californica*) Shrubland Alliance**

This vegetation community was characterized and mapped along the southwest slope of Blackburn Dam. Species observed within this community included California buckwheat and California sagebrush (*Artemisia californica*).

**California Buckwheat – Four-Wing Saltbush – Rubber Rabbitbrush  
(*Eriogonum fasciculatum* – *Atriplex canescens* - *Ericameria  
nauseosa*) Shrubland Alliance**

This vegetation community was characterized and mapped along the dirt road leading into the entrance of Blackburn Dam. Species observed within this community included California buckwheat, four-wing saltbush, and rubber rabbitbrush.

**Big Sagebrush – Rubber Rabbitbrush (*Artemisia tridentata* -  
*Ericameria nauseosa*) Shrubland Alliance**

This vegetation community was characterized and mapped in a small patch at the base of the east slope of Blackburn Dam. Species observed within this community included big sagebrush and rubber rabbitbrush.

**Red Willow – Fremont Cottonwood (*Salix laevigata* – *Populus  
fremontii*) Riparian Woodland & Forest Alliance**

This vegetation community was characterized and mapped throughout the Borrow Pit. Species observed within this community included red willow and Fremont cottonwood. This community is considered a natural community by CDFW (CDFW 2020).

**Red Willow – Fremont Cottonwood - Mulefat (*Salix laevigata* –  
*Populus fremontii* – *Baccharis salicifolia*) Riparian Woodland &  
Forest Alliance**

This vegetation community was characterized and mapped along the edges of the pond near the proposed effluent pump station upgrade. Species observed within this community included red willow, Fremont cottonwood, and mulefat. This community is considered a sensitive natural community by CDFW (CDFW 2020).

**Ornamentals**

This vegetation community was characterized and mapped in a small area within the northern portion of the existing WWTP project site, and consisted of landscaped plantings associated with developed areas.

## 4.3.2 Land Cover Types

### **Disturbed/Developed**

Much of the land in the project sites consists of disturbed or developed land, with the WWTP being made up almost entirely of this land cover type. The disturbed/developed land includes buildings and treatment facilities, gravel and dirt roads, and roadways and primarily devoid of vegetation.



### **Developed – Agriculture**

The majority of the land surrounding the Proposed 12-inch Pipeline consists of developed agricultural land. The agriculture land supports row crops, non-native herbaceous vegetation, and recently tilled bare ground.

### **Developed – Drainage Features**

This land cover type is made of man-made features to convey water into Blackburn Dam during large flood events. The majority of the land cover type is devoid of vegetation, with only a few small patches of non-native herbaceous cover, and consists of constructed concrete and rip-rap drainage features that are sloped to direct water into Blackburn Dam.

### **Developed – Storage Ponds**

The Borrow Pit and storage ponds adjacent to the WWTP consist of this land cover type. The storage ponds were created as storage for treated wastewater. Red willow and Fremont cottonwood shrubs and trees are present along the edges of the Borrow Pit pond and pond adjacent to the proposed effluent pump station upgrade at the WWTP. Willow (*Salix* sp.), cottonwood (*Populus* sp.), cattail (*Typha* sp.), bulrush (*Schoenoplectus* sp.), and other wetland vegetation are present along the edges of the remaining ponds within the WWTP that are outside of the project sites but within the BSA.

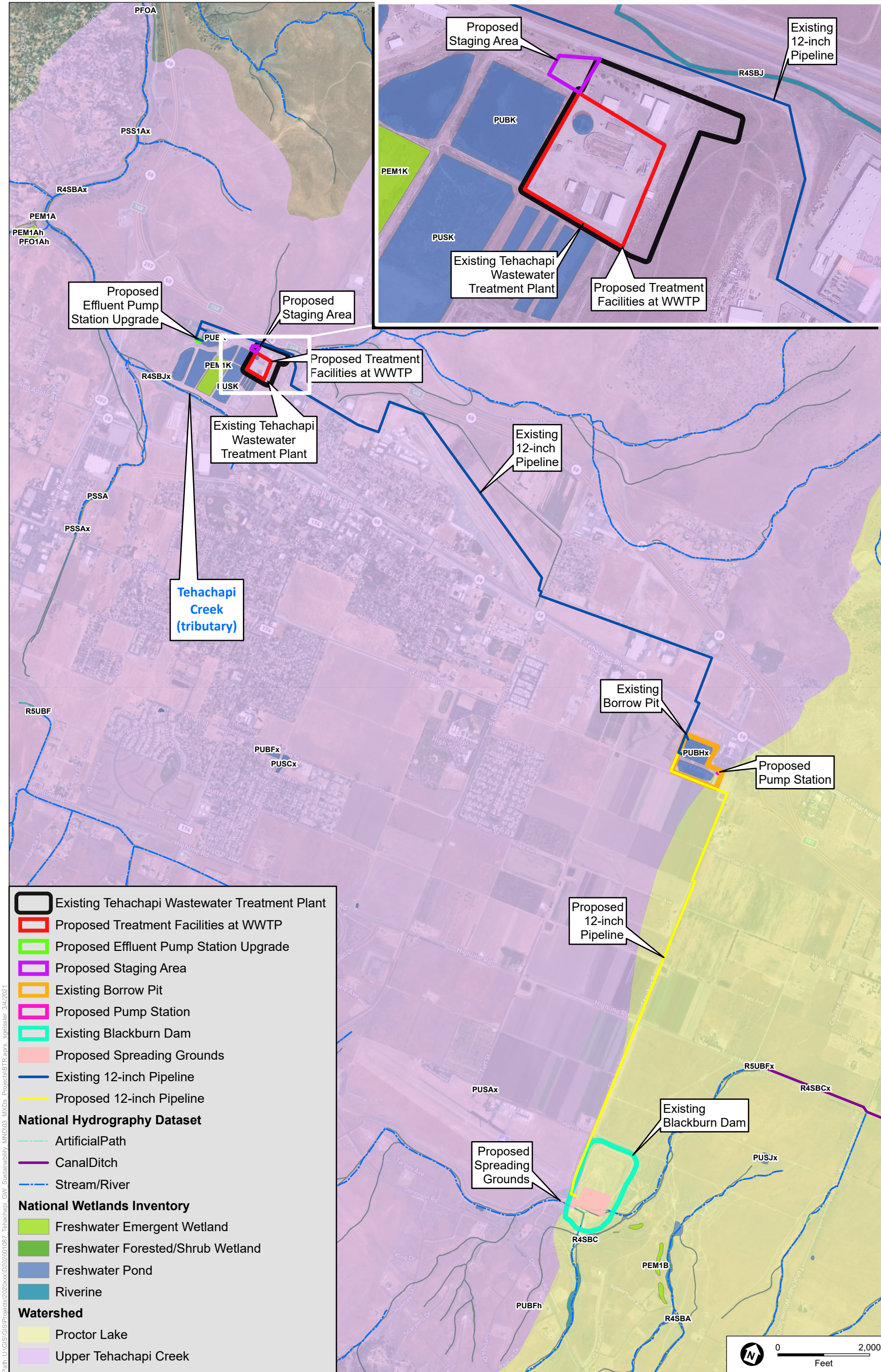
### **Developed – Stormwater Feature**

A small portion of the northern section of the proposed staging area consists of this land cover type. This feature conveys stormwater and consists of a rip-rap lined swale adjacent to Enterprise Way. A majority of the stormwater feature had been recently mowed; however, patches of non-native herbaceous cover was present between the rip-rap. Note the feature is too small to be seen on Figure 3.

## **4.4 Aquatic Resources**

A formal aquatic resources delineation was not conducted at the time of the reconnaissance; however, several aquatic resources are located within and immediately adjacent to the project sites could potentially be subject to the regulatory authority of the USACE, CDFW, and/or RWQCB (Figure 4). These aquatic features are described below.





SOURCE: Mapbox/NearMap, 2020; NWI; ESA, 2021.

Tehachapi Groundwater Sustainability Project  
**Figure 4**  
Hydrology and National Wetlands Inventory



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NWI and NHD map a headwater tributary to Tehachapi Creek (tributary) that flows northeast between the railroad and California State Route 58 (Route 58) from Tehachapi to the city of Bakersfield (USFWS 2021b; USGS 2021). The tributary is located within the field just south of the WWTP ponds. A constructed stormwater feature is located at the proposed staging area that runs northeast to southwest through the property ultimately draining to the field adjacent to the west of the WWTP where the tributary is located. The stormwater feature within the proposed staging area receives flows from a mapped riverine feature in the hills to the north of the WWTP and Route 58 (see Figure 4), entering the feature from culverts under Route 58 and Enterprise Way. The stormwater feature likely only conveys water during high flows as it contained dense non-native herbaceous vegetation during the field survey.

Blackburn Dam is a large basin with a high capacity to hold water during flood events. Three constructed drainage features enter Blackburn Dam from the west, south, and east that convey flows from the hills to the south. NWI and NHD map these drainage features as streams (USFWS 2021b; USGS 2021); however, these drainage features appear to only convey flows during large storm events as they were constructed and highly vegetated with upland plant species.

## 4.5 General Plant and Wildlife Species

Common wildlife species are those species that are not protected by species-specific designations described for special-status species and may include both native and non-native species. General wildlife protection laws and statutes are applicable to certain common wildlife genera and species. The MBTA and California Fish and Game Code Sections 3503 and 3503.5 are applicable to common native bird and raptor species. Protections under CEQA may apply for movement/migration corridors and nursery sites used by various common wildlife species.

A variety of common wildlife species were observed or are expected to occur in the BSA which are typically found throughout the Tehachapi Valley. The presence of intermittent water sources within the ponds at the WWTP and Borrow Pit and dense riparian vegetation along the edges of those ponds provides added habitat diversity and may attract numerous species.

Common wildlife species observed or detected in the BSA during the field assessment included side-blotch lizard (*Uta stansburiana*), red-tailed hawk (*Buteo jamaicensis*), Cooper's hawk (*Accipiter cooperii*), northern flicker (*Colaptes auratus*), killdeer (*Charadrius vociferous*), house finch (*Haemorrhous mexicanus*), western meadowlark (*Sturnella neglecta*), common raven (*Corvus corax*), black phoebe (*Sayornis nigricans*), Say's phoebe (*Sayornis saya*), red-winged blackbird (*Agelaius phoeniceus*), white crowned sparrow (*Zonotrichia leucophrys*), western kingbird (*Tyrannus verticalis*), American coot (*Fulica Americana*), canvasback (*Aythya valisineria*), mallard (*Anas platyrhynchos*), bufflehead (*Bucephala albeola*), ruddy duck (*Oxyura jamaicensis*), northern shoveler (*Spatula clypeata*), big-eared woodrat (*Neotoma macrotis*), coyote (*Canis latrans*), black-tailed jackrabbit (*Lepus californicus*), and desert cottontail (*Sylvilagus audubonii*).

## 4.6 Sensitive Biological Resources

Special-status plants, wildlife, and natural communities are defined as those that, because of their recognized rarity or vulnerability to various causes of habitat loss or population decline, are recognized by federal, state, or other agencies as under threat from human-associated developments. Some of these resources receive specific protection that is defined by federal or state endangered species legislation. Others have been designated as special-status on the basis of adopted policies and expertise of state resource agencies or organizations with acknowledged expertise, or policies adopted by local governmental agencies such as counties, cities, and special districts to meet local conservation objectives.

### 4.6.1 Special-Status Plants

Special-status plants are defined as follows:

- Plants listed or proposed for listing as threatened or endangered, or are candidates for possible future listing as threatened or endangered, under the FESA or the CESA;
- Plants that meet the definitions of rare or endangered under State CEQA Guidelines Section 15380;
- Plants considered by the CNPS to be rare, threatened, or endangered (Rank 1A, 1B, 2A and 2B plants) in California; and
- Plants listed as rare under the California Native Plant Protection Act (Fish and Game Code 1900 et seq.).

A review of the CNDDDB (CDFW 2021) and the CNPS Inventory of Rare and Endangered Plants (CNPS 2021) revealed a total of 43 special-status plant species recorded within the 10 USGS quadrangles that were searched (refer to **Appendix B, CNDDDB, CNPS, and IPaC Search Results**). The potential for special-status plant species to occur in the BSA is based on vegetation and habitat quality, topography, elevation, soils, surrounding land uses, habitat preferences, geographic ranges and visual observations made during the field surveys. The 43 special-status plant species listed in Table 1 of **Appendix C, Potential to Occur Tables**, were determined to have varying levels of potential to occur within the BSA based on the criteria listed below.

- **Present:** Species was observed or detected during project-specific biological surveys.
- **High Potential:** Species identified in the literature search and/or known to occur in the region and suitable habitat is present on the project site. These species are generally common and/or widespread in the project area and vicinity.
- **Moderate Potential:** Species identified in the literature search and/or known to occur in the region and suitable habitat is present within the project site. These species are generally less common and/or widespread than species considered to have “high” potential to occur.
- **Low Potential:** Species identified in the literature search or known to occur in the region, but the habitat on site is of low or marginal quality and/or the project site occurs outside the species known geographic or elevational range. Distance to nearest known occurrence and the age of last reported local occurrence are also considered.

- **Absent/Not Expected:** Species known to occur in the region, but deemed absent because the project site is outside their known range or elevation, suitable habitat is lacking on the site, or the species was not observed during focused surveys and would have been conspicuous if present.

A comprehensive list of all special-status plant species reviewed is included in **Appendix C**, Table 1. Of these 25 species, it was determined that 13 of the special-status plant species do not have the potential to occur in the BSA due to lack of suitable habitat and/or range restrictions and are excluded from further discussion in this report. The remaining 12 of the 25 special-status plant species with records of occurrences in the region from the CNDDDB and CNPS are listed below in **Table 2**, as these species have at least a low potential to occur within the BSA.

## 4.6.2 Special-Status Wildlife

Special-status wildlife species evaluated in this BRTR include:

- Wildlife listed or proposed for listing as threatened or endangered, or are candidates for possible future listing as threatened or endangered, under the FESA or CESA;
- Wildlife that meet the definitions of rare or endangered under State CEQA Guidelines Section 15380;
- Wildlife designated by CDFW as species of special concern; and
- Wildlife “fully protected” in California (Fish and Game Code Sections 3511, 4700, and 5050).

A review of the CNDDDB (CDFW 2021) and IPaC (USFWS 2021a) revealed a total of 23 special-status wildlife species recorded within the 10 USGS quadrangles that were searched. The potential for special-status wildlife species to occur in the BSA is based on vegetation and habitat quality, topography, elevation, soils, surrounding land uses, habitat preferences, geographic ranges and visual observations made during the focused sensitive wildlife surveys. A comprehensive list of all special-status wildlife species reviewed is included in **Appendix C**, Table 2. Of these 23, it was determined that 8 of the special-status wildlife species do not have the potential to occur in the BSA due to lack of suitable habitat and/or range restrictions and are excluded from further discussion in this report. The remaining 15 of the 23 special-status wildlife species, which were determined to have at least a low potential to occur within in the BSA, and are listed below in **Table 3** Special-Status Wildlife Species.

**TABLE 2**  
**SPECIAL-STATUS PLANT SPECIES**

Common Name <i>Scientific Name</i>	Sensitivity Status <sup>a</sup>	Blooming Period	Preferred Habitat	Presence/Potential to Occur Within Biological Study Area
<b>Asteraceae</b>				
San Joaquin adobe sunburst <i>Pseudobahia peirsonii</i>	FT/SE/1B.1	February–April	Cismontane woodland and valley and foothill grassland in adobe clay.	<b>Low Potential.</b> Suitable habitat for this species occurs in the non-native herbaceous cover within the biological study area but is marginal at best; additionally, soil requirements are inappropriate and there are no known occurrences within the vicinity of the biological study area.
<b>Cactaceae</b>				
Bakersfield cactus <i>Opuntia basilaris</i> var. <i>treleasei</i>	FE/SE/1B.1	April–May	Chenopod scrub, cismontane woodland, and valley and foothill grassland in sandy or gravelly soils.	<b>Low Potential.</b> Suitable habitat and soils for this species occurs within the non-native herbaceous cover in the biological study area but is marginal at best; additionally, there are no known occurrences within the vicinity of the biological study area.
<b>Grossulariaceae</b>				
Aromatic canyon gooseberry <i>Ribes menziesii</i> var. <i>ixoderme</i>	--/--/1B.2	April	Chaparral and cismontane woodland.	<b>Low Potential.</b> Suitable habitat for this species occurs in the shrublands within the biological study area but is marginal at best; additionally, there are no known occurrences within the vicinity of the biological study area.
<b>Papaveraceae</b>				
Tejon poppy <i>Eschscholzia lemmonii</i> ssp. <i>kernensis</i>	--/--/1B.1	(February ) March–May	Chenopod scrub and valley and foothill grassland.	<b>Low Potential.</b> Suitable habitat for this species occurs in the non-native herbaceous cover within the biological study area but is marginal at best; additionally, there are no known occurrences within the vicinity of the biological study area.
<b>Polemoniaceae</b>				
Tracy's eriastrum <i>Eriastrum tracyi</i>	--/SR/3.2	May–July	Chaparral, cismontane woodland, and valley and foothill grassland.	<b>Low Potential.</b> Species has been observed within the vicinity of the WWTP and habitat is present within the shrublands and non-native herbaceous cover in the biological study area; however, the single occurrence documented in the CNDDb is a historic occurrence from 1910.
Baja navarretia <i>Navarretia peninsularis</i>	--/--/1B.2	(May) June– August	Chaparral openings, lower montane coniferous forest, meadows and seeps, and pinyon and juniper woodland in mesic soils.	<b>Low Potential.</b> Suitable habitat for this species occurs in the shrublands within the biological study area but is marginal at best; additionally, soil requirements are inappropriate and there are no known occurrences within the vicinity of the biological study area.

Common Name <i>Scientific Name</i>	Sensitivity Status <sup>a</sup>	Blooming Period	Preferred Habitat	Presence/Potential to Occur Within Biological Study Area
Piute Mountains navarretia <i>Navarretia setiloba</i>	--/--/1B.1	April–July	Cismontane woodland, pinyon and juniper woodland, and valley and foothill grassland in clay or gravelly loam soils.	<b>Low Potential.</b> Suitable habitat for this species occurs in the non-native herbaceous cover within the biological study area but is marginal at best; additionally, soil requirements are inappropriate and there are no known occurrences within the vicinity of the biological study area.
Latimer's woodland-gilia <i>Saltugilia latimeri</i>	--/--/1B.2	March–June	Chaparral, Mojavean desert scrub, and pinyon and juniper woodland in rocky or sandy soils.	<b>Low Potential.</b> Suitable habitat and soils for this species occurs in the shrublands within the biological study area but is marginal at best; additionally, there are no known occurrences within the vicinity of the biological study area.
<b>Polygonaceae</b>				
Kern buckwheat <i>Eriogonum kennedyi</i> var. <i>pinicola</i>	--/--/1B.1	May–June (July)	Chaparral and pinyon and juniper woodland in clay soils.	<b>Low Potential.</b> Suitable habitat for this species occurs in the shrublands within biological study area but is marginal at best; additionally, soil requirements are inappropriate and there are no known occurrences within the vicinity of the biological study area.
<b>Liliaceae</b>				
Alkali mariposa-lily <i>Calochortus striatus</i>	--/--/1B.2	April–June	Chaparral, chenopod scrub, meadow and seep, Mojavean desert scrub, and wetland.	<b>Low Potential.</b> Suitable habitat for this species occurs in the shrublands within biological study area but is marginal at best; additionally, there are no known occurrences within the vicinity of the biological study area.
Palmer's mariposa-lily <i>Calochortus palmeri</i> var. <i>palmeri</i>	--/--/1B.2	April–July	Chaparral, lower montane coniferous forest, and meadows and seeps in mesic soil.	<b>Low Potential.</b> Species has been observed within the vicinity of the WWTP and habitat is present in the shrublands; however, the nearest occurrence documented in the CNDDDB is a historic occurrence from 1889. Three other more recent occurrences are documented in the CNDDDB from 1995, but these occurrences are all more than 8 miles to the northeast.
<b>Poaceae</b>				
Aparejo grass <i>Muhlenbergia utilis</i>	--/--/2B.2	October–May	Chaparral, cismontane woodland, coastal scrub, marsh and swamp, meadow and seep, and ultramafic.	<b>Low Potential.</b> Suitable habitat for this species occurs in the shrublands within biological study area but is marginal at best; additionally, there are no known occurrences within the vicinity of the biological study area.

## NOTES:

<sup>a</sup> Status (Federal/State): FE-federally endangered; FT-federally threatened; SE-state endangered; SR-state rare species.

Status (CNPS): List 1B = Plants Rare, Threatened, endangered in California and elsewhere, List 2 = Plants Rare, Threatened, or, Endangered in California, But More Common Elsewhere, List 4 = Plants of Limited Distribution - A Watch List. Threat ranks .1 = seriously Endangered in California, .2 = fairly Endangered in California, .3 = Not very threatened in California (low degree/immediacy of threats or no current threats known).

SOURCE: CDFW, 2021; CNPS, 2021



**TABLE 3**  
**SPECIAL-STATUS WILDLIFE SPECIES**

Common Name Scientific Name	Sensitivity Status	Preferred Habitat	Presence/Potential to Occur Within Biological Study Area
<b>Invertebrates</b>			
Crotch bumble bee <i>Bombus crotchii</i>	--/CE	Open grassland and scrub, Mediterranean region, Pacific Coast, Western Desert, Great Valley, and adjacent foothills. Food plant genera include <i>Antirrhinum</i> , <i>Phacelia</i> , <i>Clarkia</i> , <i>Dendromecon</i> , <i>Eschscholzia</i> , and <i>Eriogonum</i> .	<b>Moderate Potential.</b> Habitat requirements are present in the biological study area and multiple detections have been recorded within the vicinity of the biological study area on CNDDDB between 1956-2017.
<b>Amphibians</b>			
Foothill yellow-legged frog <i>Rana boylei</i>	--/SE	Aquatic, chaparral, cismontane woodland, coastal scrub, Klamath/North coast flowing waters, lower montane coniferous forest, meadow and seep, riparian forest and woodland, and Sacramento/San Joaquin flowing waters.	<b>Low Potential.</b> Habitat requirements present within the biological study area; however, no occurrences have been documented in the vicinity of the biological study area.
<b>Reptiles</b>			
California legless lizard <i>Anniella spp.</i>	--/SSC	Coastal dune, valley and foothill grassland, chaparral, and coastal scrub in sandy soils.	<b>Moderate Potential.</b> Habitat and soil requirements are present in the biological study area and two historic detections in 1950 and 1955 have been recorded within the vicinity of the biological study area on CNDDDB.
California red-legged frog <i>Rana draytonii</i>	FT/SSC	Aquatic habitats including pools and backwaters within streams and creeks, ponds, marshes, springs, sag ponds, dune ponds and lagoons.	<b>Low Potential.</b> Habitat requirements present within the ponds in the biological study area; however, no occurrences have been documented in the vicinity of the biological study area.
Coast horned lizard <i>Phrynosoma blainvillii</i>	--/SSC	Chaparral, cismontane woodland, coastal bluff scrub, coastal scrub, desert wash, pinyon & juniper woodlands, riparian scrub, riparian woodland, and valley and foothill grassland.	<b>Moderate Potential.</b> Habitat requirements are present in the biological study area and multiple detections have been recorded within the vicinity of the biological study area on CNDDDB in 2010.
Northern California legless lizard <i>Anniella pulchra</i>	--/SSC	Chaparral, coastal dunes, and coastal scrub.	<b>Low Potential.</b> Habitat requirements present within the biological study area; however, no occurrences have been documented in the vicinity of the biological study area.
Southern California legless lizard <i>Anniella stebbinsi</i>	--/SSC	Broadleaved upland forest, chaparral, coastal dunes, and coastal scrub.	<b>Low Potential.</b> Habitat requirements present within the biological study area; however, no occurrences have been documented in the vicinity of the biological study area.
<b>Birds</b>			
Burrowing owl <i>Athene cunicularia</i>	--/SSC	Coastal prairie and scrub, Great Basin grassland and scrub, Mojavean desert scrub, Sonoran desert scrub, and valley and foothill grassland.	<b>Low Potential.</b> Habitat requirements present within the biological study area; however, no occurrences have been documented in the vicinity of the biological study area. Two occurrences are documented in the

Common Name Scientific Name	Sensitivity Status	Preferred Habitat	Presence/Potential to Occur Within Biological Study Area
			CNDDDB from 2005 and 2009, but these occurrences are both more than 8 miles to the southeast. Two additional occurrences were documented in eBird, one that was 1.5 miles to the north of the WWTP in 2021, and one that was 2.2 miles to the southeast of Blackburn Dam in 2007; however, no occurrences were documented within the BSA. Additionally, a burrowing owl habitat assessment was conducted and resulted in two potential burrows but poor habitat.
California condor <i>Gymnogyps californianus</i>	FE/SE	Chaparral and valley and foothill grassland. Deep canyons containing clefts in the rocky walls provide nesting sites. Forages up to 100 miles from roost/nest.	<b>Moderate Potential.</b> Habitat requirements present within the biological study area; however, no occurrences have been documented in the vicinity of the biological study area in the CNDDDB. Two eBird occurrences documented groups of this species foraging in an urbanized area approximately 0.5 mile southeast of the WWTP in 2015 and 2019 (eBird), so this species has a moderate potential to forage within the BSA.
Golden eagle <i>Aquila chrysaetos</i>	--/FP	Broadleaved upland forest, cismontane woodland, coastal prairie, Great Basin grassland and scrub, upper and lower montane coniferous forest, pinyon and juniper woodlands, and valley and foothill grassland. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	<b>Moderate Potential.</b> Habitat requirements are present in the biological study area and multiple detections have been recorded within the vicinity of the biological study area on CNDDDB; however, the last documented historic occurrences were in 1941 and 1949. A number of eBird observations of golden eagle have been observed within the vicinity, including one observation in 2012 of a golden eagle observed approximately 0.75 mile east of the WWTP ponds (eBird 2021), so this species has a moderate potential to forage within the BSA.
Loggerhead shrike <i>Lanius ludovicianus</i>	--/SSC	Broadleaved upland forest, desert wash, Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodlands, riparian woodland, and Sonoran desert scrub.	<b>Moderate Potential.</b> Habitat requirements present within the biological study area; however, no occurrences have been documented in the vicinity of the biological study area in the CNDDDB. This species has been documented numerous times in eBird at the WWTP and Borrow Pit (eBird 2021).
Swainson's hawk <i>Buteo swainsoni</i>	--/ST	Great Basin grassland, riparian forest and woodland, and valley and foothill grassland.	<b>Low Potential.</b> Habitat requirements present within the biological study area; however, no occurrences have been documented in the vicinity of the biological study area.
Tricolored blackbird <i>Agelaius tricolor</i>	BCC/ST	Freshwater marsh, marsh, swamp, and wetland.	<b>Moderate Potential.</b> Habitat requirements are present in the biological study area and multiple detections have been recorded within the vicinity of the WWTP on CNDDDB; however, the last documented occurrences were in 1992 and 2008. More recent observation have also been documented in eBird in 2019 by the WWTP and in 2014 by the Borrow Pit (eBird 2021).

Common Name Scientific Name	Sensitivity Status	Preferred Habitat	Presence/Potential to Occur Within Biological Study Area
<b>Mammals</b>			
American badger <i>Taxidea taxus</i>	--/SSC	Alkali marsh and playa, alpine, alpine dwarf scrub, bog and fen, freshwater and brackish marsh, broadleaved upland forest, chaparral, chenopod scrub, cismontane woodland, closed-cone coniferous forest, coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub, desert dunes and wash, Great Basin grassland and scrub, Interior dunes, lone formation, Joshua tree woodland, limestone, upper and lower montane coniferous forest, marsh and swamp, meadow and seep, Mojavean desert scrub, montane dwarf scrub, north coast coniferous forest, old growth, pavement plain, redwood, Riparian forest, Riparian scrub, Riparian woodland, salt marsh, Sonoran desert scrub and thorn woodland, ultramafic, upper Sonoran scrub, and valley and foothill grassland.	<b>Low Potential.</b> Habitat requirements present within the biological study area; however, no occurrences have been documented in the vicinity of the biological study area.
Tehachapi pocket mouse <i>Perognathus alticola inexpectatus</i>	--/SSC	Chaparral, Joshua tree woodland, and valley and foothill grassland.	<b>Moderate Potential.</b> Habitat requirements are present in the biological study area and multiple detections have been recorded within the vicinity of the biological study area on CNDDB; however, the last documented occurrences were in 1959 and 1972.

## NOTES:

<sup>a</sup> Status (Federal/State): FE-federally endangered; FT-federally threatened; BCC-federal bird of conservation concern; SE-state endangered; CE-state candidate endangered; SA-state special animal; SSC-state species of special concern; FP-state fully protected; WL-state watch list.

SOURCE: CDFW, 2021, USFWS, 2021a

## Burrowing Owl Habitat Assessment

A burrowing owl habitat assessment was conducted; only two potential burrows were observed within the BSA, which contained poor habitat for burrowing owl. No observations or detections of burrowing owls occurred within the burrowing owl habitat assessment area. Two burrows that could potentially be utilized by burrowing owls were identified and mapped within the Borrow Pit (Figure 3). The burrows were located within unvegetated, bare ground and the openings were approximately 4 to 5 inches in diameter. No obvious signs of recent use were present at the burrows. In addition, as summarized in Table 3, no occurrences were documented within the BSA. Thus, based on poor habitat, lack of suitable burrows, and no documented occurrences within the BSA, potential for burrowing owl to occur within the BSA is low.

### 4.6.3 Sensitive Natural Communities

A review of the CNDDDB (CDFW 2021) revealed one sensitive natural community, southern interior cypress forest, recorded within the 10 USGS quadrangles that were searched. Based on the field survey findings, this sensitive natural community does not occur in the BSA.

Two sensitive natural communities were identified within the BSA (Figure 3). Red Willow – Fremont Cottonwood (*Salix laevigata* – *Populus fremontii*) Riparian Woodland & Forest Alliance was mapped throughout the Borrow Pit. Red Willow – Fremont Cottonwood - Mulefat (*Salix laevigata* – *Populus fremontii* – *Baccharis salicifolia*) Riparian Woodland & Forest Alliance was mapped along the edges of the pond near the proposed effluent pump station upgrade. These natural communities are listed as S3 sensitive natural communities (CNPS 2021).

### 4.6.4 Critical Habitat

No designated critical habitat is mapped within or surrounding the BSA (USFWS 2021a). The nearest critical habitat is for California condor and is located approximately 10 miles south of the BSA within the Tehachapi Mountain range.

## 4.7 Wildlife Movement

Wildlife movement corridors are areas where regional wildlife populations regularly and predictably move during dispersal or migration. Movement corridors in California are typically associated with ridgelines, valleys, rivers and creeks supporting riparian vegetation. Movement corridors link together areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, by human disturbance, or by the encroachment of urban development. Movement corridors are important as the combination of topography and other natural factors, in addition to urbanization, has fragmented or separated large open space areas. Several wildlife corridors are present within or adjacent to the project sites and are described below.

The city of Tehachapi is a wildlife corridor and resting stop for migrating birds along the Pacific Flyway. The Pacific Flyway is a major north-south flyway for migratory birds in America, extending from Alaska to Patagonia. Every year, migratory birds travel some or all of this

distance both in spring and in fall, following food sources, heading to breeding grounds, or travelling to overwintering sites. Birds that are migrating along the Pacific Flyway may stop to rest within the storage ponds. Some species may remain locally for the entire season, but most stay a few days before moving on (Wilson 2010).

The South Coast Missing Linkages Report identifies an important wildlife corridor linking the southern Coast and Transverse Ranges in the southwest to the Sierra Nevada Mountain Range in the north called the Tehachapi Connection (Penrod et al. 2003, White and Penrod 2012). The Tehachapi Connection maintains habitat for several special-status and endemic species within California, such as Tehachapi pocket mouse. The higher elevation forest and shrubland habitats serve as connections for species, such as mule deer, mountain lion, and western gray squirrel, while the desert slopes serve as connections for species, such as Tehachapi pocket mouse (Penrod et al. 2003). However, Route 58 is considered a substantial barrier to movement along the Tehachapi Connection (Penrod et al. 2003). Although the BSA is not within the Tehachapi Connection, Blackburn Dam is located less than a mile north of the southeastern branch of this regional connection.

## CHAPTER 5

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# Project Impacts and Avoidance, Minimization, and Mitigation

### 5.1 Approach to the Analysis

The proposed project is expected to result in direct, indirect, and cumulative impacts to biological resources due to construction and operation of the proposed project. Under the stipulations of CEQA, potential impacts to biological resources could be considered significant if actions associated with the proposed project are not mitigated. In Section 5.2, Thresholds of Significance, the CEQA thresholds for biological resources are provided. In Section 5.3, Impact Analysis, the potential impacts of the proposed project are evaluated in terms of the thresholds of significance—both beneficial and adverse impacts. For potential adverse impacts deemed significant to biological resources, avoidance, minimization, and mitigation measures were developed and are provided in Section 5.4, Avoidance, Minimization, and Mitigation Measures. Implementation of the proposed mitigation measures would result in a less than significant impact determination for biological resources from the proposed project.

### 5.2 Thresholds of Significance

Based on Appendix G of the CEQA Guidelines, the project would result in a significant impact on biological resources if it would:

1. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service.
3. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
4. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

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

## 5.3 Impacts Analysis

### 5.3.1 Candidate, Sensitive, or Special-Status Species

**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?**

#### Special-Status Plants

There is a low potential for 12 special-status plant species to occur in the BSA. These plants include San Joaquin adobe sunburst, Bakersfield cactus, Aromatic canyon gooseberry, Tejon poppy, Tracy's eriastrum, Baja navarretia, Piute Mountains navarretia, Latimer's woodland-gilia, Kern buckwheat, alkali mariposa-lily, Palmer's mariposa-lily, and Aparejo grass. Based on the date of documentation of CNDDDB occurrences and current marginal habitat conditions and site use, these species are either not expected or previous occurrences are expected to be extirpated. Impacts to special-status plants would be less than significant as a result of the proposed project and no mitigation measures would be required.

#### Special-Status Wildlife

Special-status wildlife species have the potential to be present in the BSA and could be impacted by the proposed project. Based on the presence of suitable habitat within the project sites, there is moderate potential for eight special-status wildlife species to occur in the project sites: Crotch bumble bee, California legless lizard, coast horned lizard, California condor, golden eagle, loggerhead shrike, tricolored blackbird, and Tehachapi pocket mouse.

#### ***Tehachapi Pocket Mouse***

The Tehachapi pocket mouse (TPM) is a State Species of Special Concern. This species is a small, granivorous nocturnal rodent. It can be found in sandy soils in a variety of vegetation communities including annual grasslands and rubber rabbitbrush scrub at elevations between 3,500-6,000 feet. Recently, TPM has been documented in nearby fallow fields dominated by Russian thistle (*Salsola tragus*). Both rubber rabbitbrush and Russian thistle occur in portions of the BSA and may be impacted by ground disturbing activities, most notably at Blackburn Dam. Of the 35.1 acres of available habitat for TPM within the BSA, permanent habitat modification of approximately 6.93 acres of rubber rabbitbrush scrub and mixed rubber rabbitbrush –California buckwheat scrub communities in the proposed spreading grounds and removal of 0.96 acre of mixed rubber rabbitbrush scrub along the proposed 12-inch pipeline (see Table 4) would result in habitat loss or conversion, and could result in direct mortality of TPM or disrupt breeding of the species during construction. It should be noted that the proposed spreading grounds area is currently used for recharge and thus likely exhibits some level of disturbance to these

communities from existing activities. Nonetheless, with the implementation of the proposed project, the removal of rubber rabbitbrush scrub could result in potential permanent, direct impacts to TPM individuals and suitable habitat for TPM, which would be potentially significant. Incorporation of Mitigation Measure BIO-1 recommended in Section 5.4 would reduce this potential significant impact to a less than significant level.

### ***Tricolored Blackbird***

Tricolored blackbird is a State Threatened species. Historically, most colonies of the tricolored blackbird were in freshwater marshes dominated by cattail or tule, but some were in nettles, thistles, and willows. However, the use of freshwater marshes as breeding colony sites decreased from 93 percent in the 1930s to 54 percent in the 1970s. An increasing percentage of colonies since the 1970s have been reported in Himalayan blackberry (*Rubus armeniacus*) and thistles (*Cirsium* sp.) and some of the largest recent colonies were found in silage and grain fields near dairies in the San Joaquin Valley. Other less commonly used nesting substrates include tamarisk, elderberry/poison oak, and riparian scrublands and forests and wintering tricolored blackbirds often congregate in large, mixed-species blackbird flocks that forage in grasslands and agricultural fields with low-growing vegetation and at dairies and feedlots (Shuford and Gardali 2008).

Suitable breeding and foraging habitat for the tricolored blackbird is present within the red willow, Fremont cottonwood, and mulefat forested portions of the riparian habitat present within the BSA. This species may also utilize the agricultural fields for nesting and foraging as well, such as those dominated by herbaceous vegetation. Thus, out of a total of 8.16 acres of available tricolored blackbird habitat within the BSA, the project could result in habitat removal of approximately 0.01 acre of the Red Willow – Fremont Cottonwood – Mulefat Riparian Woodland and Forest Alliance for installation of the proposed effluent pump station upgrade and approximately 5.92 acres of Developed – Agriculture lands for installation of the proposed 12-inch pipeline. Additionally, if proposed project construction takes place during the nesting season, disturbance from construction activities could result in potential indirect impacts to tricolored blackbird nesting activity.

With the implementation of the proposed project, the removal of riparian and agricultural vegetation, as well as the indirect disturbance (e.g., noise, human activity) from construction during the breeding season, could result in potential permanent direct and temporary indirect impacts to the suitable breeding and foraging habitat for the tricolored blackbird. Incorporation of Mitigation Measure BIO-2 and BIO-4 recommended in Section 5.4 would reduce potential significant impacts to a less than significant level.

### ***California Condor and Golden Eagle***

California condor is a Federal and State Endangered species, and golden eagle is a State Fully Protected species. Although California condor and golden eagle have a moderate potential to forage within the BSA, these species are not expected to nest within the BSA due to lack of cliff-walled canyons that contain their preferred nesting habitat. Golden eagles can sometimes nest in large trees in open areas; however, the trees within the BSA are limited to riparian trees within the Borrow Pit and are likely not suitable habitat for golden eagle nesting. Thus, with



implementation of the proposed project, which would impact limited areas of potential foraging habitat, and in light of the extensive foraging habitat of native shrublands surrounding the BSA and throughout the region that would remain available, impacts to California condor and golden eagle foraging habitat are less than significant, and no mitigation is required.

### ***Crotch Bumble Bee, California Legless Lizard, Coast Horned Lizard, and Loggerhead Shrike***

Crotch bumble bee is a State Candidate Threatened species, and California legless lizard, coast horned lizard, and loggerhead shrike are State Species of Special Concern. Native upland habitat occurs within the BSA that is suitable for Crotch bumble bee, California legless lizard, coast horned lizard, and loggerhead shrike. With implementation of the proposed project, approximately 14.85 acres out of a total of 35.33 acres of shrubland within the BSA could be removed resulting in potential permanent, direct impacts to the suitable habitat for these species. The native shrubland habitats are ubiquitous in the region.

During construction, it is expected that if Crotch bumble bee and/or loggerhead shrike is in the vicinity of the work area, these species, if present, would move out of the way of vehicles and construction equipment. Direct impacts to these species would be less than significant as there is ample native shrubland within the area and vicinity to provide habitat for these species. Although California legless lizard and coast horned lizard would also be expected to move out of the way, there is greater potential for direct impacts to these species to occur. Additionally, if any loggerhead shrikes are nesting within the proposed project areas, impacts to this species may occur. Thus, impacts to these special-status wildlife species are potentially significant. Implementation of Mitigation Measures BIO-3 and BIO-4 recommended in Section 5.4 would reduce potentially significant impacts to California legless lizard, coast horned lizard, and loggerhead shrike to a less than significant level.

## **5.3.2 Sensitive Natural Communities or Riparian Habitat**

### **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 US Fish and Wildlife Service?**

As shown in **Table 4**, the proposed project could permanently impact up to 0.01 acre of Red Willow – Fremont Cottonwood - Mulefat (*Salix laevigata* – *Populus fremontii* – *Baccharis salicifolia*) Riparian Woodland & Forest Alliance from construction of the proposed effluent pump station, and up to 0.01 acre of Red Willow – Fremont Cottonwood (*Salix laevigata* – *Populus fremontii*) Riparian Woodland & Forest Alliance from modification to laterals of the 12-inch pipeline extending into the Borrow Pit. Although impacts would be limited, impacts to sensitive natural communities from implementation of the proposed project are potentially significant. With implementation of Mitigation Measure BIO-5 (described in Section 5.4 below), impacts will be reduced to less than significant.

**TABLE 4**  
**IMPACTS TO NATURAL COMMUNITIES AND LAND COVER TYPES WITHIN THE PROJECT SITES**

Natural Community/Land Cover Type	Existing	Impacts					
		Proposed Effluent Pump Station Upgrade (acres)	Proposed Staging Area (acres)	Proposed Treatment Facilities (acres)	Proposed Pump Station (acres)	Proposed 12-inch Pipeline (acres)	Proposed Spreading Grounds (acres)
Aquatic/Riparian							
Red Willow – Fremont Cottonwood - Mulefat Riparian Woodland & Forest Alliance	0.01	0.01	-	-	-	-	-
Red Willow – Fremont Cottonwood Riparian Woodland & Forest Alliance	2.23	-	-	-	-	0.01	-
Terrestrial							
Big Sagebrush – Rubber Rabbitbrush Shrubland Alliance	0.01	-	-	-	-	-	-
California Buckwheat – California Sagebrush Shrubland Alliance	0.33	-	-	-	-	-	0.33
California Buckwheat – Four-Wing Saltbush – Rubber Rabbitbrush Shrubland Alliance	2.32	-	-	-	-	1.84	0.10
California Buckwheat Shrubland Alliance	0.22	-	-	-	-	-	-
Rubber Rabbitbrush – California Buckwheat Shrubland Alliance	12.06	-	-	-	-	0.20	0.68
Rubber Rabbitbrush Shrubland Alliance	19.42	-	-	-	-	0.76	5.72
Disturbed Big Sagebrush – California Buckwheat – Rubber Rabbitbrush Shrubland Alliance	0.84	-	-	-	-	-	0.53
Disturbed Rubber Rabbitbrush – Shortpod Mustard Shrubland Alliance	0.13	-	-	-	-	-	-
Non-native Herbaceous	0.36	-	-	-	-	-	0.01
Ornamentals	0.83	-	0.1	-	-	0.53	-
Developed/Disturbed Land Cover Types							
Disturbed/Developed	28.97	0.02	0.34	3.90	0.01	17.58	0.88
Developed – Agriculture	5.92	-	-	-	-	5.92	-
Developed – Drainage Feature	1.17	-	-	-	-	-	0.06

Natural Community/Land Cover Type	Existing	Impacts					
		Proposed Effluent Pump Station Upgrade (acres)	Proposed Staging Area (acres)	Proposed Treatment Facilities (acres)	Proposed Pump Station (acres)	Proposed 12-inch Pipeline (acres)	Proposed Spreading Grounds (acres)
Developed – Storage Ponds	9.92	-	-	-	-	0.12	-
Developed – Stormwater Feature	0.02	-	0.02	-	-	-	-
<b>TOTAL</b>	<b>84.76</b>	<b>0.03</b>	<b>0.46</b>	<b>3.87</b>	<b>0.01</b>	<b>22.9</b>	<b>8.22</b>

### 5.3.3 Aquatic Resources - Wetlands

**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, etc.) through direct removal, filling, hydrological interruption, or other means?**

There are several constructed aquatic features within or adjacent to the project sites that may be impacted during construction of the proposed project. These features include land cover mapped as Developed – Drainage Feature, Developed – Storage Ponds, Developed – Stormwater Feature, the Red Willow-Fremont Cottonwood-Mulefat habitat within the Borrow Pit, and the Red Willow – Fremont Cottonwood habitat at the effluent pump station.

As detailed in Section 4.4, there is a riverine feature that conveys offsite sheet flow through a small portion of the project site in the proposed staging area. This is a constructed stormwater feature with ephemeral flows that continues offsite to the west into Tehachapi Creek. In addition, three constructed drainage features enter Blackburn Dam from the west, south, and east that convey flows from the hills to the south only during large storm events. These constructed features are not expected to support wetlands.

Based the Navigable Waters Protection Rule, it is anticipated that the aquatic resources in the BSA are not considered federal wetlands or waters of the U.S. that would be subject to the regulatory jurisdiction of the USACE. Similarly, based on the State Wetland Procedures, it is anticipated that the aquatic resources in the BSA are not considered wetlands or waters of the State since they were constructed within uplands for purposes of municipal water/wastewater treatment. However, potential impacts to the Red Willow-Fremont Cottonwood-Mulefat vegetation at the Borrow Pit and the Red Willow – Fremont Cottonwood habitat at the effluent pump station could require a Lake or Streambed Alteration Agreement from CDFW and impacts to this sensitive natural community could be potentially significant. With implementation of Mitigation Measure BIO-5 (described in Section 5.4 below), mitigation for potential impacts to riparian habitat that cannot be avoided or minimized, impacts will be reduced to less than significant.

### 5.3.4 Wildlife Corridors

**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?**

Though the BSA lies within the Pacific Flyway and is adjacent to Tehachapi Connection, construction of the proposed project is not anticipated to significantly restrict the movement of wildlife because the BSA would still remain accessible and traversable to any wildlife that may be foraging or moving through the area during construction and operational activities. These areas will remain intact and will continue to provide water sources and habitat for wildlife movement during and following completion of the proposed construction activities within the BSA. Additionally, the majority of the WWTP and 12-inch proposed pipeline corridor is currently heavily disturbed (i.e. due to vehicle travel), and species are most likely used to the level of disturbance at these locations and aware of the travel routes needed to access other adjacent open areas and corridors.

Although construction activities will introduce a temporary disruption to adjacent habitats from the presence of large equipment and people in the area within limited, discrete areas of the BSA, work activities will be limited to daylight hours and will not disrupt migration and local movement through the area that generally occurs during nighttime hours. Therefore, construction activities and operations are not anticipated to disrupt wildlife movement.

### Nesting Avian Species

Nesting birds and raptors have the potential to be present in the project sites and could be affected by the proposed project. Raptors, and migratory and common bird species may utilize all habitats within the project sites, including but not limited to, trees, vegetation, and building structures for foraging and breeding purposes. These species could be adversely affected by habitat modification and noise-related disturbances during construction that could disrupt breeding behavior and nesting activity. Thus, impacts to nesting birds from implementation of the proposed project are potentially significant. With implementation of Mitigation Measure BIO-4 (described in Section 5.4 below), impacts will be reduced to less than significant.

### 5.3.5 Local Policies or Ordinances

**Issue 5: Would the proposed project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?**

The proposed project is within the jurisdiction of the City of Tehachapi General Plan and Kern County General Plan.

### Tehachapi General Plan

Per Policies\_NR26, which requires identification significant resources through project design, and NR28, which requires protection and/or restoration of identified resources and areas, and NR30

which requires enhancement of the existing tree resources through regulations that set forth thresholds for identifying and protecting a significant tree resource, the analysis provided in Sections 5.3.1 through 5.3.4 above identify important biological resources (e.g., special-status species, sensitive natural communities [including tree resources], aquatic resources, and wildlife movement), and prescribe mitigation for potentially significant impacts to those resources that may result from the proposed project. Thus, with implementation of Mitigation Measure BIO-1, BIO-2, BIO-3, BIO-4, and BIO-5, the proposed project would not conflict with the policies of the Tehachapi General Plan.

## **Kern County General Plan**

Per Policy 27, threatened or endangered plant and wildlife species should be protected in accordance with State and federal laws. As detailed in Section 5.3.1 above, special-status species were analyzed in accordance with federal and state regulations, and where necessary, mitigation measures were prescribed for the protection of special-status species. Per Policy 32, riparian areas will be managed in accordance with the USACE and the CDFW rules and regulations to enhance the drainage, flood control, biological, recreational, and other beneficial uses while acknowledging existing land use patterns. As detailed in Section 5.3.3 above, aquatic resources potentially subject to the regulatory authority of the CDFW and RWQCB were identified in accordance state regulations, and a mitigation measure was prescribed to conduct an aquatic resources delineation and provide mitigation for impacts that cannot be avoided or minimized. Thus, with implementation of Mitigation Measure BIO-1, BIO-2, BIO-3, BIO-4, and BIO-5, the proposed project would not conflict with the policies of the Kern County General Plan.

### **5.3.6 Conservation Plans**

**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?**

No habitat conservation plans or natural community conservation plans are applicable to the BSA. As a result, no conflicts with the provisions of an adopted HCP would occur as a result of the proposed project.

## **5.4 Avoidance, Minimization, and Mitigation Measures**

### **5.4.1 Special-Status Wildlife**

Construction, operations, and maintenance activities could result in impacts to special-status wildlife. The following measures are recommended to be implemented to avoid potentially significant impacts to special-status wildlife.

**BIO-1: Impacts to Tehachapi Pocket Mouse and Occupied Habitat.** Prior to commencement of project activities at the proposed 12-inch pipeline area or proposed

spreading grounds within Blackburn Dam, a qualified biologist shall conduct a live-trapping survey for the Tehachapi pocket mouse, in accordance with CDFW standard live-trapping protocols. If live-trapping surveys show that the Tehachapi pocket mouse occupies the proposed 12-inch pipeline area or proposed spreading grounds within Blackburn Dam, the following measures will be implemented to avoid potential adverse effects to this species and its habitat:

- If Tehachapi pocket mouse are detected during the live-trapping, occupied habitat should be avoided wherever possible, including protective buffers around the occupied habitat as recommended by the qualified mammologist conducting the trapping. If construction activities cannot avoid occupied habitat, within three days prior to the commencement of work activities, a qualified biologist shall trap and relocate any individuals out of the work area. CDFW shall be consulted on the relocation methods prior to relocation efforts, as well as any additional avoidance and minimization measures to protect individuals.

**BIO-2: Impacts to Tricolored Blackbird.** Prior to implementation of the proposed project, a qualified biologist shall conduct focused surveys during the nesting season for tricolored blackbird at the WWTP and Borrow Pit to determine if this species uses the project sites for nesting. If tricolored blackbirds are not detected within the suitable breeding habitat, no further action is necessary.

If tricolored blackbirds are observed nesting within or adjacent to the project sites, construction activities within 300 feet of suitable nesting habitat shall be avoided to the extent feasible and mitigation measure BIO-4 shall be implemented for species avoidance. If occupied nesting habitat for tri-colored blackbird is unavoidable, suitable nesting habitat shall be replaced at minimum ratio of 2:1 at a suitable location approved by CDFW. The replacement habitat shall be suitable to support tricolored blackbird breeding habitat with similar nesting and foraging habitat functions as is provided by the existing habitat.

**BIO-3: Pre-Construction Wildlife Clearance Surveys.** Prior to any ground disturbance, a qualified biologist shall conduct a pre-construction wildlife clearance survey throughout the project sites, including an approximate 100-foot buffer for California legless lizard and coast horned lizard. If California legless lizard or coast horned lizard are observed within 100 feet of the project work areas during pre-construction clearance surveys, a qualified biologist shall relocate the individuals to suitable habitat located a sufficient distance away from the impact areas to ensure that construction-related impacts are avoided.

## 5.4.2 Nesting Avian Species

Construction activities could result in impacts to nesting avian species and active nests. The following mitigation measure is recommended to be implemented to avoid potentially significant impacts to nesting avian species and active nests during project construction activities.

**BIO-4: Impacts to Nesting Avian Species and Active Nests.** If the nesting avian season cannot be avoided and construction or vegetation removal is initiated between March 1 – September 15 (or January 1 to August 1 for raptors), the following measures would

reduce potential impacts to nesting and migratory birds and raptors to less than significant levels:

- Within 10 days of site clearing, a qualified biologist shall conduct a preconstruction, migratory bird and raptor nesting survey. The biologist must be qualified to determine the status and stage of nesting by migratory birds and all locally breeding raptor species without causing intrusive disturbance. The survey shall cover all reasonably potential nesting locations for the relevant species on or closely adjacent to the proposed project site.
- The preconstruction survey shall cover all reasonably potential nesting locations on and within 300 feet of the proposed removal areas, and areas that would be occupied by ground-nesting species, such as killdeer. A 500-foot radius shall be surveyed in areas containing suitable habitat for nesting raptors, such as trees, utility poles and buildings.
- If an active nest is confirmed by the biologist, no construction activities shall occur within 300 feet of the nesting site for migratory birds and within 500 feet of the nesting site for raptors and listed avian species. The buffer zones around any nest within which project-related construction activities would be avoided can be reduced as determined acceptable by a qualified biologist. Construction activities may resume once the breeding season ends (March 1 – September 15), or the nest has either failed or the birds have fledged.

### 5.4.3 Sensitive Natural Communities / Aquatic Resources - Wetlands

Construction activities could result in limited impacts to sensitive natural communities at the WWTP ponds and the Borrow Pit. The following measure is recommended to be implemented to avoid potentially significant impacts to sensitive natural communities during construction activities.

**BIO-5: Impacts to Sensitive Natural Communities.** Impacts to sensitive natural communities (red willow and Fremont cottonwood dominated vegetation), shall be avoided if feasible. If avoidance of sensitive natural communities is not feasible during construction activities, a qualified biologist or restoration ecologist shall prepare and implement a revegetation plan. The revegetation plan shall include restoration of sensitive natural communities at a minimum of 1:1 mitigation-to-impact ratio.

# CHAPTER 6

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# Appendix A

## **Representative Site Photos**







**Photo 1.** Facing southwest. Photo depicts existing treatment facilities within WWTP



**Photo 2.** Facing east. Photo depicts stormwater feature at WWTP.





**Photo 3.** Facing south. Photo depicts existing pump station in location of proposed effluent pump station upgrade.



**Photo 4.** Facing south. Photo depicts location of proposed pump station at the Borrow Pit.





**Photo 5.** Facing east. Photo depicts the southern edge of the Borrow Pit pond, including willow, rubber rabbitbrush, and the disturbed/developed dirt road surrounding the pond.



**Photo 6.** Facing south. Photo depicts location of the northern portion of the proposed 12-inch pipeline on the west side of Steuber Road.





**Photo 7.** Facing south. Photo depicts location of the southern portion of the 12-inch pipeline near Blackburn Dam.



**Photo 8.** Facing southwest. Photo depicts the proposed spreading grounds and west drainage feature at Blackburn Dam.





**Photo 9.** Facing southeast. Photo depicts an overview of Blackburn dam from the west slope.



**Photo 10.** Facing east. Photo depicts the proposed spreading grounds to the right and east drainage feature to the left within Blackburn Dam.



# Appendix B

## **CNDDDB, CNPS, and IPaC Search Results**



# Selected Elements by Common Name

## California Department of Fish and Wildlife

### California Natural Diversity Database



**Query Criteria:** Quad> IS > (Tehachapi North (3511824)> OR > Oiler Peak (3511835)> OR > Loraine (3511834)> OR > Emerald Mtn. (3511833)> OR > Keene (3511825)> OR > Tehachapi NE (3511823)> OR > Cummings Mtn. (3511815)> OR > Tehachapi South (3511814)> OR > Monolith (3511813))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<b>American badger</b> <i>Taxidea taxus</i>	AMAJF04010	None	None	G5	S3	SSC
<b>aromatic canyon gooseberry</b> <i>Ribes menziesii</i> var. <i>ixoderme</i>	PDGRO02104	None	None	G4T2	S2	1B.2
<b>Baja navarretia</b> <i>Navarretia peninsularis</i>	PDPLM0C0L0	None	None	G3	S2	1B.2
<b>Bakersfield cactus</b> <i>Opuntia basilaris</i> var. <i>treleasei</i>	PDCAC0D055	Endangered	Endangered	G5T1	S1	1B.1
<b>Bendire's thrasher</b> <i>Toxostoma bendirei</i>	ABPBK06050	None	None	G4	S3	SSC
<b>burrowing owl</b> <i>Athene cunicularia</i>	ABNSB10010	None	None	G4	S3	SSC
<b>calico monkeyflower</b> <i>Diplacus pictus</i>	PDSCR1B240	None	None	G2	S2	1B.2
<b>California legless lizard</b> <i>Anniella</i> spp.	ARACC01070	None	None	G3G4	S3S4	SSC
<b>coast horned lizard</b> <i>Phrynosoma blainvillii</i>	ARACF12100	None	None	G3G4	S3S4	SSC
<b>Comstock's blue butterfly</b> <i>Euphilotes glaucon comstocki</i>	IILEPG201A	None	None	G5T2	S2	
<b>Coulter's goldfields</b> <i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	PDAST5L0A1	None	None	G4T2	S2	1B.1
<b>Crotch bumble bee</b> <i>Bombus crotchii</i>	IIHYM24480	None	Candidate Endangered	G3G4	S1S2	
<b>desert tortoise</b> <i>Gopherus agassizii</i>	ARAAF01012	Threatened	Threatened	G3	S2S3	
<b>foothill yellow-legged frog</b> <i>Rana boylei</i>	AAABH01050	None	Endangered	G3	S3	SSC
<b>golden eagle</b> <i>Aquila chrysaetos</i>	ABNKC22010	None	None	G5	S3	FP
<b>grey-leaved violet</b> <i>Viola pinetorum</i> ssp. <i>grisea</i>	PDVIO04431	None	None	G4G5T3	S3	1B.2
<b>Kern buckwheat</b> <i>Eriogonum kennedyi</i> var. <i>pinicola</i>	PDPGN083B4	None	None	G4T1	S1	1B.1
<b>Latimer's woodland-gilia</b> <i>Saltugilia latimeri</i>	PDPLM0H010	None	None	G3	S3	1B.2



Selected Elements by Common Name  
California Department of Fish and Wildlife  
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Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<b>Le Conte's thrasher</b> <i>Toxostoma lecontei</i>	ABPBK06100	None	None	G4	S3	SSC
<b>Madera leptosiphon</b> <i>Leptosiphon serrulatus</i>	PDPLM09130	None	None	G3	S3	1B.2
<b>merlin</b> <i>Falco columbarius</i>	ABNKD06030	None	None	G5	S3S4	WL
<b>Mt. Pinos onion</b> <i>Allium howellii</i> var. <i>clokeyi</i>	PMLIL02161	None	None	G4T2	S2	1B.3
<b>Northern California legless lizard</b> <i>Anniella pulchra</i>	ARACC01020	None	None	G3	S3	SSC
<b>pale-yellow layia</b> <i>Layia heterotricha</i>	PDAST5N070	None	None	G2	S2	1B.1
<b>Palmer's mariposa-lily</b> <i>Calochortus palmeri</i> var. <i>palmeri</i>	PMLIL0D122	None	None	G3T2	S2	1B.2
<b>Piute cypress</b> <i>Hesperocyparis nevadensis</i>	PGCUP04012	None	None	G2	S2	1B.2
<b>Piute Mountains jewelflower</b> <i>Streptanthus cordatus</i> var. <i>piutensis</i>	PDBRA2G0D2	None	None	G5T1	S1	1B.2
<b>Piute Mountains navarretia</b> <i>Navarretia setiloba</i>	PDPLM0C0S0	None	None	G2	S2	1B.1
<b>Piute Mountains triteleia</b> <i>Triteleia piutensis</i>	PMLIL210H0	None	None	G1	S1	1B.1
<b>prairie falcon</b> <i>Falco mexicanus</i>	ABNKD06090	None	None	G5	S4	WL
<b>sagebrush loeflingia</b> <i>Loeflingia squarrosa</i> var. <i>artemisiarum</i>	PDCAR0E011	None	None	G5T3	S2	2B.2
<b>San Joaquin adobe sunburst</b> <i>Pseudobahia peirsonii</i>	PDAST7P030	Threatened	Endangered	G1	S1	1B.1
<b>San Joaquin pocket mouse</b> <i>Perognathus inornatus</i>	AMAFD01060	None	None	G2G3	S2S3	
<b>Southern California legless lizard</b> <i>Anniella stebbinsi</i>	ARACC01060	None	None	G3	S3	SSC
<b>Southern Interior Cypress Forest</b> <i>Southern Interior Cypress Forest</i>	CTT83230CA	None	None	G2	S2.1	
<b>Spanish Needle onion</b> <i>Allium shevockii</i>	PMLIL022M0	None	None	G2	S2	1B.3
<b>Swainson's hawk</b> <i>Buteo swainsoni</i>	ABNKC19070	None	Threatened	G5	S3	
<b>Tehachapi monardella</b> <i>Monardella linoides</i> ssp. <i>oblonga</i>	PDLAM180D2	None	None	G5T2	S2	1B.3
<b>Tehachapi Mountain silverspot butterfly</b> <i>Speyeria egleis tehachapina</i>	IILEPJ6105	None	None	G5T2	S2	



Selected Elements by Common Name  
California Department of Fish and Wildlife  
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<b>Tehachapi pocket mouse</b> <i>Perognathus alticola inexpectatus</i>	AMAFD01082	None	None	G2T1T2	S1S2	SSC
<b>Tehachapi slender salamander</b> <i>Batrachoseps stebbinsi</i>	AAAAD02090	None	Threatened	G2	S2S3	
<b>Tejon poppy</b> <i>Eschscholzia lemmonii</i> ssp. <i>kernensis</i>	PDPAP0A071	None	None	G5T2	S2	1B.1
<b>Tracy's eriastrum</b> <i>Eriastrum tracyi</i>	PDPLM030C0	None	Rare	G3Q	S3	3.2
<b>tricolored blackbird</b> <i>Agelaius tricolor</i>	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC
<b>Tulare grasshopper mouse</b> <i>Onychomys torridus tularensis</i>	AMAFF06021	None	None	G5T1T2	S1S2	SSC
<b>valley elderberry longhorn beetle</b> <i>Desmocerus californicus dimorphus</i>	IICOL48011	Threatened	None	G3T2	S3	
<b>whitefir shoulderband</b> <i>Helminthoglypta concolor</i>	IMGASC2540	None	None	G1G2	S1S2	
<b>yellow-blotched salamander</b> <i>Ensatina eschscholtzii croceater</i>	AAAAD04011	None	None	G5T3	S3	WL

Record Count: 48



# Selected Elements by Common Name

## California Department of Fish and Wildlife

### California Natural Diversity Database



**Query Criteria:** Quad<span style='color:Red'> IS </span>(Tehachapi South (3511814)<span style='color:Red'> OR </span>Keene (3511825)<span style='color:Red'> OR </span>Tehachapi North (3511824)<span style='color:Red'> OR </span>Tehachapi NE (3511823)<span style='color:Red'> OR </span>Cummings Mtn. (3511815)<span style='color:Red'> OR </span>Liebre Twins (3411885)<span style='color:Red'> OR </span>Tylerhorse Canyon (3411884)<span style='color:Red'> OR </span>Willow Springs (3411883)<span style='color:Red'> OR </span>Monolith (3511813))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<b>alkali mariposa-lily</b> <i>Calochortus striatus</i>	PMLIL0D190	None	None	G3?	S2S3	1B.2
<b>American badger</b> <i>Taxidea taxus</i>	AMAJF04010	None	None	G5	S3	SSC
<b>aparejo grass</b> <i>Muhlenbergia utilis</i>	PMPOA481X0	None	None	G4	S2S3	2B.2
<b>Baja navarretia</b> <i>Navarretia peninsularis</i>	PDPLM0C0L0	None	None	G3	S2	1B.2
<b>burrowing owl</b> <i>Athene cunicularia</i>	ABNSB10010	None	None	G4	S3	SSC
<b>calico monkeyflower</b> <i>Diplacus pictus</i>	PDSCR1B240	None	None	G2	S2	1B.2
<b>California condor</b> <i>Gymnogyps californianus</i>	ABNKA03010	Endangered	Endangered	G1	S1	FP
<b>California legless lizard</b> <i>Anniella spp.</i>	ARACC01070	None	None	G3G4	S3S4	SSC
<b>coast horned lizard</b> <i>Phrynosoma blainvillii</i>	ARACF12100	None	None	G3G4	S3S4	SSC
<b>Comstock's blue butterfly</b> <i>Euphilotes glaucon comstocki</i>	IILEPG201A	None	None	G5T2	S2	
<b>Coulter's goldfields</b> <i>Lasthenia glabrata ssp. coulteri</i>	PDAST5L0A1	None	None	G4T2	S2	1B.1
<b>Crotch bumble bee</b> <i>Bombus crotchii</i>	IIHYM24480	None	Candidate Endangered	G3G4	S1S2	
<b>desert tortoise</b> <i>Gopherus agassizii</i>	ARAAF01012	Threatened	Threatened	G3	S2S3	
<b>ferruginous hawk</b> <i>Buteo regalis</i>	ABNKC19120	None	None	G4	S3S4	WL
<b>foothill yellow-legged frog</b> <i>Rana boylei</i>	AAABH01050	None	Endangered	G3	S3	SSC
<b>golden eagle</b> <i>Aquila chrysaetos</i>	ABNKC22010	None	None	G5	S3	FP
<b>grey-leaved violet</b> <i>Viola pinetorum ssp. grisea</i>	PDVIO04431	None	None	G4G5T3	S3	1B.2
<b>Horn's milk-vetch</b> <i>Astragalus hornii var. hornii</i>	PDFAB0F421	None	None	GUT1	S1	1B.1



Selected Elements by Common Name  
California Department of Fish and Wildlife  
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<b>Latimer's woodland-gilia</b> <i>Saltugilia latimeri</i>	PDPLM0H010	None	None	G3	S3	1B.2
<b>Le Conte's thrasher</b> <i>Toxostoma lecontei</i>	ABPBK06100	None	None	G4	S3	SSC
<b>loggerhead shrike</b> <i>Lanius ludovicianus</i>	ABPBR01030	None	None	G4	S4	SSC
<b>Madera leptosiphon</b> <i>Leptosiphon serrulatus</i>	PDPLM09130	None	None	G3	S3	1B.2
<b>merlin</b> <i>Falco columbarius</i>	ABNKD06030	None	None	G5	S3S4	WL
<b>Mohave shoulderband</b> <i>Helminthoglypta greggi</i>	IMGASC2270	None	None	G1	S1	
<b>Mt. Pinos onion</b> <i>Allium howellii</i> var. <i>clokeyi</i>	PMLIL02161	None	None	G4T2	S2	1B.3
<b>Northern California legless lizard</b> <i>Anniella pulchra</i>	ARACC01020	None	None	G3	S3	SSC
<b>pale-yellow layia</b> <i>Layia heterotricha</i>	PDAST5N070	None	None	G2	S2	1B.1
<b>Palmer's mariposa-lily</b> <i>Calochortus palmeri</i> var. <i>palmeri</i>	PMLIL0D122	None	None	G3T2	S2	1B.2
<b>Piute Mountains triteleia</b> <i>Triteleia piutensis</i>	PMLIL210H0	None	None	G1	S1	1B.1
<b>prairie falcon</b> <i>Falco mexicanus</i>	ABNKD06090	None	None	G5	S4	WL
<b>sagebrush loeflingia</b> <i>Loeflingia squarrosa</i> var. <i>artemisiarum</i>	PDCAR0E011	None	None	G5T3	S2	2B.2
<b>San Joaquin pocket mouse</b> <i>Perognathus inornatus</i>	AMAFD01060	None	None	G2G3	S2S3	
<b>Spanish Needle onion</b> <i>Allium shevockii</i>	PMLIL022M0	None	None	G2	S2	1B.3
<b>Swainson's hawk</b> <i>Buteo swainsoni</i>	ABNKC19070	None	Threatened	G5	S3	
<b>Tehachapi monardella</b> <i>Monardella linoides</i> ssp. <i>oblonga</i>	PDLAM180D2	None	None	G5T2	S2	1B.3
<b>Tehachapi Mountain silverspot butterfly</b> <i>Speyeria egleis tehachapina</i>	IILEPJ6105	None	None	G5T2	S2	
<b>Tehachapi pocket mouse</b> <i>Perognathus alticola inexpectatus</i>	AMAFD01082	None	None	G2T1T2	S1S2	SSC
<b>Tehachapi slender salamander</b> <i>Batrachoseps stebbinsi</i>	AAAAD02090	None	Threatened	G2	S2S3	
<b>Tejon poppy</b> <i>Eschscholzia lemmonii</i> ssp. <i>kernensis</i>	PDPAP0A071	None	None	G5T2	S2	1B.1



**Selected Elements by Common Name**  
**California Department of Fish and Wildlife**  
**California Natural Diversity Database**



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<b>Tracy's eriastrum</b> <i>Eriastrum tracyi</i>	PDPLM030C0	None	Rare	G3Q	S3	3.2
<b>tricolored blackbird</b> <i>Agelaius tricolor</i>	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC
<b>Tulare grasshopper mouse</b> <i>Onychomys torridus tularensis</i>	AMAFF06021	None	None	G5T1T2	S1S2	SSC
<b>whitefir shoulderband</b> <i>Helminthoglypta concolor</i>	IMGASC2540	None	None	G1G2	S1S2	
<b>yellow-blotched salamander</b> <i>Ensatina eschscholtzii croceater</i>	AAAAD04011	None	None	G5T3	S3	WL

**Record Count: 44**



\*The database used to provide updates to the Online Inventory is under construction. [View updates and changes made since May 2019 here.](#)

## Plant List

39 matches found. [Click on scientific name for details](#)

### Search Criteria

Found in Quads 3511835, 3511834, 3511833, 3511825, 3511824, 3511823, 3511815 3511814 and 3511813;

[Modify Search Criteria](#) [Export to Excel](#) [Modify Columns](#) [Modify Sort](#) [Display Photos](#)

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
<a href="#">Allium howellii var. clokeyi</a>	Mt. Pinos onion	Alliaceae	perennial bulbiferous herb	Apr-Jun	1B.3	S2	G4T2
<a href="#">Allium howellii var. howellii</a>	Howell's onion	Alliaceae	perennial bulbiferous herb	Mar-Apr	4.3	S3	G3G4T3
<a href="#">Allium shevockii</a>	Spanish Needle onion	Alliaceae	perennial bulbiferous herb	May-Jun	1B.3	S2	G2
<a href="#">Amsinckia douglasiana</a>	Douglas' fiddleneck	Boraginaceae	annual herb	Mar-May	4.2	S4	G4
<a href="#">Calochortus palmeri var. palmeri</a>	Palmer's mariposa lily	Liliaceae	perennial bulbiferous herb	Apr-Jul	1B.2	S2	G3T2
<a href="#">Chorizanthe leptotheca</a>	Peninsular spineflower	Polygonaceae	annual herb	May-Aug	4.2	S3	G3
<a href="#">Claytonia parviflora ssp. grandiflora</a>	streambank spring beauty	Montiaceae	annual herb	Feb-May	4.2	S3	G5T3
<a href="#">Cordylanthus rigidus ssp. brevibracteatus</a>	short-bracted bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jul-Aug(Oct)	4.3	S3	G5T3
<a href="#">Delphinium gypsophilum ssp. parviflorum</a>	small-flowered gypsum-loving larkspur	Ranunculaceae	perennial herb	(Mar)Apr-Jun	3.2	S2S3	G4T2T3Q
<a href="#">Delphinium parryi ssp. purpureum</a>	Mt. Pinos larkspur	Ranunculaceae	perennial herb	May-Jun	4.3	S4	G4T4
<a href="#">Diplacus pictus</a>	calico monkeyflower	Phrymaceae	annual herb	Mar-May	1B.2	S2	G2
<a href="#">Dudleya abramsii ssp. calcicola</a>	limestone dudleya	Crassulaceae	perennial herb	Apr-Aug	4.3	S4	G4T4
<a href="#">Eriastrum tracyi</a>	Tracy's eriastrum	Polemoniaceae	annual herb	May-Jul	3.2	S3	G3Q
<a href="#">Eriogonum kennedyi var. pinicola</a>	Kern buckwheat	Polygonaceae	perennial herb	May-Jun(Jul)	1B.1	S1	G4T1
<a href="#">Erythranthe sierrae</a>	Sierra Nevada monkeyflower	Phrymaceae	annual herb	Mar-Jul	4.2	S2	G2



<u><a href="#">Eschscholzia lemmonii ssp. kernensis</a></u>	Tejon poppy	Papaveraceae	annual herb	(Feb)Mar-May	1B.1	S2	G5T2
<u><a href="#">Eschscholzia procera</a></u>	Kernville poppy	Papaveraceae	perennial herb	Jun-Jul(Aug)	3	S1?	G1?Q
<u><a href="#">Fritillaria brandegeei</a></u>	Greenhorn fritillary	Liliaceae	perennial bulbiferous herb	Apr-Jun	1B.3	S2S3	G2G3
<u><a href="#">Fritillaria pinetorum</a></u>	pine fritillary	Liliaceae	perennial bulbiferous herb	May-Jul(Sep)	4.3	S4	G4
<u><a href="#">Hesperocyparis nevadensis</a></u>	Piute cypress	Cupressaceae	perennial evergreen tree		1B.2	S2	G2
<u><a href="#">Lasthenia glabrata ssp. coulteri</a></u>	Coulter's goldfields	Asteraceae	annual herb	Feb-Jun	1B.1	S2	G4T2
<u><a href="#">Layia heterotricha</a></u>	pale-yellow layia	Asteraceae	annual herb	Mar-Jun	1B.1	S2	G2
<u><a href="#">Loeflingia squarrosa var. artemisiarum</a></u>	sagebrush loeflingia	Caryophyllaceae	annual herb	Apr-May	2B.2	S2	G5T3
<u><a href="#">Microseris sylvatica</a></u>	sylvan microseris	Asteraceae	perennial herb	Mar-Jun	4.2	S4	G4
<u><a href="#">Monardella linoides ssp. oblonga</a></u>	Tehachapi monardella	Lamiaceae	perennial rhizomatous herb	(May)Jun-Aug	1B.3	S2	G5T2
<u><a href="#">Navarretia peninsularis</a></u>	Baja navarretia	Polemoniaceae	annual herb	(May)Jun-Aug	1B.2	S2	G3
<u><a href="#">Navarretia setiloba</a></u>	Piute Mountains navarretia	Polemoniaceae	annual herb	Apr-Jul	1B.1	S2	G2
<u><a href="#">Nemacladus secundiflorus var. secundiflorus</a></u>	large-flowered nemacladus	Campanulaceae	annual herb	Apr-Jun	4.3	S3?	G3T3?
<u><a href="#">Opuntia basilaris var. treleasei</a></u>	Bakersfield cactus	Cactaceae	perennial stem succulent	Apr-May	1B.1	S1	G5T1
<u><a href="#">Orthotrichum spjutii</a></u>	Spjut's bristle moss	Orthotrichaceae	moss		1B.3	S1	G1
<u><a href="#">Pentachaeta fragilis</a></u>	fragile pentachaeta	Asteraceae	annual herb	Mar-Jun	4.3	S3	G3
<u><a href="#">Perideridia pringlei</a></u>	adobe yampah	Apiaceae	perennial herb	Apr-Jun(Jul)	4.3	S4	G4
<u><a href="#">Pseudobahia peirsonii</a></u>	San Joaquin adobe sunburst	Asteraceae	annual herb	Feb-Apr	1B.1	S1	G1
<u><a href="#">Ribes menziesii var. ixoderme</a></u>	aromatic canyon gooseberry	Grossulariaceae	perennial deciduous shrub	Apr	1B.2	S1	G4T1
<u><a href="#">Saltugilia latimeri</a></u>	Latimer's woodland-gilia	Polemoniaceae	annual herb	Mar-Jun	1B.2	S3	G3
<u><a href="#">Streptanthus cordatus var. piutensis</a></u>	Piute Mountains jewelflower	Brassicaceae	perennial herb	May-Jul	1B.2	S1	G5T1
<u><a href="#">Syntrichopappus lemmonii</a></u>	Lemmon's syntrichopappus	Asteraceae	annual herb	Apr-May(Jun)	4.3	S4	G4
<u><a href="#">Triteleia piutensis</a></u>	Piute Mountains triteleia	Themidaceae	perennial bulbiferous herb	May-Jun	1B.1	S1	G1
<u><a href="#">Viola pinetorum ssp. grisea</a></u>	grey-leaved violet	Violaceae	perennial herb	Apr-Jul	1B.2	S3	G4G5T3

### Suggested Citation

California Native Plant Society, Rare Plant Program. 2021. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website <http://www.rareplants.cnps.org> [accessed 03 February 2021].

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## Plant List

34 matches found. [Click on scientific name for details](#)

### Search Criteria

Found in Quads 3511825, 3511824, 3511823, 3511815, 3511814, 3511813, 3411885 3411884 and 3411883;

[Modify Search Criteria](#) [Export to Excel](#) [Modify Columns](#) [Modify Sort](#) [Display Photos](#)

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
<a href="#">Allium howellii var. clokeyi</a>	Mt. Pinos onion	Alliaceae	perennial bulbiferous herb	Apr-Jun	1B.3	S2	G4T2
<a href="#">Allium howellii var. howellii</a>	Howell's onion	Alliaceae	perennial bulbiferous herb	Mar-Apr	4.3	S3	G3G4T3
<a href="#">Allium shevockii</a>	Spanish Needle onion	Alliaceae	perennial bulbiferous herb	May-Jun	1B.3	S2	G2
<a href="#">Amsinckia douglasiana</a>	Douglas' fiddleneck	Boraginaceae	annual herb	Mar-May	4.2	S4	G4
<a href="#">Astragalus hornii var. hornii</a>	Horn's milk-vetch	Fabaceae	annual herb	May-Oct	1B.1	S1	G4G5T1T2
<a href="#">Calochortus palmeri var. palmeri</a>	Palmer's mariposa lily	Liliaceae	perennial bulbiferous herb	Apr-Jul	1B.2	S2	G3T2
<a href="#">Calochortus striatus</a>	alkali mariposa lily	Liliaceae	perennial bulbiferous herb	Apr-Jun	1B.2	S2S3	G3?
<a href="#">Calystegia peirsonii</a>	Peirson's morning-glory	Convolvulaceae	perennial rhizomatous herb	Apr-Jun	4.2	S4	G4
<a href="#">Chorizanthe leptotheca</a>	Peninsular spineflower	Polygonaceae	annual herb	May-Aug	4.2	S3	G3
<a href="#">Cordylanthus rigidus ssp. brevibracteatus</a>	short-bracted bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jul-Aug(Oct)	4.3	S3	G5T3
<a href="#">Delphinium parryi ssp. purpureum</a>	Mt. Pinos larkspur	Ranunculaceae	perennial herb	May-Jun	4.3	S4	G4T4
<a href="#">Diplacus pictus</a>	calico monkeyflower	Phrymaceae	annual herb	Mar-May	1B.2	S2	G2
<a href="#">Eriastrum tracyi</a>	Tracy's eriastrum	Polemoniaceae	annual herb	May-Jul	3.2	S3	G3Q
<a href="#">Eriogonum kennedyi var. pinicola</a>	Kern buckwheat	Polygonaceae	perennial herb	May-Jun(Jul)	1B.1	S1	G4T1
<a href="#">Erythranthe sierrae</a>	Sierra Nevada monkeyflower	Phrymaceae	annual herb	Mar-Jul	4.2	S2	G2
<a href="#">Eschscholzia lemmonii ssp. kernensis</a>	Tejon poppy	Papaveraceae	annual herb	(Feb)Mar-May	1B.1	S2	G5T2

<a href="#"><u>Eschscholzia procera</u></a>	Kernville poppy	Papaveraceae	perennial herb	Jun-Jul(Aug)	3	S1?	G1?Q
<a href="#"><u>Fritillaria brandegeei</u></a>	Greenhorn fritillary	Liliaceae	perennial bulbiferous herb	Apr-Jun	1B.3	S2S3	G2G3
<a href="#"><u>Fritillaria pinetorum</u></a>	pine fritillary	Liliaceae	perennial bulbiferous herb	May-Jul(Sep)	4.3	S4	G4
<a href="#"><u>Lasthenia glabrata ssp. coulteri</u></a>	Coulter's goldfields	Asteraceae	annual herb	Feb-Jun	1B.1	S2	G4T2
<a href="#"><u>Layia heterotricha</u></a>	pale-yellow layia	Asteraceae	annual herb	Mar-Jun	1B.1	S2	G2
<a href="#"><u>Loeflingia squarrosa var. artemisiarum</u></a>	sagebrush loeflingia	Caryophyllaceae	annual herb	Apr-May	2B.2	S2	G5T3
<a href="#"><u>Monardella linoides ssp. oblonga</u></a>	Tehachapi monardella	Lamiaceae	perennial rhizomatous herb	(May)Jun-Aug	1B.3	S2	G5T2
<a href="#"><u>Navarretia peninsularis</u></a>	Baja navarretia	Polemoniaceae	annual herb	(May)Jun-Aug	1B.2	S2	G3
<a href="#"><u>Navarretia setiloba</u></a>	Piute Mountains navarretia	Polemoniaceae	annual herb	Apr-Jul	1B.1	S2	G2
<a href="#"><u>Nemacladus secundiflorus var. secundiflorus</u></a>	large-flowered nemacladus	Campanulaceae	annual herb	Apr-Jun	4.3	S3?	G3T3?
<a href="#"><u>Orthotrichum spjutii</u></a>	Spjut's bristle moss	Orthotrichaceae	moss		1B.3	S1	G1
<a href="#"><u>Perideridia pringlei</u></a>	adobe yampah	Apiaceae	perennial herb	Apr-Jun(Jul)	4.3	S4	G4
<a href="#"><u>Saltugilia latimeri</u></a>	Latimer's woodland-gilia	Polemoniaceae	annual herb	Mar-Jun	1B.2	S3	G3
<a href="#"><u>Senecio astephanus</u></a>	San Gabriel ragwort	Asteraceae	perennial herb	May-Jul	4.3	S3	G3
<a href="#"><u>Streptanthus cordatus var. piutensis</u></a>	Piute Mountains jewelflower	Brassicaceae	perennial herb	May-Jul	1B.2	S1	G5T1
<a href="#"><u>Syntrichopappus lemmonii</u></a>	Lemmon's syntrichopappus	Asteraceae	annual herb	Apr-May(Jun)	4.3	S4	G4
<a href="#"><u>Triteleia piutensis</u></a>	Piute Mountains triteleia	Themidaceae	perennial bulbiferous herb	May-Jun	1B.1	S1	G1
<a href="#"><u>Viola pinetorum ssp. grisea</u></a>	grey-leaved violet	Violaceae	perennial herb	Apr-Jul	1B.2	S3	G4G5T3

### Suggested Citation

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### Contributors

[The Calflora Database](#)

[The California Lichen Society](#)

[California Natural Diversity Database](#)

[The Jepson Flora Project](#)

[The Consortium of California Herbaria](#)

[CalPhotos](#)

### Questions and Comments

[rareplants@cnps.org](mailto:rareplants@cnps.org)

# IPaC resource list

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

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

## Location

Kern County, California



## Local office

Sacramento Fish And Wildlife Office

☎ (916) 414-6600

📅 (916) 414-6713

Federal Building  
2800 Cottage Way, Room W-2605  
Sacramento, CA 95825-1846

# Endangered species

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

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

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

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

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

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

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

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

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

## Mammals

NAME

STATUS

Fisher *Pekania pennanti*

Endangered

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/3651>

## Birds

NAME	STATUS
California Condor <i>Gymnogyps californianus</i> There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. <a href="https://ecos.fws.gov/ecp/species/8193">https://ecos.fws.gov/ecp/species/8193</a>	Endangered

## Reptiles

NAME	STATUS
Blunt-nosed Leopard Lizard <i>Gambelia silus</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/625">https://ecos.fws.gov/ecp/species/625</a>	Endangered

## Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> Wherever found There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. <a href="https://ecos.fws.gov/ecp/species/2891">https://ecos.fws.gov/ecp/species/2891</a>	Threatened

## Critical habitats

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

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

## Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

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

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

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

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

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

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)



**Golden Eagle** *Aquila chrysaetos*

Breeds Jan 1 to Aug 31

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

<https://ecos.fws.gov/ecp/species/1680>

**Lawrence's Goldfinch** *Carduelis lawrencei*

Breeds Mar 20 to Sep 20

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

<https://ecos.fws.gov/ecp/species/9464>

**Nuttall's Woodpecker** *Picoides nuttallii*

Breeds Apr 1 to Jul 20

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

<https://ecos.fws.gov/ecp/species/9410>

**Oak Titmouse** *Baeolophus inornatus*

Breeds Mar 15 to Jul 15

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

<https://ecos.fws.gov/ecp/species/9656>

**Song Sparrow** *Melospiza melodia*

Breeds Feb 20 to Sep 5

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

**Tricolored Blackbird** *Agelaius tricolor*

Breeds Mar 15 to Aug 10

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

<https://ecos.fws.gov/ecp/species/3910>

## Probability of Presence Summary

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

### Probability of Presence (■)

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

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

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

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

### Breeding Season (■)

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

### Survey Effort (|)

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

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

### No Data (—)

A week is marked as having no data if there were no survey events for that week.

### Survey Timeframe

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

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

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

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

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

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project

intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

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

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

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

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

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

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

### **What are the levels of concern for migratory birds?**

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

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

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

### **Details about birds that are potentially affected by offshore projects**

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

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

### What if I have eagles on my list?

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

### Proper Interpretation and Use of Your Migratory Bird Report

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

## Facilities

### National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

### Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

## Wetlands in the National Wetlands Inventory

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

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER POND

[PUBHx](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

#### Data limitations

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

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

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

#### Data exclusions

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

#### Data precautions

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

# IPaC resource list

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## Location

Kern County, California



## Local office

Carlsbad Fish And Wildlife Office

☎ (760) 431-9440

📠 (760) 431-5901

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

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



# Endangered species

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

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

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

## Mammals

NAME

STATUS

Fisher Pekania pennanti

Endangered

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/3651>

## Critical habitats

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

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

## Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

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

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

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

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



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

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

#### Golden Eagle *Aquila chrysaetos*

Breeds Jan 1 to Aug 31

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

<https://ecos.fws.gov/ecp/species/1680>

#### Lawrence's Goldfinch *Carduelis lawrencei*

Breeds Mar 20 to Sep 20

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

<https://ecos.fws.gov/ecp/species/9464>

#### Nuttall's Woodpecker *Picoides nuttallii*

Breeds Apr 1 to Jul 20

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

<https://ecos.fws.gov/ecp/species/9410>

#### Oak Titmouse *Baeolophus inornatus*

Breeds Mar 15 to Jul 15

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

<https://ecos.fws.gov/ecp/species/9656>

#### Song Sparrow *Melospiza melodia*

Breeds Feb 20 to Sep 5

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

#### Tricolored Blackbird *Agelaius tricolor*

Breeds Mar 15 to Aug 10

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

<https://ecos.fws.gov/ecp/species/3910>

# Probability of Presence Summary

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

## Probability of Presence (■)

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

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

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

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

## Breeding Season (■)

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

## Survey Effort (|)

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

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

## No Data (—)

A week is marked as having no data if there were no survey events for that week.

## Survey Timeframe

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

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

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

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

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

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

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

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

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

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

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

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

## **What are the levels of concern for migratory birds?**

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

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and

3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

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

### Details about birds that are potentially affected by offshore projects

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

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

### What if I have eagles on my list?

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

### Proper Interpretation and Use of Your Migratory Bird Report

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

## Facilities

## National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

## Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

## Wetlands in the National Wetlands Inventory

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

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

[R4SBJ](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

### Data limitations

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

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

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

### Data exclusions

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

### **Data precautions**

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

NOT FOR CONSULTATION

# IPaC resource list

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

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

## Location

Kern County, California



## Local office

Sacramento Fish And Wildlife Office

☎ (916) 414-6600

📠 (916) 414-6713

Federal Building  
2800 Cottage Way, Room W-2605  
Sacramento, CA 95825-1846



# Endangered species

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

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

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

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

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

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

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

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

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

## Mammals

NAME

STATUS



Fisher *Pekania pennanti*

Endangered

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/3651>

## Birds

NAME	STATUS
California Condor <i>Gymnogyps californianus</i> There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. <a href="https://ecos.fws.gov/ecp/species/8193">https://ecos.fws.gov/ecp/species/8193</a>	Endangered

## Reptiles

NAME	STATUS
Blunt-nosed Leopard Lizard <i>Gambelia silus</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/625">https://ecos.fws.gov/ecp/species/625</a>	Endangered

## Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> Wherever found There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. <a href="https://ecos.fws.gov/ecp/species/2891">https://ecos.fws.gov/ecp/species/2891</a>	Threatened

## Critical habitats

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

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

## Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

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

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

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

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

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

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Common Yellowthroat *Geothlypis trichas sinuosa*

Breeds May 20 to Jul 31

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

<https://ecos.fws.gov/ecp/species/2084>

<b>Costa's Hummingbird</b> <i>Calypte costae</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA <a href="https://ecos.fws.gov/ecp/species/9470">https://ecos.fws.gov/ecp/species/9470</a>	Breeds Jan 15 to Jun 10
<b>Golden Eagle</b> <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. <a href="https://ecos.fws.gov/ecp/species/1680">https://ecos.fws.gov/ecp/species/1680</a>	Breeds Jan 1 to Aug 31
<b>Lawrence's Goldfinch</b> <i>Carduelis lawrencei</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9464">https://ecos.fws.gov/ecp/species/9464</a>	Breeds Mar 20 to Sep 20
<b>Lewis's Woodpecker</b> <i>Melanerpes lewis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9408">https://ecos.fws.gov/ecp/species/9408</a>	Breeds Apr 20 to Sep 30
<b>Nuttall's Woodpecker</b> <i>Picoides nuttallii</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA <a href="https://ecos.fws.gov/ecp/species/9410">https://ecos.fws.gov/ecp/species/9410</a>	Breeds Apr 1 to Jul 20
<b>Oak Titmouse</b> <i>Baeolophus inornatus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9656">https://ecos.fws.gov/ecp/species/9656</a>	Breeds Mar 15 to Jul 15
<b>Rufous Hummingbird</b> <i>selasphorus rufus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/8002">https://ecos.fws.gov/ecp/species/8002</a>	Breeds elsewhere
<b>Song Sparrow</b> <i>Melospiza melodia</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Feb 20 to Sep 5
<b>Spotted Towhee</b> <i>Pipilo maculatus clementae</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA <a href="https://ecos.fws.gov/ecp/species/4243">https://ecos.fws.gov/ecp/species/4243</a>	Breeds Apr 15 to Jul 20

**Tricolored Blackbird** *Agelaius tricolor*

Breeds Mar 15 to Aug 10

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

<https://ecos.fws.gov/ecp/species/3910>

**White Headed Woodpecker** *Picoides albolarvatus*

Breeds May 1 to Aug 15

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

<https://ecos.fws.gov/ecp/species/9411>

**Wrentit** *Chamaea fasciata*

Breeds Mar 15 to Aug 10

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

## Probability of Presence Summary

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

### Probability of Presence (■)

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

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

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

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

### Breeding Season (■)

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

### Survey Effort (I)

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

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

### No Data (–)

A week is marked as having no data if there were no survey events for that week.

### Survey Timeframe

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

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

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

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

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

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

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

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

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

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

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

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

## What are the levels of concern for migratory birds?

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

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

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

## Details about birds that are potentially affected by offshore projects

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

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

## What if I have eagles on my list?

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

## Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting



point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

## Facilities

### National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

### Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

### Wetlands in the National Wetlands Inventory

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

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

[PEM1K](#)

FRESHWATER POND

[PUSK](#)

[PUBK](#)

RIVERINE

[R4SBJx](#)[R4SBJ](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

### Data limitations

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

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

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

### Data exclusions

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

### Data precautions

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



# Appendix C

## Potential to Occur Tables



**TABLE 1**  
**SPECIAL-STATUS PLANT SPECIES**

Common Name Scientific Name	Sensitivity Status <sup>a</sup>	Blooming Period	Preferred Habitat	Presence/Potential to Occur Within Biological Study Area
<b>Asteraceae</b>				
Coulter's goldfields <i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	--/--/1B.1	February–June	Marshes and swamps (coastal salt), playas, and vernal pools.	<b>Absent/Not Expected.</b> Species has been observed within the vicinity of the WWTP; however, occurrences are outdated and site is completely disturbed where occurrences were documented..
Pale-yellow layia <i>Layia heterotricha</i>	--/--/1B.1	March–June	Cismontane and pinyon and juniper woodland, coastal scrub, and valley and foothill grassland with alkaline or clay soils.	<b>Absent/Not Expected.</b> Species has been observed within the vicinity of the WWTP; however, occurrences are outdated and site is completely disturbed where occurrences were documented.
San Joaquin adobe sunburst <i>Pseudobahia peirsonii</i>	FT/SE/1B.1	February–April	Cismontane woodland and valley and foothill grassland in adobe clay.	<b>Low Potential.</b> Suitable habitat for this species occurs in the non-native herbaceous cover within the biological study area but is marginal at best; additionally, soil requirements are inappropriate and there are no known occurrences within the vicinity of the biological study area.
<b>Brassicaceae</b>				
Piute Mountains jewelflower <i>Streptanthus cordatus</i> var. <i>piutensis</i>	--/--/1B.2	May–July	Broadleafed upland forest, closed-cone coniferous forest, and pinyon and juniper woodland in clay or metamorphic soils.	<b>Absent/Not Expected.</b> Suitable habitat and soil for this species is not present within the biological study area. Any areas that may have historically supported habitat for this species have been sufficiently altered through legal development to a point at which they no longer do.
<b>Cactaceae</b>				
Bakersfield cactus <i>Opuntia basilaris</i> var. <i>treleasei</i>	FE/SE/1B.1	April–May	Chenopod scrub, cismontane woodland, and valley and foothill grassland in sandy or gravelly soils.	<b>Low Potential.</b> Suitable habitat and soils for this species occurs within the non-native herbaceous cover in the biological study area but is marginal at best; additionally, there are no known occurrences within the vicinity of the biological study area.

Common Name Scientific Name	Sensitivity Status <sup>a</sup>	Blooming Period	Preferred Habitat	Presence/Potential to Occur Within Biological Study Area
<b>Caryophyllaceae</b>				
Sagebrush loeflingia <i>Loeflingia squarrosa</i> var. <i>artemisiarum</i>	--/--/2B.2	April–May	Desert dunes, Great Basin scrub, and Sonoran desert scrub in sandy soils.	<b>Absent/Not Expected.</b> Suitable habitat for this species is not present within the biological study area. Any areas that may have historically supported habitat for this species have been sufficiently altered through legal development to a point at which they no longer do.
<b>Fabaceae</b>				
Horn's milk vetch <i>Astragalus hornii</i> var. <i>hornii</i>	--/--/1B.1	May–October	Alkali playa, meadow and seep, and wetland.	<b>Absent/Not Expected.</b> Suitable habitat for this species is not present within the biological study area. Any areas that may have historically supported habitat for this species have been sufficiently altered through legal development to a point at which they no longer do.
<b>Grossulariaceae</b>				
Aromatic canyon gooseberry <i>Ribes menziesii</i> var. <i>ixoderme</i>	--/--/1B.2	April	Chaparral and cismontane woodland.	<b>Low Potential.</b> Suitable habitat for this species occurs in the shrublands within the biological study area but is marginal at best; additionally, there are no known occurrences within the vicinity of the biological study area.
<b>Lamiaceae</b>				
Tehachapi monardella <i>Monardella linoides</i> ssp. <i>oblonga</i>	--/--/1B.3	(May) June–August	Lower and upper montane coniferous forest and pinyon and juniper woodland.	<b>Absent/Not Expected.</b> Species has been observed within the vicinity of the WWTP; however, occurrences are outdated and biological study area is completely disturbed where occurrences were documented.
<b>Papaveraceae</b>				
Tejon poppy <i>Eschscholzia lemmonii</i> ssp. <i>kernensis</i>	--/--/1B.1	(February) March–May	Chenopod scrub and valley and foothill grassland.	<b>Low Potential.</b> Suitable habitat for this species occurs in the non-native herbaceous cover within the biological study area but is marginal at best; additionally, there are no known occurrences within the vicinity of the biological study area.

Common Name Scientific Name	Sensitivity Status <sup>a</sup>	Blooming Period	Preferred Habitat	Presence/Potential to Occur Within Biological Study Area
<b>Phrymaceae</b>				
Calico monkeyflower <i>Diplacus pictus</i>	--/--/1B.2	March–May	Broadleafed upland forest and cismontane woodland in disturbed areas with granitic soils.	<b>Absent/Not Expected.</b> Species has been observed within the vicinity of the WWTP; however, occurrences are outdated and site is completely disturbed where occurrences were documented.
<b>Polemoniaceae</b>				
Tracy's eriastrum <i>Eriastrum tracyi</i>	--/SR/3.2	May–July	Chaparral, cismontane woodland, and valley and foothill grassland.	<b>Low Potential.</b> Species has been observed within the vicinity of the WWTP and habitat is present within the shrublands and non-native herbaceous cover in the biological study area; however, the single occurrence documented in the CNDDDB is a historic occurrence from 1910.
Madera leptosiphon <i>Leptosiphon serrulatus</i>	--/--/1B.2	April–May	Cismontane woodland and lower montane coniferous forest.	<b>Absent/Not Expected.</b> Suitable habitat for this species is not present within the biological study area. Any areas that may have historically supported habitat for this species have been sufficiently altered through legal development to a point at which they no longer do.
Baja navarretia <i>Navarretia peninsularis</i>	--/--/1B.2	(May) June–August	Chaparral openings, lower montane coniferous forest, meadows and seeps, and pinyon and juniper woodland in mesic soils.	<b>Low Potential.</b> Suitable habitat for this species occurs in the shrublands within the biological study area but is marginal at best; additionally, soil requirements are inappropriate and there are no known occurrences within the vicinity of the biological study area.
Piute Mountains navarretia <i>Navarretia setiloba</i>	--/--/1B.1	April–July	Cismontane woodland, pinyon and juniper woodland, and valley and foothill grassland in clay or gravelly loam soils.	<b>Low Potential.</b> Suitable habitat for this species occurs in the non-native herbaceous cover within the biological study area but is marginal at best; additionally, soil requirements are inappropriate and there are no known occurrences within the vicinity of the biological study area.
Latimer's woodland-gilia <i>Saltugilia latimeri</i>	--/--/1B.2	March–June	Chaparral, Mojavean desert scrub, and pinyon and juniper woodland in rocky or sandy soils.	<b>Low Potential.</b> Suitable habitat and soils for this species occurs in the shrublands within the biological study area but is marginal at best;

Common Name Scientific Name	Sensitivity Status <sup>a</sup>	Blooming Period	Preferred Habitat	Presence/Potential to Occur Within Biological Study Area
				additionally, there are no known occurrences within the vicinity of the biological study area.
<b>Polygonaceae</b>				
Kern buckwheat <i>Eriogonum kennedyi</i> var. <i>pinicola</i>	--/--/1B.1	May–June (July)	Chaparral and pinyon and juniper woodland in clay soils.	<b>Low Potential.</b> Suitable habitat for this species occurs in the shrublands within biological study area but is marginal at best; additionally, soil requirements are inappropriate and there are no known occurrences within the vicinity of the biological study area.
<b>Violaceae</b>				
Grey-leaved violet <i>Viola pinetorum</i> ssp. <i>grisea</i>	--/--/1B.2	April–July	Meadows and seeps, subalpine coniferous forest, and upper montane coniferous forest.	<b>Absent/Not Expected.</b> Suitable habitat for this species is not present within the biological study area. Any areas that may have historically supported habitat for this species have been sufficiently altered through legal development to a point at which they no longer do.
<b>Alliaceae</b>				
Mt. Pinos onion <i>Allium howellii</i> var. <i>clokeyi</i>	--/--/1B.3	April–June	Great Basin scrub, edges of meadows and seeps, and pinyon and juniper woodland.	<b>Absent/Not Expected.</b> Species has been observed within the vicinity of the WWTP; however, occurrences are outdated and site is completely disturbed where occurrences were documented.
Spanish needle onion <i>Allium shevockii</i>	--/--/1B.3	May–June	Pinyon and juniper woodland and upper montane coniferous forest in rocky soils.	<b>Absent/Not Expected.</b> Suitable habitat for this species is not present within the biological study area. Any areas that may have historically supported habitat for this species have been sufficiently altered through legal development to a point at which they no longer do.
<b>Liliaceae</b>				
Alkali mariposa-lily <i>Calochortus striatus</i>	--/--/1B.2	April–June	Chaparral, chenopod scrub, meadow and seep, Mojavean desert scrub, and wetland.	<b>Low Potential.</b> Suitable habitat for this species occurs in the shrublands within biological study area but is marginal at best; additionally, there are no known occurrences within the vicinity of the biological study area.

Common Name Scientific Name	Sensitivity Status <sup>a</sup>	Blooming Period	Preferred Habitat	Presence/Potential to Occur Within Biological Study Area
Greenhorn fritillary <i>Fritillaria brandegeei</i>	--/--/1B.3	April–June	Lower montane coniferous forest in granitic soils.	<b>Absent/Not Expected.</b> Suitable habitat for this species is not present within the biological study area. Any areas that may have historically supported habitat for this species have been sufficiently altered through legal development to a point at which they no longer do.
Palmer's mariposa-lily <i>Calochortus palmeri</i> var. <i>palmeri</i>	--/--/1B.2	April–July	Chaparral, lower montane coniferous forest, and meadows and seeps in mesic soil.	<b>Low Potential.</b> Species has been observed within the vicinity of the WWTP and habitat is present in the shrublands; however, the nearest occurrence documented in the CNDDDB is a historic occurrence from 1889. Three other more recent occurrences are documented in the CNDDDB from 1995, but these occurrences are all more than 8 miles to the northeast..
<b>Poaceae</b>				
Aparejo grass <i>Muhlenbergia utilis</i>	--/--/2B.2	October–May	Chaparral, cismontane woodland, coastal scrub, marsh and swamp, meadow and seep, and ultramafic.	<b>Low Potential.</b> Suitable habitat for this species occurs in the shrublands within biological study area but is marginal at best; additionally, there are no known occurrences within the vicinity of the biological study area.
<b>Themidaceae</b>				
Piute Mountains triteleia <i>Triteleia piutensis</i>	--/--/1B.1	May–June	Openings in pinyon and juniper woodland with fine volcanic soil throughout scattered boulders or heavy clay soil with volcanic hardpan.	<b>Absent/Not Expected.</b> Suitable habitat for this species is not present within the biological study area. Any areas that may have historically supported habitat for this species have been sufficiently altered through legal development to a point at which they no longer do.

## NOTES:

<sup>a</sup> Status (Federal/State): FE-federally endangered; FT-federally threatened; SE-state endangered; SR-state rare species.

Status (CNPS): List 1B = Plants Rare, Threatened, endangered in California and elsewhere, List 2 = Plants Rare, Threatened, or, Endangered in California, But More Common Elsewhere, List 4 = Plants of Limited Distribution - A Watch List. Threat ranks .1 = seriously Endangered in California, .2 = fairly Endangered in California, .3 = Not very threatened in California (low degree/immediacy of threats or no current threats known).

SOURCE: CDFW, 2021

**TABLE 2**  
**SPECIAL-STATUS WILDLIFE SPECIES**

Common Name Scientific Name	Sensitivity Status	Preferred Habitat	Presence/Potential to Occur Within Biological Study Area
<b>Invertebrates</b>			
Crotch bumble bee <i>Bombus crotchii</i>	--/CE	Open grassland and scrub, Mediterranean region, Pacific Coast, Western Desert, Great Valley, and adjacent foothills. Food plant genera include <i>Antirrhinum</i> , <i>Phacelia</i> , <i>Clarkia</i> , <i>Dendromecon</i> , <i>Eschscholzia</i> , and <i>Eriogonum</i> .	<b>Moderate Potential.</b> Habitat requirements are present in the biological study area and multiple detections have been recorded within the vicinity of the biological study area on CNDDDB between 1956-2017.
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	FT/--	Riparian scrub.	<b>Absent/Not Expected.</b> Habitat requirements not present in biological study area.
<b>Amphibians</b>			
Foothill yellow-legged frog <i>Rana boylei</i>	--/SE	Aquatic, chaparral, cismontane woodland, coastal scrub, Klamath/North coast flowing waters, lower montane coniferous forest, meadow and seep, riparian forest and woodland, and Sacramento/San Joaquin flowing waters.	<b>Low Potential.</b> Habitat requirements present within the biological study area; however, no occurrences have been documented in the vicinity of the biological study area.
Tehachapi slender salamander <i>Batrachoseps stebbinsi</i>	--/ST	Cismontane and riparian woodland.	<b>Absent/Not Expected.</b> Habitat requirements not present in biological study area.
<b>Reptiles</b>			
Blunt-nosed leopard lizard <i>Gambelia silus</i>	FE/SE	San Joaquin Valley and adjacent foothills within open, sparsely vegetated areas of low relief, alkali playa and valley saltbush scrub in small rodent burrows.	<b>Absent/Not Expected.</b> Habitat requirements not present in biological study area.
California legless lizard <i>Anniella spp.</i>	--/SSC	Coastal dune, valley and foothill grassland, chaparral, and coastal scrub in sandy soils.	<b>Moderate Potential.</b> Habitat and soil requirements are present in the biological study area and two historic detections in 1950 and 1955 have been recorded within the vicinity of the biological study area on CNDDDB.
California red-legged frog <i>Rana draytonii</i>	FT/SSC	Aquatic habitats including pools and backwaters within streams and creeks, ponds, marshes, springs, sag ponds, dune ponds and lagoons.	<b>Low Potential.</b> Habitat requirements present within the ponds in the biological study area; however, no occurrences have been documented in the vicinity of the biological study area.
Coast horned lizard <i>Phrynosoma blainvillii</i>	--/SSC	Chaparral, cismontane woodland, coastal bluff scrub, coastal scrub, desert wash, pinyon & juniper woodlands,	<b>Moderate Potential.</b> Habitat requirements are present in the biological study area and multiple detections have



Common Name Scientific Name	Sensitivity Status	Preferred Habitat	Presence/Potential to Occur Within Biological Study Area
		riparian scrub, riparian woodland, and valley and foothill grassland.	been recorded within the vicinity of the biological study area on CNDDDB in 2010.
Desert tortoise <i>Gopherus agassizii</i>	FT/ST	Joshua tree woodland, Mojavean desert scrub, and Sonoran desert scrub.	<b>Absent/Not Expected.</b> Habitat requirements not present in biological study area.
Northern California legless lizard <i>Anniella pulchra</i>	--/SSC	Chaparral, coastal dunes, and coastal scrub.	<b>Low Potential.</b> Habitat requirements present within the biological study area; however, no occurrences have been documented in the vicinity of the biological study area.
Southern California legless lizard <i>Anniella stebbinsi</i>	--/SSC	Broadleaved upland forest, chaparral, coastal dunes, and coastal scrub.	<b>Low Potential.</b> Habitat requirements present within the biological study area; however, no occurrences have been documented in the vicinity of the biological study area.
<b>Birds</b>			
Bendire's thrasher <i>Toxostoma bendirei</i>	--/SSC	Joshua tree woodland and Mojavean desert scrub.	<b>Absent/Not Expected.</b> Habitat requirements not present in biological study area.
Burrowing owl <i>Athene cunicularia</i>	--/SSC	Coastal prairie and scrub, Great Basin grassland and scrub, Mojavean desert scrub, Sonoran desert scrub, and valley and foothill grassland.	<b>Low Potential.</b> Habitat requirements present within the biological study area; however, no occurrences have been documented in the vicinity of the biological study area. Two occurrences are documented in the CNDDDB from 2005 and 2009, but these occurrences are both more than 8 miles to the southeast. Additionally, a burrowing owl habitat assessment was conducted and resulted in two potential burrows but poor habitat.
California condor <i>Gymnogyps californianus</i>	FE/SE	Chaparral and valley and foothill grassland. Deep canyons containing clefts in the rocky walls provide nesting sites. Forages up to 100 miles from roost/nest.	<b>Low Potential.</b> Habitat requirements present within the biological study area; however, no occurrences have been documented in the vicinity of the biological study area in the CNDDDB. Two eBird occurrences documented groups of this species foraging in an urbanized area approximately 0.5 mile southeast of the WWTP in 2015 and 2019 (eBird), so this species has a moderate potential to forage within the BSA.
Golden eagle <i>Aquila chrysaetos</i>	--/FP	Broadleaved upland forest, cismontane woodland, coastal prairie, Great Basin grassland and scrub, upper and lower montane coniferous forest, pinyon and juniper woodlands, and valley and foothill grassland. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	<b>Moderate Potential.</b> Habitat requirements are present in the biological study area and multiple detections have been recorded within the vicinity of the biological study area on CNDDDB; however, the last documented historic occurrences were in 1941 and 1949. A number of eBird observations of golden eagle have been observed within the vicinity, including one observation in 2012 of a golden

Common Name Scientific Name	Sensitivity Status	Preferred Habitat	Presence/Potential to Occur Within Biological Study Area
			eagle observed approximately 0.75 mile east of the WWTP ponds (eBird 2021), so this species has a moderate potential to forage within the BSA.
Le Conte's thrasher <i>Toxostoma lecontei</i>	--/SSC	Desert wash, Mojavean desert scrub, and Sonoran desert scrub.	<b>Absent/Not Expected.</b> Habitat requirements not present in biological study area.
Loggerhead shrike <i>Lanius ludovicianus</i>	--/SSC	Broadleaved upland forest, desert wash, Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodlands, riparian woodland, and Sonoran desert scrub.	<b>Moderate Potential.</b> Habitat requirements present within the biological study area; however, no occurrences have been documented in the vicinity of the biological study area in the CNDDDB. This species has been documented numerous times in eBird at the WWTP and Borrow Pit (eBird 2021).
Swainson's hawk <i>Buteo swainsoni</i>	--/ST	Great Basin grassland, riparian forest and woodland, and valley and foothill grassland.	<b>Low Potential.</b> Habitat requirements present within the biological study area; however, no occurrences have been documented in the vicinity of the biological study area.
Tricolored blackbird <i>Agelaius tricolor</i>	--/ST	Freshwater marsh, marsh, swamp, and wetland.	<b>Moderate Potential.</b> Habitat requirements are present in the biological study area and multiple detections have been recorded within the vicinity of the WWTP on CNDDDB; however, the last documented occurrences were in 1992 and 2008. More recent observation have also been documented in eBird in 2019 by the WWTP and in 2014 by the Borrow Pit (eBird 2021).
<b>Mammals</b>			
American badger <i>Taxidea taxus</i>	--/SSC	Alkali marsh and playa, alpine, alpine dwarf scrub, bog and fen, freshwater and brackish marsh, broadleaved upland forest, chaparral, chenopod scrub, cismontane woodland, closed-cone coniferous forest, coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub, desert dunes and wash, Great Basin grassland and scrub, Interior dunes, lone formation, Joshua tree woodland, limestone, upper and lower montane coniferous forest, marsh and swamp, meadow and seep, Mojavean desert scrub, montane dwarf scrub, north coast coniferous forest, old growth, pavement plain, redwood, Riparian forest, Riparian scrub, Riparian woodland, salt marsh, Sonoran desert scrub and thorn woodland, ultramafic, upper Sonoran scrub, and valley and foothill grassland.	<b>Low Potential.</b> Habitat requirements present within the biological study area; however, no occurrences have been documented in the vicinity of the biological study area.

Common Name Scientific Name	Sensitivity Status	Preferred Habitat	Presence/Potential to Occur Within Biological Study Area
Fisher <i>Pekania pennanti</i>	FE/SSC	Forests.	<b>Absent/Not Expected.</b> Habitat requirements not present in biological study area.
Tehachapi pocket mouse <i>Perognathus alticola inexpectatus</i>	--/SSC	Chaparral, Joshua tree woodland, and valley and foothill grassland.	<b>Moderate Potential.</b> Habitat requirements are present in the biological study area and multiple detections have been recorded within the vicinity of the biological study area on CNDDDB; however, the last documented occurrences were in 1959 and 1972.
Tulare grasshopper mouse <i>Onychomys torridus tularensis</i>	--/SSC	Chenopod scrub.	<b>Absent/Not Expected.</b> Habitat requirements not present in biological study area..

## NOTES:

<sup>a</sup> Status (Federal/State): FE-federally endangered; FT-federally threatened; BCC-federal bird of conservation concern; SE-state endangered; CE-state candidate endangered; SA-state special animal; SSC-state species of special concern; FP-state fully protected; WL-state watch list.

SOURCE: CDFW, 2021, USFWS, 2021

# Appendix ENERGY

## **Project Energy Calculations**



# Construction

## **Assumptions and Calculations**

**Tehachapi GW Sustainability  
Construction Energy Analysis**

**Annual Fuel Summary**

<b>Heavy-Duty Construction Equipment</b>	
94,830	Total Project Consumption
76,240	Annual Consumption
<b>Haul Trucks</b>	
79,261	Total Project Consumption
63,723	Annual Consumption
<b>Vendor Trucks</b>	
65,638	Total Project Consumption
52,771	Annual Consumption
<b>Workers</b>	
236,213	Total Project Consumption
189,907	Annual Consumption
144,900	Project Consumption of diesel for Haul Trucks and Vendors
116,494	Annual Consumption
239,729	Total Gallons Diesel
236,213	Total Gallons Gasoline

**1.2 Estimated Project Construction Duration (years)**

192,734 Annual Average Gallons Diesel  
189,907 Annual Average Gallons Gasoline

<b>Kern County</b>			<b>Percent of Annual Project Compared to Los Angeles County</b>
<b>Source</b>	<b>Fuel Type</b>	<b>Gallons</b>	
Workers	Gasoline	392,000,000	0.0484%
Off-Road/Vendor/Haul Trucks	Diesel	222,457,627	0.087%

**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	27,218 kWh/year
<b>Total</b>	<b>40,208 kWh/year</b>

Tehachapi GW Sustainability  
Construction Energy Analysis

Off-Road Equipment

<b>Equipment ≤ 100 hp</b>	
ds diesel fuel/hp-hr (lb/hp-hr): <sup>1</sup>	0.408 lb/hp-hr
diesel density (lb/gal): <sup>1</sup>	7.11 lb/gal
diesel gallons/hp-hr:	0.0574 gal/hp-hr
Total <100	322,913 hp-hr
Total diesel gallons:	18,533 gal

<b>Equipment &gt; 100 hp</b>	
ds diesel fuel/hp-hr (lb/hp-hr): <sup>1</sup>	0.367 lb/hp-hr
diesel density (lb/gal): <sup>1</sup>	7.11 lb/gal
diesel gallons/hp-hr:	0.0516 gal/hp-hr
Total >100	1,477,889 hp-hr
Total diesel gallons:	76,297 gal

el gallons (off-road equipment): **94,830 gal**

[1. OFFROAD2017 Emission Factor Documentation](#)

Project Component	Construction Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Conveyance Facilities - Pipeline	Grading	Concrete/Industrial Saws	1	8	81	0.73	26	12,299
Conveyance Facilities - Pipeline	Grading	Excavators	1	8	158	0.38	26	12,488
Conveyance Facilities - Pipeline	Grading	Off-Highway Trucks	1	8	402	0.38	26	31,774
Conveyance Facilities - Pipeline	Grading	Other Construction Equipme	1	8	172	0.42	26	15,026
Conveyance Facilities - Pipeline	Grading	Plate Compactors	1	8	8	0.43	26	716
Conveyance Facilities - Pipeline	Grading	Rubber Tired Dozers	0	1	247	0.4	26	-
Conveyance Facilities - Pipeline	Grading	Tractors/Loaders/Backhoes	2	8	97	0.37	26	14,930
Conveyance Facilities - Pipeline	Building Construction	Cranes	1	8	231	0.29	53	28,404
Conveyance Facilities - Pipeline	Building Construction	Forklifts	0	6	89	0.2	53	-
Conveyance Facilities - Pipeline	Building Construction	Off-Highway Trucks	2	8	402	0.38	53	129,540
Conveyance Facilities - Pipeline	Building Construction	Other Construction Equipme	1	8	172	0.42	53	30,630
Conveyance Facilities - Pipeline	Building Construction	Plate Compactors	1	8	8	0.43	53	1,459
Conveyance Facilities - Pipeline	Building Construction	Tractors/Loaders/Backhoes	2	8	97	0.37	53	30,435
Conveyance Facilities - Pipeline	Paving	Cement and Mortar Mixers	4	8	9	0.56	3	484
Conveyance Facilities - Pipeline	Paving	Pavers	1	8	130	0.42	3	1,310
Conveyance Facilities - Pipeline	Paving	Rollers	1	8	80	0.38	3	730
Conveyance Facilities - Pipeline	Paving	Tractors/Loaders/Backhoes	2	8	97	0.37	3	1,723
Conveyance Facilities - Pump Stz	Site Preparation	Excavators	1	8	158	0.38	5	2,402
Conveyance Facilities - Pump Stz	Site Preparation	Graders	0	8	187	0.41	5	-
Conveyance Facilities - Pump Stz	Site Preparation	Off-Highway Trucks	1	8	402	0.38	5	6,110
Conveyance Facilities - Pump Stz	Site Preparation	Tractors/Loaders/Backhoes	2	8	97	0.37	5	2,871
Conveyance Facilities - Pump Stz	Grading	Concrete/Industrial Saws	0	8	81	0.73	31	-
Conveyance Facilities - Pump Stz	Grading	Excavators	1	8	158	0.38	31	14,890
Conveyance Facilities - Pump Stz	Grading	Off-Highway Trucks	1	8	402	0.38	31	37,884
Conveyance Facilities - Pump Stz	Grading	Other Construction Equipme	1	8	172	0.42	31	17,916
Conveyance Facilities - Pump Stz	Grading	Rubber Tired Dozers	0	1	247	0.4	31	-
Conveyance Facilities - Pump Stz	Grading	Tractors/Loaders/Backhoes	2	8	97	0.37	31	17,801
Conveyance Facilities - Pump Stz	Building Construction	Cranes	1	8	231	0.29	63	33,763
Conveyance Facilities - Pump Stz	Building Construction	Forklifts	0	6	89	0.2	63	-
Conveyance Facilities - Pump Stz	Building Construction	Off-Highway Trucks	2	8	402	0.38	63	153,982
Conveyance Facilities - Pump Stz	Building Construction	Other Construction Equipme	1	8	172	0.42	63	36,409
Conveyance Facilities - Pump Stz	Building Construction	Plate Compactors	1	8	8	0.43	63	1,734
Conveyance Facilities - Pump Stz	Building Construction	Tractors/Loaders/Backhoes	2	8	97	0.37	63	36,177
Conveyance Facilities - Pump Stz	Paving	Cement and Mortar Mixers	4	8	9	0.56	3	484
Conveyance Facilities - Pump Stz	Paving	Pavers	1	8	130	0.42	3	1,310
Conveyance Facilities - Pump Stz	Paving	Rollers	1	8	80	0.38	3	730
Conveyance Facilities - Pump Stz	Paving	Tractors/Loaders/Backhoes	2	8	97	0.37	3	1,723
Monitoring Wells	Grading	Bore/Drill Rigs	1	8	221	0.5	6	5,304
Monitoring Wells	Grading	Concrete/Industrial Saws	0	8	81	0.73	6	-
Monitoring Wells	Grading	Off-Highway Trucks	1	8	402	0.38	6	7,332
Monitoring Wells	Grading	Rubber Tired Dozers	0	1	247	0.4	6	-
Monitoring Wells	Grading	Tractors/Loaders/Backhoes	0	6	97	0.37	6	-
Monitoring Wells	Building Construction	Air Compressors	1	8	78	0.48	12	3,594
Monitoring Wells	Building Construction	Cranes	0	4	231	0.29	12	-
Monitoring Wells	Building Construction	Forklifts	0	6	89	0.2	12	-
Monitoring Wells	Building Construction	Generator Sets	1	8	84	0.74	12	5,967
Monitoring Wells	Building Construction	Tractors/Loaders/Backhoes	0	8	97	0.37	12	-
Recharge Facilities	Site Preparation	Off-Highway Trucks	1	8	402	0.38	22	26,886
Recharge Facilities	Site Preparation	Rubber Tired Dozers	0	8	247	0.4	22	-
Recharge Facilities	Site Preparation	Scrapers	1	8	367	0.48	22	31,004

Recharge Facilities	Site Preparation	Tractors/Loaders/Backhoes	3	8	97	0.37	22	18,950
Recharge Facilities	Grading	Excavators	1	8	158	0.38	65	31,221
Recharge Facilities	Grading	Graders	0	8	187	0.41	65	-
Recharge Facilities	Grading	Off-Highway Trucks	1	8	402	0.38	65	79,435
Recharge Facilities	Grading	Other Construction Equipme	1	8	172	0.42	65	37,565
Recharge Facilities	Grading	Plate Compactors	1	8	8	0.43	65	1,789
Recharge Facilities	Grading	Rubber Tired Dozers	0	8	247	0.4	65	-
Recharge Facilities	Grading	Scrapers	1	8	367	0.48	65	91,603
Recharge Facilities	Grading	Tractors/Loaders/Backhoes	3	8	97	0.37	65	55,988
Treatment Facilities	Site Preparation	Excavators	1	8	158	0.38	10	4,803
Treatment Facilities	Site Preparation	Graders	0	8	187	0.41	10	-
Treatment Facilities	Site Preparation	Off-Highway Trucks	1	8	402	0.38	10	12,221
Treatment Facilities	Site Preparation	Scrapers	0	8	367	0.48	10	-
Treatment Facilities	Site Preparation	Tractors/Loaders/Backhoes	2	8	97	0.37	10	5,742
Treatment Facilities	Grading	Excavators	1	8	158	0.38	57	27,378
Treatment Facilities	Grading	Graders	0	8	187	0.41	57	-
Treatment Facilities	Grading	Off-Highway Trucks	1	8	402	0.38	57	69,659
Treatment Facilities	Grading	Other Construction Equipme	1	8	172	0.42	57	32,941
Treatment Facilities	Grading	Plate Compactors	1	8	8	0.43	57	1,569
Treatment Facilities	Grading	Rubber Tired Dozers	0	8	247	0.4	57	-
Treatment Facilities	Grading	Tractors/Loaders/Backhoes	2	8	97	0.37	57	32,732
Treatment Facilities	Building Construction	Cranes	2	8	231	0.29	113	121,118
Treatment Facilities	Building Construction	Forklifts	0	7	89	0.2	113	-
Treatment Facilities	Building Construction	Generator Sets	0	8	84	0.74	113	-
Treatment Facilities	Building Construction	Off-Highway Trucks	2	8	402	0.38	113	276,190
Treatment Facilities	Building Construction	Other Construction Equipme	1	8	172	0.42	113	65,305
Treatment Facilities	Building Construction	Plate Compactors	1	8	8	0.43	113	3,110
Treatment Facilities	Building Construction	Tractors/Loaders/Backhoes	2	8	97	0.37	113	64,889
Treatment Facilities	Building Construction	Welders	0	8	46	0.45	113	-
Treatment Facilities	Paving	Cement and Mortar Mixers	1	8	9	0.56	5	202
Treatment Facilities	Paving	Pavers	1	8	130	0.42	5	2,184
Treatment Facilities	Paving	Paving Equipment	1	8	132	0.36	5	1,901
Treatment Facilities	Paving	Rollers	1	8	80	0.38	5	1,216
Treatment Facilities	Paving	Tractors/Loaders/Backhoes	2	8	97	0.37	5	2,871
							<b>Total &gt;100</b>	1,477,889
							<b>Total &lt;100</b>	322,913



Tehachapi GW Sustainability  
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		

Tehachapi GW Sustainability  
Construction Energy

Construction Water Energy Estimates

Source	Acreage	Number of Days	Total Construction Water Use (Mgal)	Electricity Demand from Water Conveyance (MWh)	Annual Electricity Demand from Water Conveyance (MWh)	Mgal Per Construction Day	
Treatment Facilities							
Site Preparation	2.0	10	0.060	0.8	0.6	6,000	
Grading/Excavation	2.0	57	0.342	4.5	3.6	6,000	
Recharge Facilities							
Site Preparation	8.3	22	0.548	7.1	5.7	24,924	
Grading/Excavation	8.3	65	1.620	21.1	17.0	24,924	
Conveyance Facilities							
Conveyance Facilities - Pipelines							
Trenching/Excavation/Shoring	0.2	26	0.019	0.2	0.2	727	
Conveyance Facilities - Pump Stations							
Site Preparation	0.11	5	0.002	0.0		344	
Grading/Excavation	0.11	31	0.011	0.1	0.1	344	
Monitoring Wells							
Drilling/Grading	0.01	6	0.000	0.0		30	
Total			2.602	33.9	27.2	11,720	Average

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)
4.52	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

# Operations

## **Assumptions and Calculations**

Tehachapi GW Sustainability  
Operational Energy Demand

Electricity	kWh/yr	MWh/yr
Treatment Facilities	1,650,000	1,650.000
Pump Stations	850,000	850.000
Total Building Energy	2,500,000	2,500.0
Total	2,500,000	2,500
Total (including water, see below)	2,891,065	2,891

Source: California Air Resources Board, CalEEMod, Version 2016.3.2.

Water	Mgal/yr	MWh/yr
Treatment Facilities	29.14	379.43
Pump Stations	0.00	-
#REF!	0.89	11.64
Total	30.033	391.07
Electricity Intensity Factors		kWh/Mgal
Electricity Factor - Supply		9,727
Electricity Factor - Treat		111
Electricity Factor - Distribute		1,272
Electricity Factor - Wastewater Treatment		1,911
Electricity from Water Demand		kWh/yr
Total		391,065.04
		MWh/yr
		391.065

Source: California Air Resources Board, CalEEMod, Version 2016.3.2.

Water Demand based on Project Water supply Assessment

Sewage Facilities Charge, Sewage Generation Factor for Residential and Commercial Categories, 2012.

Natural Gas	kBtu/yr	cubic foot (cf)
Treatment Facilities	2,263,190	2,186,657
Pump Stations	1,651,490	1,595,643
Total	3,914,680	3,782,300

Source: California Air Resources Board, CalEEMod, Version 2016.3.2.

Conversion factor of 1,035 Btu per cubic foot based on United States Energy Information Administration data

(see: USEIA, Natural Gas, Heat Content of Natural Gas Consumed, February 28, 2018,

[https://www.eia.gov/dnav/ng/ng\\_cons\\_heat\\_a\\_EPG0\\_VGTH\\_btucf\\_a.htm](https://www.eia.gov/dnav/ng/ng_cons_heat_a_EPG0_VGTH_btucf_a.htm). Accessed March 2020.)

Electricity	MWh/yr
Total SCE, 2019	84,654,000
Project Annual	2,891.1
Net Project Annual	2,891.1
Percent Net Project of SCE	0.0034%

Source: Southern California Edison 2019 Annual Report. <https://docs.cpuc.ca.gov>

Natural Gas	million cubic foot (cf)
SoCalGas 2022	896,805
Project Annual	3.78
Existing Annual	-
Net Project Annual	3.78
Percent Net Project of SoCalGas	0.0004%

Source: California Gas and Electric Utilities, 2020 California Gas Report, p. 144,2020.

Tehachapi GW Sustainability  
 Operational Energy Analysis  
 Fuel Usage from VMT

Annual VMT: 7,884 passenger  
 175 trucks

Fuel Type: <sup>1</sup>	GAS	DSL
Miles per Gallon Fuel:	27.3	6.3
Annual VMT by Fuel Type (miles):	7,884	175
Annual Fuel Usage (gallons):	289	28

	Kern County Fuel Consumption <sup>2</sup>	
	Gasoline	Diesel
Kern County:	392,000,000	222,457,627
Mobile	289	28
Emergency Generators	-	11,461
Total	289	11,489
Percent Net Project of Los Angeles County:	0.0001%	0.00516%

Notes:

- California Air Resources Board, EMFAC2021 (Kern County APCD; Annual; 2024', Aggregate Fleet).
- California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2019. Available at: [https://ww2.energy.ca.gov/almanac/transportation\\_data/gasoline/piira\\_retail\\_survey.html](https://ww2.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html). Diesel is adjusted to account for retail (47.2%) and non-retail (52.8%) diesel sales.

Step1 Emergency Generator

Ratings:	750	HP	(Source: Project Description)
Load Factor:	0.74		(based on CalEEMod Generator Set Load Factor)
Number of Generators:	2		
Operating Hours per Unit:	2	hours/day	(testing/maintenance -max daily. Number of hours permitted for testing and maintenance consistent with BAAQMD Regulation 9-8-330.3)
Operating Hours per year:	200	hours/year	
Horsepower-hours per year	222,000	hp-hr/year	
Pounds diesel fuel/hp-hr (lb/hp-hr): <sup>1</sup>	0.367	lb/hp-hr	<a href="#">OFFROAD2017 Emission Factor Documentation</a>
diesel density (lb/gal): <sup>1</sup>	7.11	lb/gal	<a href="#">OFFROAD2017 Emission Factor Documentation</a>
diesel gallons/hp-hr:	0.0516	gal/hp-hr	
Diesel Gallons per year	11,461	gal/year	

# Appendix GHG

## **Project Greenhouse Gas Emissions Calculations**



# Appendix A

## **Assumptions and Calculations**



Project Land Uses						
Land Use Type	CalEEMod LandUse Type	CalEEMod LandUse Subtype	Amount	Unit	Building sq.ft.	Acreage
Treatment Facilities	Industrial	General Light Industry	37.6	1000sqft	37,600	2.00
Recharge Facilities/Basin	Parking	Other Non-Asphalt Surface	8.308	acres	361,896	8.308
Conveyance Facilities	Parking	Other Non-Asphalt Surface	15.56	1000sqft	15,560	0.36
Pump station (effluent)	Parking	Other Non-Asphalt Surface	2.5	1000sqft	2,500	0.06
Pump station (borrow pit)	Parking	Other Non-Asphalt Surface	2.5	1000sqft	2,500	0.06
Pipeline	Parking	Other Non-Asphalt Surface	10.56	1000sqft	10,560	0.24
Total					415,056	

Construction Schedule - Overview		
Start	End	Total Duration (days)
1/1/2022	2/28/2023	423
Total Construction Site Area (acres)		

## Construction Schedule - Detail

Construction Phase	CalEEMod Phase Type	Start Date	End Date	Total Calendar Days	Workdays (5 days/week)	Workdays (5 days/week)	Worker Trips/Max Day (In/Out)	Vendor Trips/Max Day (In/Out)	Total Haul Trips (In/Out)	Max Daily Haul Trucks/Day	Max Daily Haul Trips/Day (In/Out)
Treatment Facilities		1/1/2022	9/30/2022	272		195					
Site Preparation	Site Preparation	1/1/2022	1/14/2022	13	10	10	50	0	1,614	81	162
Grading/Excavation	Grading/Excavation	1/15/2022	4/5/2022	80	57	57	50	0	12,908	114	227
Building Construction - Installation of Facilities	Building Construction	4/6/2022	9/9/2022	156	113	113	50	8	0	0	0
Paving	Paving	9/10/2022	9/16/2022	6	5	5	50	130	0	0	0
Testing/Start Up	Testing/Start Up	9/17/2022	9/30/2022	13	10	10	10	0	0	0	0
						195					
Recharge Facilities		10/1/2022	1/31/2023	122	87	87					
Site Preparation	Site Preparation	10/1/2022	11/1/2022	31	22	22	20	0	6,702	153	305
Grading/Excavation	Grading/Excavation	11/2/2022	1/31/2023	90	65	65	20	0	2,682	21	42
		11/2/2022	12/31/2022	59	43	43	20		1,774	21	42
		1/1/2023	1/31/2023	30	22	22	20		908	21	42
						87					
Conveyance Facilities											
Conveyance Facilities - Pipelines		10/1/2022	1/31/2023	122	87	87					
Trenching/Excavation/Shoring	Grading/Excavation	10/1/2022	11/7/2022	37	26	26	20	0	50	1	2
Building Construction - Installation of Pipelines/	Building Construction	11/8/2022	1/19/2023	72	53	53	20	2	0	0	0
		11/8/2022	12/31/2022	53	39	39	20	2			
		1/1/2023	1/19/2023	18	14	14	20	2			
Site Restoration/Paving	Paving	1/20/2023	1/24/2023	4	3	3	20	28	0	0	0
Testing	Testing/Start Up	1/25/2023	1/31/2023	6	5	5	10	0	0	0	0
						87					
Conveyance Facilities - Pump Stations		10/1/2022	2/28/2023	150	107	107					
Site Preparation	Site Preparation	10/1/2022	10/7/2022	6	5	5	20	0	48	5	10
Grading/Excavation	Grading/Excavation	10/8/2022	11/21/2022	44	31	31	20	0	278	5	9
Building Construction - Installation	Building Construction	11/22/2022	2/16/2023	86	63	63	20	2	0	0	0
		11/22/2022	12/31/2022	39	29	29	20	2			
		1/1/2023	2/16/2023	46	34	34	20	2			
Paving	Paving	2/17/2023	2/21/2023	4	3	3	20	8	0	0	0
Testing/Start Up	Testing/Start Up	2/22/2023	2/28/2023	6	5	5	10	0	0	0	0
						107					

Tehapachi GSP  
Construction Equipment List  
Treatment Facilities

	Off-Road Equipment	Number	Hours Per Day	Notes
Site Preparation	Excavator	1	8	
	Haul Truck	81	8	Dump Truck, Modeled Outside CalEEMod
	Tractor/Loader/Backhoe	2	8	
	Off-Highway Truck	1	8	water truck
Grading/Excavation	Excavator	1	8	
	Haul Truck	113.5	8	Dump Truck, Modeled Outside CalEEMod
	Off-Highway Truck	1	8	water truck
	Plate Compactor	1	8	
	Other Construction Equipment	1	8	shoring equipment
	Tractor/Loader/Backhoe	2	8	
Building Construction - Installation of Facilities	Crane	2	8	
	Off-Highway Truck	2	8	water truck, pipe trailer
	Other Construction Equipment	1	8	shoring equipment
	Plate Compactor	1	8	
	Tractor/Loader/Backhoe	2	8	
Paving	Tractor/Loader/Backhoe	2	8	
	Paver	1	8	
	Paving Equipment	1	8	
	Cement and Morter Mixer	1	8	
	Roller	1	8	
Testing/Start Up				

Worker/Vendors Amounts

Phase	# of workers <sup>1</sup>	# of worker trips/day (In/Out)	Vendor Trips/day (In/Out)
Site Preparation	25	50	0
Grading/Excavation	25	50	0
Building Construction - Installation of F	25	50	8
Paving	25	50	130
Testing/Start Up	5	10	0

Site Preparation

Parameters	Amount	
Site Area (acres)	2.00	
Site Area (ft <sup>2</sup> )	87,120	
Area of Site Prep	43,560	
Site Prep Depth (ft)	5	conservative estimate ESA
<b>Site Prep Debris (CY)</b>	<b>8,067</b>	
Haul Truck Capacity (CY)	10	conservative estimate ESA
Total Haul Trucks Required	807	
Site Prep Hauling Days	10	
<b>Total Haul Truck Trips (In/Out)</b>	<b>1,614</b>	
Total Haul Truck Trips (In/Out) per day	162	

Excavation Quantities

Parameters	Amount	
Site Area (acres)	2.00	
Site Area (ft <sup>2</sup> )	87,120	
Grading Depth (ft)	20	From project PD
<b>Excavation Volume (Export) (CY)</b>	<b>64,533</b>	conservative estimate ESA
Haul Truck Capacity (CY)	10	
Total Haul Trucks Required	6,454	
Excavation Hauling Days	57	
<b>Total Haul Truck Trips (In/Out)</b>	<b>12,908</b>	
Total Haul Truck Trips (In/Out) per day	227	

Paving Asphalt Quantities

Parameters	Amount	
Area of Paving (acres)	2.00	From construction data needs
Thickness (ft)	1.00	Assumption by ESA
<b>Required Asphalt Volume (CY)</b>	<b>3,227</b>	
Asphalt Truck Capacity (CY)	10	
Total Asphalt Trucks Required	323	
Total Asphalt Truck Trips (In/Out)	646	
Paving Days	5	
Total Paving Truck Trips (In/Out) per day	130	Included as vendor truck trips during paving phase.

Tehapachi GSP  
Construction Equipment List  
Recharge Facilities

	Off-Road Equipment	Number	Hours Per Day	Notes
Site Preparation	Haul Truck	1	8	Dump Truck, Modeled Outside CalEEMod water truck
	Tractor/Loader/Backhoe	3	8	
	Scraper	1	8	
	Off-Highway Truck	1	8	
Grading/Excavation	Excavator	1	8	Dump Truck, Modeled Outside CalEEMod water truck
	Haul Truck	21	8	
	Off-Highway Truck	1	8	
	Other Construction Equipment	1	8	
	Plate Compactor	1	8	
	Scraper	1	8	
	Tractor/Loader/Backhoe	3	8	

Worker/Vendors Amounts

Phase	# of workers <sup>1</sup>	# of worker trips/day (In/Out)	Vendor Trips/day (In/Out)
Site Preparation	10	20	0
Grading/Excavation	10	20	0

Site Preparation

Parameters	Amount
Site Area (acres)	8.308
Site Area (ft <sup>2</sup> )	361,896
Area of Site Prep	180,948
Site Prep Depth (ft)	5
<b>Site Prep Debris (CY)</b>	<b>33,509</b>
Haul Truck Capacity (CY)	10
Total Haul Trucks Required	3,351
Site Prep Hauling Days	22
<b>Total Haul Truck Trips (In/Out)</b>	<b>6,702</b>
Total Haul Truck Trips (In/Out) per day	305

conservative estimate ESA

conservative estimate ESA

Excavation Quantities

Parameters	Amount
Site Area (acres)	8.31
Site Area (ft <sup>2</sup> )	361,896
Grading Depth (ft)	10
<b>Excavation Volume (Export) (CY)</b>	<b>13,404</b>
Haul Truck Capacity (CY)	10
Total Haul Trucks Required	1,341
Excavation Hauling Days	65
<b>Total Haul Truck Trips (In/Out)</b>	<b>2,682</b>
Total Haul Truck Trips (In/Out) per day	42

From project PD

Conservatively assumed 10% of grading/excavation volume exported. The rest balance on :  
conservative estimate ESA

Tehapachi GSP  
Construction Equipment List  
Conveyance Facilities - Pipelines

	Off-Road Equipment	Number	Hours Per Day	Notes
Trenching/Excavation/Shoring	Concrete/Industrial Saw	1	8	not currently in equipment list Dump Truck, Modeled Outside CalEEMod water truck
	Excavator	1	8	
	Haul Truck	2	8	
	Off-Highway Truck	1	8	
	Plate Compactor	1	8	
	Other Construction Equipment	1	8	
	Tractor/Loader/Backhoe	2	8	
Building Construction - Installation of Pipelines/Backfill	Crane	1	8	not currently in equipment list water truck, pipe trailer shoring equipment
	Off-Highway Truck	2	8	
	Other Construction Equipment	1	8	
	Plate Compactor	1	8	
	Tractor/Loader/Backhoe	2	8	
Site Restoration/Paving	Tractor/Loader/Backhoe	2	8	not currently in equipment list not currently in equipment list not currently in equipment list
	Paver	1	8	
	Cement and Morter Mixer	4	8	
	Roller	1	8	
Testing/Start Up				

**Worker/Vendors Amounts**

Phase	# of workers <sup>1</sup>	# of worker trips/day (In/Out)	Vendor Trips/day (In/Out)
Trenching/Excavation/Shoring	10	20	0
Building Construction - Installation of Pipelines/Backfill	10	20	2
Site Restoration/Paving	10	20	28
Testing/Start Up	5	10	0

**Excavation Quantities**

Parameters	Amount
Excavation Volume (Export) (CY)	250
Haul Truck Capacity (CY)	10
Total Haul Trucks Required	25
Excavation Hauling Days	26
<b>Total Haul Truck Trips (In/Out)</b>	<b>50</b>
Total Haul Truck Trips (In/Out) per day	2

From project PD  
conservative estimate ESA

**Paving Asphalt Quantities**

Parameters	Amount
Area of Paving (acres)	0.24
Thickness (ft)	1.00
<b>Required Asphalt Volume (CY)</b>	<b>392</b>
Asphalt Truck Capacity (CY)	10
Total Asphalt Trucks Required	40
Total Asphalt Truck Trips (In/Out)	80
Paving Days	3
Total Paving Truck Trips (In/Out) per day	28

From construction data needs  
Assumption by ESA  
  
conservative estimate ESA  
  
Included as vendor truck trips during paving phase.

Tehapachi GSP  
Construction Equipment List  
Conveyance Facilities - Pump Stations  
Equipment for 1 Pump Station

	Off-Road Equipment	Number	Hours Per Day	Notes
Site Preparation	Excavator	1	8	
	Haul Truck	5	8	
	Tractor/Loader/Backhoe	2	8	
	Off-Highway Truck	1	8	water truck
Grading/Excavation	Excavator	1	8	
	Tractor/Loader/Backhoe	2	8	
	Haul Truck	4.5	8	Dump Truck, Modeled Outside CalEEMod
	Off-Highway Truck	1	8	Water Truck
	Other Construction Equipment	1	8	
Building Construction - Installation	Crane	1	8	not currently in equipment list
	Off-Highway Truck	2	8	water truck, pipe trailer
	Other Construction Equipment	1	8	shoring equipment
	Plate Compactor	1	8	
	Tractor/Loader/Backhoe	2	8	
Paving	Tractor/Loader/Backhoe	2	8	
	Paver	1	8	not currently in list
	Cement and Morter Mixer	4	8	not currently in list
	Roller	1	8	not currently in list
Testing/Start Up				

Worker/Vendors Amounts

Phase	# of workers <sup>1</sup>	# of worker trips/day (In/Out)	Vendor Trips/day (In/Out)
Site Preparation	10	20	0
Grading/Excavation	10	20	0
Building Construction - Installation	10	20	2
Paving	10	20	8
Testing/Start Up	5	10	0

Assumptions for 1 Pump Station

Parameters	Amount	
Site Area (acres)	0.06	From project PD
Site Area (ft <sup>2</sup> )	2,500	
Area of Site Prep	1,250	
Site Prep Depth (ft)	5	conservative estimate ESA
Site Prep Debris (CY)	231	
Haul Truck Capacity (CY)	10	conservative estimate ESA
Total Haul Trucks Required	24	
Site Prep Hauling Days	5	From construction data needs
Total Haul Truck Trips (In/Out)	48	
Total Haul Truck Trips (In/Out) per day	10	

Excavation Quantities

Parameters	Amount	
Site Area (ft <sup>2</sup> )	2,500	From project PD
Grading Depth (ft)	15	From project PD
Excavation Volume (Export) (CY)	1,389	
Haul Truck Capacity (CY)	10	conservative estimate ESA
Total Haul Trucks Required	139	
Excavation Hauling Days	31	
Total Haul Truck Trips (In/Out)	278	
Total Haul Truck Trips (In/Out) per day	9	

Paving Asphalt Quantities

Parameters	Amount	
Area of Paving (acres)	0.06	From project PD
Thickness (ft)	1.00	Assumption by ESA
Required Asphalt Volume (CY)	93	
Asphalt Truck Capacity (CY)	10	conservative estimate ESA
Total Asphalt Trucks Required	10	
Total Asphalt Truck Trips (In/Out)	20	
Paving Days	3	
Total Paving Truck Trips (In/Out) per day	8	Included as vendor truck trips during paving phase.

Tehachapi GSP

Construction Annual GHG

Year	Metric Tons/Year			Total
	On-Road Mobile Sources	CalEEMod	Water + Construction Office	
2022	1,277	820	7	2,104
2023	60	169	1	231
<b>Total</b>	<b>1,337</b>	<b>989</b>	<b>8</b>	<b>2,335</b>
<b>Amortized - 30 years</b>	<b>45</b>	<b>33</b>	<b>0.3</b>	<b>78</b>

Tehachapi GSP  
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 (MT CO2e/MWh)	Electricity Emission Factor (lbs CO2e/MWh)
General Office	1,000	12,990	1.16	15,054	2.58	0.17	377.15
Note: CalEEMod 2016.3.2 used to estimate energy use for temporary construction office							



**Tehachapi GSP**  
**Construction Energy**

**Construction Water Energy GHG Emissions**

Source	Acreage	Number of Days	Total Construction Water Use (Mgal)	Electricity Demand from Water Conveyance (MWh)	Annual Electricity Demand from Water Conveyance (MWh)	Mgal Per Construction Day
Treatment Facilities						
Site Preparation	2.0	10	0.060	0.8	0.8	6,000
Grading/Excavation	2.0	57	0.342	4.5	4.5	6,000
Recharge Facilities						
Site Preparation	8.3	22	0.548	7.1	7.1	24,924
Grading/Excavation	8.3	65	1.620	21.1	21.1	24,924
Conveyance Facilities						
Conveyance Facilities - Pipelines						
Trenching/Excavation/Shoring	0.2	26	0.019	0.2	0.2	727
Conveyance Facilities - Pump Stations						
Site Preparation	0.11	5	0.002	0.0	0.0	344
Grading/Excavation	0.11	31	0.011	0.1	0.1	344
Monitoring Wells						
Drilling/Grading					0.0	
Total			2.602	33.9	33.9	12,045
Average						
				33876.655	33876.655	
CalEEMod Water Electricity Factors	Factor To Supply	Treat (kWh/Mgal)	To Distribute (kWh/Mgal)	Factor For Wastewater		
	9727	111	1272	1911		

Construction Water GHG	Electricity Emission	Electricity Emission
5.63	(MT CO <sub>2</sub> e/MWh)	(lbs CO <sub>2</sub> e/MWh)
	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

Tehachapi GSP

*Operational Emissions For the First Full Year of Operations In Year 2024  
in Metric Tons/Year*

		MTCO <sub>2</sub> e/yr
Year	Category	Total
Operations 2024		
	Mobile	3
	Area	0
	Electricity	403
	Natural Gas	34
	Waste	12
	Water	30
	Emergency Generator	118
Construction - Amortized 30 Years		78
Year 2024 Total		677

Tehapachi GSP  
Energy Consumption - GHG Emissions  
Wells and Pump Stations

Estimated GHG Emissiosn from Electricity demand from Wells and Pump Stations

Land Use Type		Electricity Demand (kWh/yr)
Treatment Facilities		1,650,000
Pump Stations		850,000
		2,500,000

- Notes:
- a. AF/year for well and pump station from PD
  - b. Number of wells and pump stations from PD
  - c. Electricity consumption kwh/AF based on values from PD

Year	Source	GHG Emissions (lbs/yr)		
		Electricity Demand (million kWh)	CO2e	MTCO2e (MT/yr)
2023	Total Energy Consumption	2.5000	888,148.85	402.9

Year 2023	
GHG	Intensity factor (lbs/MWh)
CO2	355.26

**Tehapachi GSP****Air Quality and Greenhouse Gas Assessment****Title 24 Energy Savings Adjustment**

## Non-Residential

% savings over Title 24 (2019)

		% savings over Title 24 (2016)		
		Electricity	Lighting	NG
		Non-Residential: 10.7%	0%	1%
0%		10.7%	0.0%	1.0%
5%		15.2%	5.0%	6.0%
10%		19.6%	10.0%	10.9%
15%		24.1%	15.0%	15.9%

## Residential

% savings over Title 24 (2019)

		% savings over Title 24 (2016)		
		Electricity	Lighting	NG
		Multi-Family without PV: 2%	0%	5%
0%		2.0%	0.0%	5.0%
5%		6.9%	5.0%	9.8%
10%		11.8%	10.0%	14.5%
15%		16.7%	15.0%	19.3%

**Project Energy Use Factors Adjustment**

Non-Residential % savings over Title 24 (2016) =

Residential % savings over Title 24 (2016) =

Electricity	Lighting	NG
10.7%	0.0%	1.0%
2.0%	0.0%	5.0%

	T24 Electricity	NT24 Electricity	Lighting Electricity	T24 NG	NT24 NG
<b>Title 24 (2016 - CalEEMod Default)</b>					
<b>Project Non-Residential Land Uses</b>	T24 Electricity	NT24 Electricity	Lighting Electricity	T24 NG	NT24 NG
General Light Industry	0.40	1.31	0.65	16.68	0.12
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
<b>Project Residential Land Uses</b>					
N/A	-	-	-	-	-
<b>Title 24 (2019)</b>					
<b>Project Non-Residential Land Uses</b>	T24 Electricity	NT24 Electricity	Lighting Electricity	T24 NG	NT24 NG
General Light Industry	0.36	1.31	0.65	16.51	0.12
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
<b>Project Residential Land Uses</b>					
N/A	-	-	-	-	-

## Sources:

California Emissions Estimator Model (CalEEMod), version 2016.3.2.

California Energy Commission, Impact Analysis, 2019 Update to the California Energy Efficiency Standards for Residential and Non-Residential Buildings, Section 1.2 (Non-Residential), Table 19 (Multi-Family without PV), June 29, 2018. Available:

[https://ww2.energy.ca.gov/title24/2019standards/post\\_adoption/documents/2019\\_Impact\\_Analysis\\_Final\\_Report\\_2018-06-29.pdf](https://ww2.energy.ca.gov/title24/2019standards/post_adoption/documents/2019_Impact_Analysis_Final_Report_2018-06-29.pdf). Accessed January 2020.

Tehapachi GSP

Utility Provider: SCE

CO2 Intensity Factor RPS under SB100

Year	RPS Mandate	Electricity Emission Factor (MT CO2e/MWh)	Electricity Emission Factor (lbs CO2e/MWh)
Base	Base	0.2789	614.84863
2019	35.10%	0.181	399.03676
Base	0%	0.2789	614.85
2019	35.10%	0.1810	399.04
2020	36.88%	0.1760	388.09
2021	38.66%	0.1711	377.15
2022	40.44%	0.1661	366.20
2023	42.22%	0.1611	355.26
2024	44.00%	0.1562	344.32
2025	46.67%	0.1487	327.92
2026	49.33%	0.1413	311.52
2027	52.00%	0.1339	295.13
2028	54.67%	0.1264	278.73
2029	57.33%	0.1190	262.34
2030	60.0%	0.1116	245.94
2031	62.7%	0.1041	229.54
2032	65.3%	0.0967	213.15
2033	68.0%	0.0892	196.75
2034	70.7%	0.0818	180.36
2035	73.3%	0.0744	163.96
2036	76.0%	0.0669	147.56
2037	78.7%	0.0595	131.17
2038	81.3%	0.0521	114.77
2039	84.0%	0.0446	98.38
2040	86.7%	0.0372	81.98
2041	89.3%	0.0297	65.58
2042	92.0%	0.0223	49.19
2043	94.7%	0.0149	32.79
2044	97.3%	0.0074	16.40
2045	100%	0	0
2046	100%	0	0
2047	100%	0	0
2048	100%	0	0
2049	100%	0	0
2050	100%	0	0
2051	100%	0	0
2052	100%	0	0
2053	100%	0	0

<sup>1</sup> Southern California Edison, 2020. ESG/Sustainability Template. Report date: 10/30/20. Available: <https://www.edison.com/content/dam/eix/documents/sustainability/eix-esg-pilot-quantitative-section-sce.pdf>. Accessed April 5, 2019.

<sup>2</sup> SCE 2019 Power Content Label [https://www.sce.com/sites/default/files/inline-files/SCE\\_2019PowerContentLabel.pdf](https://www.sce.com/sites/default/files/inline-files/SCE_2019PowerContentLabel.pdf)

<sup>3</sup> [SB-100 California Renewables Portfolio Standard Program: Emissions of Greenhouse Gases.](https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201720180)  
[https://leginfo.ca.gov/faces/billNavClient.xhtml?bill\\_id=201720180](https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201720180)

## Tehachapi - Treatment Facilities

### Total On-Road Emissions

## Tehachapi - Treatment Facilities

### 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 (MT/yr) Total CO2e	
<u>Site Preparation</u>	2022						
Total Haul Trips	1614						
Hauling	162	10	8	20	15	78.86	
Vendor	0	10	8	7.3	15	0.00	
Worker	50	10	8	10.8	0	1.73	
					Total		80.58
<u>Grading Excavation</u>	2022						
Total Haul Trips	12908						
Hauling	227	57	8	20	15	629.84	
Vendor	0	57	8	7.3	15	0.00	
Worker	50	57	8	10.8	0	9.84	
					Total		639.67
<u>Building Construction</u>	2022						
Total Haul Trips	0						
Hauling	0	113	8	20	15	0.00	
Vendor	8	113	8	7.3	15	17.25	
Worker	50	113	8	10.8	0	19.50	
					Total		36.75
<u>Pavings</u>	2022						
Total Haul Trips	646						
Hauling	130	5	8	20	15	31.64	
Vendor	130	5	8	7.3	15	12.40	
Worker	50	5	8	10.8	0	0.86	
					Total		44.90
<u>Testing/Start Up</u>	2022						
Total Haul Trips	0						
Hauling	0	10	8	20	15	0.00	
Vendor	0	10	8	7.3	15	0.00	
Worker	10	10	8	10.8	0	0.35	
					Total		0.35

Tehachapi - Treatment Facilities  
Running Emissions

Running Emissions Factor			
(grams/mile)			
	CO2	CH4	N2O
2021Hauling Hauling	1601.9751	0.00365203	0.25247486
2021Vendor Vendor	1430.67577	0.00761584	0.20193174
2021Worker Worker	323.382435	0.00573979	0.00972612
2022Hauling Hauling	1585.23164	0.00269138	0.24982933
2022Vendor Vendor	1417.55735	0.00558392	0.19980638
2022Worker Worker	316.897732	0.00515466	0.00890394
2023Hauling Hauling	1563.84855	0.0012272	0.24639969
2023Vendor Vendor	1400.8234	0.00379198	0.19713192
2023Worker Worker	310.14696	0.00461456	0.00815584
2024Hauling Hauling	1536.23113	0.00116585	0.24204805
2024Vendor Vendor	1377.75505	0.00311443	0.19381542
2024Worker Worker	302.998724	0.00413128	0.00749097
GWP	1	25	290

Construction Phase	Daily	Haul Days per Phase	Work Hours per Day	One-Way Trip Distance per Day (miles)	Regional Emissions			
	One-Way Trips				(MT/year)			
					CO2	CH4	N2O	CO2e
<u>Site Prepration</u>		2022						
Total Haul Trips	1614							
Hauling	162	10	8	20	51.36	0.00	2.35	53.71
Vendor	0	10	8	7.3	0.00	0.00	0.00	0.00
Worker	50	10	8	10.8	1.71	0.00	0.01	1.73
<u>Grading/Excavation</u>		2022						
Total Haul Trips	12908							
Hauling	227	57	8	20	410.23	0.02	18.75	428.99
Vendor	0	57	8	7.3	0.00	0.00	0.00	0.00
Worker	50	57	8	10.8	9.75	0.00	0.08	9.84
<u>Building Construction</u>		2022						
Total Haul Trips	0							
Hauling	0	113	8	20	0.00	0.00	0.00	0.00
Vendor	8	113	8	7.3	9.35	0.00	0.38	9.74
Worker	50	113	8	10.8	19.34	0.01	0.16	19.50
<u>Pavings</u>		2022						
Total Haul Trips	646							
Hauling	130	5	8	20	20.61	0.00	0.94	21.55
Vendor	130	5	8	7.3	6.73	0.00	0.27	7.00
Worker	50	5	8	10.8	0.86	0.00	0.01	0.86
<u>Testing/Start Up</u>		2022						
Total Haul Trips	0							
Hauling	0	10	8	20	0.00	0.00	0.00	0.00
Vendor	0	10	8	7.3	0.00	0.00	0.00	0.00
Worker	10	10	8	10.8	0.34	0.00	0.00	0.35

Tehachapi - Treatment Facilities  
Idling Emissions

		Idling Emissions Factor (grams/minute)		
		CO2	CH4	N2O
2021	Hauling Hauling	999.021625	0.02478195	0.15746572
2021	Vendor Vendor	534.486361	0.01355826	0.08392645
2021	Worker Worker	0	0	0
2022	Hauling Hauling	989.008131	0.02415647	0.15588297
2022	Vendor Vendor	529.278854	0.01320316	0.08312553
2022	Worker Worker	0	0	0
2023	Hauling Hauling	952.698646	0.0203111	0.15011811
2023	Vendor Vendor	510.212	0.01124025	0.08011699
2023	Worker Worker	0	0	0
2024	Hauling Hauling	929.002142	0.02017248	0.1463846
2024	Vendor Vendor	498.062102	0.01113178	0.07821962
2024	Worker Worker	0	0	0
GWP		1	25	290

Construction Phase	Daily	Haul Days	Work Hours	Idling	Regional Emissions			
	One-Way	per Phase	per Day	minutes	(MT/year)			
	Trips			per Day	CO2	CH4	N2O	CO2e
		(days)	(hours/day)	(miles)				
<u>Site Prepration</u>								
	2022							
Total Haul Trips	1614							
Hauling	162	10	8	15	24.03	0.01	1.10	25.15
Vendor	0	10	8	15	0.00	0.00	0.00	0.00
Worker	50	10	8	0	0.00	0.00	0.00	0.00
<u>Grading/Excavation</u>								
	2022							
Total Haul Trips	12908							
Hauling	227	57	8	15	191.95	0.12	8.77	200.84
Vendor	0	57	8	15	0.00	0.00	0.00	0.00
Worker	50	57	8	0	0.00	0.00	0.00	0.00
<u>Building Construction</u>								
	2022							
Total Haul Trips	0							
Hauling	0	113	8	15	0.00	0.00	0.00	0.00
Vendor	8	113	8	15	7.18	0.00	0.33	7.51
Worker	50	113	8	0	0.00	0.00	0.00	0.00
<u>Pavings</u>								
	2022							
Total Haul Trips	646							
Hauling	130	5	8	15	9.64	0.01	0.44	10.09
Vendor	130	5	8	15	5.16	0.00	0.24	5.40
Worker	50	5	8	0	0.00	0.00	0.00	0.00
<u>Testing/Start Up</u>								
	2022							
Total Haul Trips	0							
Hauling	0	10	8	15	0.00	0.00	0.00	0.00
Vendor	0	10	8	15	0.00	0.00	0.00	0.00
Worker	10	10	8	0	0.00	0.00	0.00	0.00



## Tehachapi - Recharge Facilities

### Total On-Road Emissions

## Tehachapi - Recharge

### 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 (MT/yr) Total CO2e
<u>Site Prepration</u>	2022					
Total Haul Trips	6702					
Hauling	305	22	8	20	15	326.62
Vendor	0	22	8	7.3	15	0.00
Worker	20	22	8	10.8	0	1.52
					Total	328.14
<u>Grading Excavation</u>	2022					
Total Haul Trips	1774					
Hauling	42	43	8	20	15	87.91
Vendor	0	43	8	7.3	15	0.00
Worker	50	43	8	10.8	0	7.42
					Total	95.33
<u>Grading Excavation</u>	2023					
Total Haul Trips	908					
Hauling	42	22	8	20	15	44.04
Vendor	0	22	8	7.3	15	0.00
Worker	50	22	8	10.8	0	3.71
					Total	47.75

Tehachapi - Recharge Facilities  
Running Emissions

	Running Emissions Factor (grams/mile)		
	CO2	CH4	N2O
2021Hauling Hauling	1601.9751	0.00365203	0.25247486
2021Vendor Vendor	1430.67577	0.00761584	0.20193174
2021Worker Worker	323.382435	0.00573979	0.00972612
2022Hauling Hauling	1585.23164	0.00269138	0.24982933
2022Vendor Vendor	1417.55735	0.00558392	0.19980638
2022Worker Worker	316.897732	0.00515466	0.00890394
2023Hauling Hauling	1563.84855	0.0012272	0.24639969
2023Vendor Vendor	1400.8234	0.00379198	0.19713192
2023Worker Worker	310.14696	0.00461456	0.00815584
2024Hauling Hauling	1536.23113	0.00116585	0.24204805
2024Vendor Vendor	1377.75505	0.00311443	0.19381542
2024Worker Worker	302.998724	0.00413128	0.00749097
GWP	1	25	290

Construction Phase	Daily One-Way Trips	Haul Days per Phase	Work Hours per Day	One-Way Trip Distance per Day (miles)	Regional Emissions (MT/year)			
					CO2	CH4	N2O	CO2e
<u>Site Preparation</u>		2022						
Total Haul Trips	6702							
Hauling	305	22	8	20	212.74	0.01	9.72	222.47
Vendor	0	22	8	7.3	0.00	0.00	0.00	0.00
Worker	20	22	8	10.8	1.51	0.00	0.01	1.52
<u>Grading/Excavation</u>		2022						
Total Haul Trips	1774							
Hauling	42	43	8	20	57.26	0.00	2.62	59.88
Vendor	0	43	8	7.3	0.00	0.00	0.00	0.00
Worker	50	43	8	10.8	7.36	0.00	0.06	7.42
<u>Grading/Excavation</u>		2023						
Total Haul Trips	908							
Hauling	42	22	8	20	28.90	0.00	1.32	30.22
Vendor	0	22	8	7.3	0.00	0.00	0.00	0.00
Worker	50	22	8	10.8	3.68	0.00	0.03	3.71

Tehachapi - Recharge Facilities  
Idling Emissions

Idling Emissions Factor (grams/minute)			
	CO2	CH4	N2O
2021Hauling Hauling	999.021625	0.02478195	0.15746572
2021Vendor Vendor	534.486361	0.01355826	0.08392645
2021Worker Worker	0	0	0
2022Hauling Hauling	989.008131	0.02415647	0.15588297
2022Vendor Vendor	529.278854	0.01320316	0.08312553
2022Worker Worker	0	0	0
2023Hauling Hauling	952.698646	0.0203111	0.15011811
2023Vendor Vendor	510.212	0.01124025	0.08011699
2023Worker Worker	0	0	0
2024Hauling Hauling	929.002142	0.02017248	0.1463846
2024Vendor Vendor	498.062102	0.01113178	0.07821962
2024Worker Worker	0	0	0
GWP	1	25	290

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	Idling minutes per Day (miles)	Regional Emissions (MT/year)			
					CO2	CH4	N2O	CO2e
Site Prepration	2022							
Total Haul Trips	6702							
Hauling	305	22	8	15	99.54	0.06	4.55	104.15
Vendor	0	22	8	15	0.00	0.00	0.00	0.00
Worker	20	22	8	0	0.00	0.00	0.00	0.00
Grading Excavation	2022							
Total Haul Trips	1774							
Hauling	42	43	8	15	26.79	0.02	1.22	28.03
Vendor	0	43	8	15	0.00	0.00	0.00	0.00
Worker	50	43	8	0	0.00	0.00	0.00	0.00
Grading Excavation	2023							
Total Haul Trips	908							
Hauling	42	22	8	15	13.20	0.01	0.60	13.81
Vendor	0	22	8	15	0.00	0.00	0.00	0.00
Worker	50	22	8	0	0.00	0.00	0.00	0.00

# Tehachapi - Conveyance Facilities - Pump Stations

## Total On-Road Emissions

# Tehachapi -

## 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 (MT/yr) Total CO2e
<u>Site Preparation</u>	2022					
Total Haul Trips	48					
Hauling	10	5	8	20	15	2.43
Vendor	0	5	8	7.3	15	0.00
Worker	20	5	8	10.8	0	0.35
					Total	2.78
<u>Grading</u>	2022					
Total Haul Trips	278					
Hauling	9	31	8	20	15	13.58
Vendor	0	31	8	7.3	15	0.00
Worker	20	31	8	10.8	0	2.14
					Total	15.72
<u>Building Construction</u>	2022					
Total Haul Trips	0					
Hauling	0	29	8	20	15	0.00
Vendor	2	29	8	7.3	15	1.11
Worker	20	29	8	10.8	0	2.00
					Total	3.11
<u>Building Construction</u>	2023					
Total Haul Trips	0					
Hauling	0	34	8	20	15	0.00
Vendor	2	34	8	7.3	15	1.27
Worker	20	34	8	10.8	0	2.30
					Total	3.56
<u>Pavings</u>	2023					
Total Haul Trips	0					
Hauling	0	3	8	20	15	0.00
Vendor	8	3	8	7.3	15	0.45
Worker	20	3	8	10.8	0	0.20
					Total	0.65
<u>Testing/Start Up</u>	2023					
Total Haul Trips	0					
Hauling	0	5	8	20	15	0.00
Vendor	0	5	8	7.3	15	0.00
Worker	10	5	8	10.8	0	0.17
					Total	0.17

Tehachapi - Conveyance Facilities - Pump Stations  
Running Emissions

	Running Emissions Factor (grams/mile)		
	CO2	CH4	N2O
2021Hauling Hauling	1601.9751	0.003652	0.2524749
2021Vendor Vendor	1430.6758	0.0076158	0.2019317
2021Worker Worker	323.38244	0.0057398	0.0097261
2022Hauling Hauling	1585.2316	0.0026914	0.2498293
2022Vendor Vendor	1417.5574	0.0055839	0.1998064
2022Worker Worker	316.89773	0.0051547	0.0089039
2023Hauling Hauling	1563.8485	0.0012272	0.2463997
2023Vendor Vendor	1400.8234	0.003792	0.1971319
2023Worker Worker	310.14696	0.0046146	0.0081558
2024Hauling Hauling	1536.2311	0.0011659	0.242048
2024Vendor Vendor	1377.755	0.0031144	0.1938154
2024Worker Worker	302.99872	0.0041313	0.007491
GWP	1	25	290

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (MT/year)			
					CO2	CH4	N2O	CO2e
<u>Site Preparation</u>								
2022								
Total Haul Trips	48							
Hauling	10	5	8	20	1.59	0.00	0.07	1.66
Vendor	0	5	8	7.3	0.00	0.00	0.00	0.00
Worker	20	5	8	10.8	0.34	0.00	0.00	0.35
<u>Grading</u>								
2022								
Total Haul Trips	278							
Hauling	9	31	8	20	8.85	0.00	0.40	9.25
Vendor	0	31	8	7.3	0.00	0.00	0.00	0.00
Worker	20	31	8	10.8	2.12	0.00	0.02	2.14
<u>Building Construction</u>								
2022								
Total Haul Trips	0							
Hauling	0	29	8	20	0.00	0.00	0.00	0.00
Vendor	2	29	8	7.3	0.60	0.00	0.02	0.62
Worker	20	29	8	10.8	1.99	0.00	0.02	2.00
<u>Building Construction</u>								
2023								
Total Haul Trips	0							
Hauling	0	34	8	20	0.00	0.00	0.00	0.00
Vendor	2	34	8	7.3	0.70	0.00	0.03	0.72
Worker	20	34	8	10.8	2.28	0.00	0.02	2.30
<u>Pavings</u>								
2023								
Total Haul Trips	0							
Hauling	0	3	8	20	0.00	0.00	0.00	0.00
Vendor	8	3	8	7.3	0.25	0.00	0.01	0.26
Worker	20	3	8	10.8	0.20	0.00	0.00	0.20
<u>Testing/Start Up</u>								
2023								
Total Haul Trips	0							
Hauling	0	5	8	20	0.00	0.00	0.00	0.00
Vendor	0	5	8	7.3	0.00	0.00	0.00	0.00
Worker	10	5	8	10.8	0.17	0.00	0.00	0.17

Tehachapi - Conveyance Facilities - Pump Stations  
Idling Emissions

	Idling Emissions Factor (grams/minute)		
	CO2	CH4	N2O
2021Hauling Hauling	999.02163	0.0247819	0.1574657
2021Vendor Vendor	534.48636	0.0135583	0.0839265
2021Worker Worker	0	0	0
2022Hauling Hauling	989.00813	0.0241565	0.155883
2022Vendor Vendor	529.27885	0.0132032	0.0831255
2022Worker Worker	0	0	0
2023Hauling Hauling	952.69865	0.0203111	0.1501181
2023Vendor Vendor	510.212	0.0112403	0.080117
2023Worker Worker	0	0	0
2024Hauling Hauling	929.00214	0.0201725	0.1463846
2024Vendor Vendor	498.0621	0.0111318	0.0782196
2024Worker Worker	0	0	0
GWP	1	25	290

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	Idling minutes per Day (miles)	Regional Emissions (MT/year)			
					CO2	CH4	N2O	CO2e
<u>Site Preparation</u>								
	2022							
Total Haul Trips	48							
Hauling	10	5	8	15	0.74	0.00	0.03	0.78
Vendor	0	5	8	15	0.00	0.00	0.00	0.00
Worker	20	5	8	0	0.00	0.00	0.00	0.00
<u>Grading</u>								
	2022							
Total Haul Trips	278							
Hauling	9	31	8	15	4.14	0.00	0.19	4.33
Vendor	0	31	8	15	0.00	0.00	0.00	0.00
Worker	20	31	8	0	0.00	0.00	0.00	0.00
<u>Building Construction</u>								
	2022							
Total Haul Trips	0							
Hauling	0	29	8	15	0.00	0.00	0.00	0.00
Vendor	2	29	8	15	0.46	0.00	0.02	0.48
Worker	20	29	8	0	0.00	0.00	0.00	0.00
<u>Building Construction</u>								
	2023							
Total Haul Trips	0							
Hauling	0	34	8	15	0.00	0.00	0.00	0.00
Vendor	2	34	8	15	0.52	0.00	0.02	0.54
Worker	20	34	8	0	0.00	0.00	0.00	0.00
<u>Pavings</u>								
	2023							
Total Haul Trips	0							
Hauling	0	3	8	15	0.00	0.00	0.00	0.00
Vendor	8	3	8	15	0.18	0.00	0.01	0.19
Worker	20	3	8	0	0.00	0.00	0.00	0.00
<u>Testing/Start Up</u>								
	2023							
Total Haul Trips	0							
Hauling	0	5	8	15	0.00	0.00	0.00	0.00
Vendor	0	5	8	15	0.00	0.00	0.00	0.00
Worker	10	5	8	0	0.00	0.00	0.00	0.00

# Tehachapi - Conveyance Facilities - Pipelines

## Total On-Road Emissions

# Tehachapi -

## 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 (MT/yr) Total CO2e
<u>Trenching/Excavation/Shoring</u>	2022					
Total Haul Trips	50					
Hauling	2	26	8	20	15	2.53
Vendor	0	26	8	7.3	15	0.00
Worker	20	26	8	10.8	0	1.79
					Total	4.33
<u>Building Construction</u>	2022					
Total Haul Trips	0					
Hauling	0	39	8	20	15	0.00
Vendor	2	39	8	7.3	15	1.49
Worker	20	39	8	10.8	0	2.69
					Total	4.18
<u>Building Construction</u>	2023					
Total Haul Trips	0					
Hauling	0	14	8	20	15	0.00
Vendor	2	14	8	7.3	15	0.52
Worker	20	14	8	10.8	0	0.95
					Total	1.47
<u>Pavings</u>	2023					
Total Haul Trips	0					
Hauling	0	3	8	20	15	0.00
Vendor	28	3	8	7.3	15	1.57
Worker	20	3	8	10.8	0	0.20
					Total	1.77
<u>Testing/Start Up</u>	2023					
Total Haul Trips	0					
Hauling	0	5	8	20	15	0.00
Vendor	0	5	8	7.3	15	0.00
Worker	10	5	8	10.8	0	0.17
					Total	0.17

Tehachapi - Conveyance Facilities - Pipelines  
Running Emissions

	Running Emissions Factor (grams/mile)		
	CO2	CH4	N2O
2021Hauling Hauling	1601.9751	0.00365203	0.25247486
2021Vendor Vendor	1430.67577	0.00761584	0.20193174
2021Worker Worker	323.382435	0.00573979	0.00972612
2022Hauling Hauling	1585.23164	0.00269138	0.24982933
2022Vendor Vendor	1417.55735	0.00558392	0.19980638
2022Worker Worker	316.897732	0.00515466	0.00890394
2023Hauling Hauling	1563.84855	0.0012272	0.24639969
2023Vendor Vendor	1400.8234	0.00379198	0.19713192
2023Worker Worker	310.14696	0.00461456	0.00815584
2024Hauling Hauling	1536.23113	0.00116585	0.24204805
2024Vendor Vendor	1377.75505	0.00311443	0.19381542
2024Worker Worker	302.998724	0.00413128	0.00749097
GWP	1	25	290

Construction Phase	Daily	Haul Days per Phase	Work Hours per Day	One-Way Trip Distance per Day (miles)	Regional Emissions			
	One-Way Trips				(MT/year)			
					CO2	CH4	N2O	CO2e
<u>Trenching/Excavation/Shor</u>	<u>2022</u>							
Total Haul Trips	50							
Hauling	2	26	8	20	1.65	0.00	0.08	1.72
Vendor	0	26	8	7.3	0.00	0.00	0.00	0.00
Worker	20	26	8	10.8	1.78	0.00	0.01	1.79
<u>Building Construction</u>	<u>2022</u>							
Total Haul Trips	0							
Hauling	0	39	8	20	0.00	0.00	0.00	0.00
Vendor	2	39	8	7.3	0.81	0.00	0.03	0.84
Worker	20	39	8	10.8	2.67	0.00	0.02	2.69
<u>Building Construction</u>	<u>2023</u>							
Total Haul Trips	0							
Hauling	0	14	8	20	0.00	0.00	0.00	0.00
Vendor	2	14	8	7.3	0.29	0.00	0.01	0.30
Worker	20	14	8	10.8	0.94	0.00	0.01	0.95
<u>Pavings</u>	<u>2023</u>							
Total Haul Trips	0							
Hauling	0	3	8	20	0.00	0.00	0.00	0.00
Vendor	28	3	8	7.3	0.86	0.00	0.04	0.89
Worker	20	3	8	10.8	0.20	0.00	0.00	0.20
<u>Testing/Start Up</u>	<u>2023</u>							
Total Haul Trips	0							
Hauling	0	5	8	20	0.00	0.00	0.00	0.00
Vendor	0	5	8	7.3	0.00	0.00	0.00	0.00
Worker	10	5	8	10.8	0.17	0.00	0.00	0.17



**Tehachapi - Conveyance Facilities - Pipelines**  
**Idling Emissions**

			Idling Emissions Factor (grams/minute)		
			CO2	CH4	N2O
2021Hauling	Hauling		999.021625	0.02478195	0.15746572
2021Vendor	Vendor		534.486361	0.01355826	0.08392645
2021Worker	Worker		0	0	0
2022Hauling	Hauling		989.008131	0.02415647	0.15588297
2022Vendor	Vendor		529.278854	0.01320316	0.08312553
2022Worker	Worker		0	0	0
2023Hauling	Hauling		952.698646	0.0203111	0.15011811
2023Vendor	Vendor		510.212	0.01124025	0.08011699
2023Worker	Worker		0	0	0
2024Hauling	Hauling		929.002142	0.02017248	0.1463846
2024Vendor	Vendor		498.062102	0.01113178	0.07821962
2024Worker	Worker		0	0	0
GWP			1	25	290

Construction Phase	Daily One-Way Trips	Haul Days per Phase	Work Hours per Day	Idling minutes per Day (miles)	Regional Emissions (MT/year)			
					CO2	CH4	N2O	CO2e
		(days)	(hours/day)					
<u>Trenching/Excavation/Shor</u>	<u>2022</u>							
Total Haul Trips	50							
Hauling	2	26	8	15	0.77	0.00	0.04	0.81
Vendor	0	26	8	15	0.00	0.00	0.00	0.00
Worker	20	26	8	0	0.00	0.00	0.00	0.00
<u>Building Construction</u>	<u>2022</u>							
Total Haul Trips	0							
Hauling	0	39	8	15	0.00	0.00	0.00	0.00
Vendor	2	39	8	15	0.62	0.00	0.03	0.65
Worker	20	39	8	0	0.00	0.00	0.00	0.00
<u>Building Construction</u>	<u>2023</u>							
Total Haul Trips	0							
Hauling	0	14	8	15	0.00	0.00	0.00	0.00
Vendor	2	14	8	15	0.21	0.00	0.01	0.22
Worker	20	14	8	0	0.00	0.00	0.00	0.00
<u>Pavings</u>	<u>2023</u>							
Total Haul Trips	0							
Hauling	0	3	8	15	0.00	0.00	0.00	0.00
Vendor	28	3	8	15	0.64	0.00	0.03	0.67
Worker	20	3	8	0	0.00	0.00	0.00	0.00
<u>Testing/Start Up</u>	<u>2023</u>							
Total Haul Trips	0							
Hauling	0	5	8	15	0.00	0.00	0.00	0.00
Vendor	0	5	8	15	0.00	0.00	0.00	0.00
Worker	10	5	8	0	0.00	0.00	0.00	0.00

**Tehachapi GSP  
Air Quality Assessment**

**Emergency Generator Emissions**

**Conversion Factors**

HP/kW	1.3410	Table A - Updated CEIDARS Table with PM2.5 Fractions, INTERNAL COMBUSTION - DISTILLATE AND DIESEL-ELECTRIC GENERATION
PM10 Fraction of Total PM	0.960	Table A - Updated CEIDARS Table with PM2.5 Fractions, INTERNAL COMBUSTION - DISTILLATE AND DIESEL-ELECTRIC GENERATION
PM2.5 Fraction of Total PM	0.937	
		Climate Registry, Table 13.1: <a href="https://www.theclimateresistry.org/wp-content/uploads/2014/11/2016-Climate-Registry-Default-Emission-Factors.pdf">https://www.theclimateresistry.org/wp-content/uploads/2014/11/2016-Climate-Registry-Default-Emission-Factors.pdf</a>
CO2 g/gal	10.21	Climate Registry, Table 13.7: <a href="https://www.theclimateresistry.org/wp-content/uploads/2014/11/2016-Climate-Registry-Default-Emission-Factors.pdf">https://www.theclimateresistry.org/wp-content/uploads/2014/11/2016-Climate-Registry-Default-Emission-Factors.pdf</a>
CH4 g/gal	0.58	Climate Registry, Table 13.7: <a href="https://www.theclimateresistry.org/wp-content/uploads/2014/11/2016-Climate-Registry-Default-Emission-Factors.pdf">https://www.theclimateresistry.org/wp-content/uploads/2014/11/2016-Climate-Registry-Default-Emission-Factors.pdf</a>
N2O g/gal	0.26	IPCC AR4
GWP CH4	25	IPCC AR4
GWP N2O	298	
CO2e g/gal	10,302	
CO2 g/gal	10,210	
CO2/CO2e	0.9911	

**Step1 Emergency Generator**

Ratings:	559
	750
	-
	-
Load Factor:	0.74
Engine Emissions Tier:	
Operating Hours per Unit:	2
	200
	0.55

**Emergency Generator Emissions for 1 generator**

Units	Greenhouse Gases <sup>4</sup>	
	CO <sub>2</sub>	CO <sub>2</sub> e
g/kW-hr	—	—
g/HP-hr	526.17	530.91
lbs/hr	643.80	649.60
<b>lbs/day (max daily)</b>	1,287.60	1,299.20
lbs/yr	128,760.00	129,919.98
tons/yr	64.38	64.96
<b>metric tons/yr</b>	<b>58.40</b>	<b>58.93</b>

**Two Generator Emissions**

<b>lbs/day (max daily)</b>	2,575.20	2,598.40
lbs/yr	257,520.00	259,839.95
tons/yr	128.76	129.92
<b>metric tons/yr</b>	<b>116.81</b>	<b>117.86</b>

**Notes:**

1. Emission factors for VOC and NOX: ARB 2011 Final Regulation Order for the ATCM for stationary engines, Table 1, Model year 2008+:
2. Emission factors for CO, PM10, and PM2.5: ARB 2011 Final Regulation Order for the ATCM for stationary engines, Table 1, Model year 2008+: <https://www.arb.ca.gov/regact/2010/atcm2010/finalregorder.pdf>
3. Emission factor for SO2: U.S. Environmental Protection Agency, AP-42 Compilation of Air Pollutant Emission Factors, Fifth Edition, Section 3.4, Table 3.4-1.  
Emission Factor for SO2 is based on 15 ppm (0.0015%) S1 from the EPA Nonroad Diesel Fuel Program, and assumes complete conversion to SO2.
4. Emission factor for CO2: U.S. Environmental Protection Agency, AP-42 Compilation of Air Pollutant Emission Factors, Fifth Edition, Section 3.4, Table 3.4-1.  
Emissions of GHGs assume 99.11% of the CO2e emissions occur as CO2, based on Climate Registry emission factors as referenced above.

Source: ESA 2021.

Tehachapi  
Air Quality and GHG Assessment  
Operational Mobile Emissions

Project

Year	Vehicle Type	Max Daily VMT	Max Annual VMT	GHG Emissions (metric tons/mile)				GHG Emissions (metric tons/year)			
				CO2	CH4	N2O	CO2e	CO2	CH4	N2O	CO2e
								<i>1</i>	<i>25</i>	<i>298</i>	
2024	Passenger	21.6	7,884	3.25E-04	1.33E-08	1.08E-08	3.29E-04	2.5639	0.0001	0.0001	2.5918
2024	Heavy Duty Truck	14.6	175	1.65E-03	3.61E-09	2.60E-07	1.73E-03	0.2889	6.33E-07	0.0000	0.3025

Assumes default worker and vendor trip lengths for Kern APCD. Assumes 1 new worker round trip for worker to operate GSP facilities and one heavy duty truck delivery of chemicals per month.

Source: EMFAC2021 (v1.0.0) Emissions Inventory  
Region Type: Air District  
Region: Kern County APCD  
Calendar Year: 2021, 2022, 2023, 2024, 2025  
Season: Annual  
Vehicle Classification: EMFAC2007 Categories  
Units: miles/year for CVMT and EVMT, trips/year for Trips, kWh/year for Energy Consumption, tons/year for Emissions, 1000 gallons/year for Fuel Consumption

Emissions Factors

		MT/mile			
		CO2	CH4	N2O	CO2e
2023	HHDT	0.001678363	3.66881E-09	2.64444E-07	0.001757259
	LDA	261890.7746	10.55842802	8.372706459	851302554
	LDT1	34233.43527	2.892541093	2.008889869	87189381.86
	LDT2	161440.5471	6.286918935	5.287231365	402739540.9
	MDV	143535.9102	6.478184248	5.253678655	293732057.6
2024	Passenger Car	0.00033353	1.45464E-08	1.16092E-08	0.000337353
	HHDT	0.001649213	3.61352E-09	2.59851E-07	0.001726739
	LDA	258552.6008	9.832233215	7.969139214	865265988
	LDT1	32905.7444	2.582838531	1.816423326	85178408.31
	LDT2	163755.2394	6.001124023	5.098699138	418247351.2
2025	MDV	141626.1351	5.931782784	4.88741213	296236169
	Passenger Car	0.000325206	1.32667E-08	1.07732E-08	0.000328748
	HHDT	0.001616558	3.56451E-09	2.54705E-07	0.001692549
	LDA	254023.2687	9.164993994	7.589636332	875280433.3
	LDT1	31500.01559	2.299203375	1.636743281	82881215.53
	LDT2	165056.4335	5.725475319	4.924602869	431077890.8
	MDV	139015.6784	5.442833801	4.548642263	297077567.9
	Passenger Car	0.000317184	1.21756E-08	1.00598E-08	0.000320486

# Appendix B

## **CalEEMod Output**



Tehachapi GSP - Treatment Facilities - Construction - Kern County APCD Air District, Annual

## Tehachapi GSP - Treatment Facilities - Construction

### Kern County APCD Air District, Annual

## 1.0 Project Characteristics

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### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	37.60	1000sqft	2.00	37,600.00	0

### 1.2 Other Project Characteristics

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.7	<b>Precipitation Freq (Days)</b>	32
<b>Climate Zone</b>	7			<b>Operational Year</b>	2022
<b>Utility Company</b>	Southern California Edison				
<b>CO2 Intensity (lb/MW hr)</b>	702.44	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - see construction assumptions

Construction Phase - See construction assumptions. Start/Testing phase not included as no heavy duty equipment is required and mobile emissions calculated outside of CalEEMod.

Off-road Equipment - see construction assumptions

Off-road Equipment - see construction assumptions

Off-road Equipment - see construction assumptions

Off-road Equipment - see construction assumptions

Trips and VMT - construction mobile emissions calculated outside of CalEEMod.

Grading - see construction assumptions

# Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	200.00	113.00
tblConstructionPhase	NumDays	4.00	57.00
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	2.00	10.00
tblGrading	AcresOfGrading	0.00	2.00
tblGrading	AcresOfGrading	0.00	2.00
tblGrading	MaterialExported	0.00	64,533.00
tblGrading	MaterialExported	0.00	8,067.00
tblLandUse	LotAcreage	0.86	2.00
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00

tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	HaulingTripNumber	1,008.00	0.00
tblTripsAndVMT	HaulingTripNumber	8,067.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	16.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00

2.0 Emissions Summary

2.1 Overall Construction  
Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1948	1.8270	1.6151	4.0400e-003	9.7400e-003	0.0791	0.0889	1.6900e-003	0.0729	0.0746	0.0000	354.6560	354.6560	0.1120	0.0000	357.4550
Maximum	0.1948	1.8270	1.6151	4.0400e-003	9.7400e-003	0.0791	0.0889	1.6900e-003	0.0729	0.0746	0.0000	354.6560	354.6560	0.1120	0.0000	357.4550

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1948	1.8270	1.6151	4.0400e-003	5.1800e-003	0.0791	0.0843	1.0600e-003	0.0729	0.0739	0.0000	354.6556	354.6556	0.1120	0.0000	357.4546
Maximum	0.1948	1.8270	1.6151	4.0400e-003	5.1800e-003	0.0791	0.0843	1.0600e-003	0.0729	0.0739	0.0000	354.6556	354.6556	0.1120	0.0000	357.4546



	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	46.82	0.00	5.14	37.28	0.00	0.85	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	1-1-2022	3-31-2022	0.4497	0.4497
2	4-1-2022	6-30-2022	0.8560	0.8560
3	7-1-2022	9-30-2022	0.7106	0.7106
		Highest	0.8560	0.8560

### 3.0 Construction Detail

#### Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2022	1/14/2022	5	10	
2	Grading	Grading	1/15/2022	4/5/2022	5	57	
3	Building Construction	Building Construction	4/6/2022	9/9/2022	5	113	
4	Paving	Paving	9/10/2022	9/16/2022	5	5	

Acres of Grading (Site Preparation Phase): 2

Acres of Grading (Grading Phase): 2

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

#### OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Excavators	1	8.00	158	0.38
Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Scrapers	0	8.00	367	0.48

Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	0	8.00	187	0.41
Grading	Off-Highway Trucks	1	8.00	402	0.38
Grading	Other Construction Equipment	1	8.00	172	0.42
Grading	Plate Compactors	1	8.00	8	0.43
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	2	8.00	231	0.29
Building Construction	Forklifts	0	7.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Building Construction	Off-Highway Trucks	2	8.00	402	0.38
Building Construction	Other Construction Equipment	1	8.00	172	0.42
Building Construction	Plate Compactors	1	8.00	8	0.43
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	0	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Off-Highway Trucks	1	8.00	402	0.38

### 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
Site Preparation	3	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	0.00	6.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

- Use Soil Stabilizer
- Water Exposed Area
- Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.6600e-003	0.0000	1.6600e-003	2.0000e-004	0.0000	2.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.3100e-003	0.0458	0.0555	1.2000e-004		2.0600e-003	2.0600e-003		1.9000e-003	1.9000e-003	0.0000	10.8312	10.8312	3.5000e-003	0.0000	10.9188
Total	5.3100e-003	0.0458	0.0555	1.2000e-004	1.6600e-003	2.0600e-003	3.7200e-003	2.0000e-004	1.9000e-003	2.1000e-003	0.0000	10.8312	10.8312	3.5000e-003	0.0000	10.9188

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					6.5000e-004	0.0000	6.5000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.3100e-003	0.0458	0.0555	1.2000e-004		2.0600e-003	2.0600e-003		1.9000e-003	1.9000e-003	0.0000	10.8312	10.8312	3.5000e-003	0.0000	10.9188

Total	5.3100e-003	0.0458	0.0555	1.2000e-004	6.5000e-004	2.0600e-003	2.7100e-003	8.0000e-005	1.9000e-003	1.9800e-003	0.0000	10.8312	10.8312	3.5000e-003	0.0000	10.9188
-------	-------------	--------	--------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	--------	---------	---------	-------------	--------	---------

3.3 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					5.8200e-003	0.0000	5.8200e-003	8.4000e-004	0.0000	8.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0421	0.3764	0.4366	8.9000e-004		0.0177	0.0177		0.0163	0.0163	0.0000	77.9337	77.9337	0.0250	0.0000	78.5590
Total	0.0421	0.3764	0.4366	8.9000e-004	5.8200e-003	0.0177	0.0235	8.4000e-004	0.0163	0.0171	0.0000	77.9337	77.9337	0.0250	0.0000	78.5590

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					2.2700e-003	0.0000	2.2700e-003	3.3000e-004	0.0000	3.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0421	0.3764	0.4366	8.9000e-004		0.0177	0.0177		0.0163	0.0163	0.0000	77.9336	77.9336	0.0250	0.0000	78.5589
Total	0.0421	0.3764	0.4366	8.9000e-004	2.2700e-003	0.0177	0.0200	3.3000e-004	0.0163	0.0166	0.0000	77.9336	77.9336	0.0250	0.0000	78.5589

### 3.4 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	0.1440	1.3455	1.0853	2.8700e-003		0.0581	0.0581		0.0535	0.0535	0.0000	251.7138	251.7138	0.0810	0.0000	253.7393
<b>Total</b>	<b>0.1440</b>	<b>1.3455</b>	<b>1.0853</b>	<b>2.8700e-003</b>		<b>0.0581</b>	<b>0.0581</b>		<b>0.0535</b>	<b>0.0535</b>	<b>0.0000</b>	<b>251.7138</b>	<b>251.7138</b>	<b>0.0810</b>	<b>0.0000</b>	<b>253.7393</b>

#### 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	0.1440	1.3455	1.0853	2.8700e-003		0.0581	0.0581		0.0535	0.0535	0.0000	251.7135	251.7135	0.0810	0.0000	253.7390
<b>Total</b>	<b>0.1440</b>	<b>1.3455</b>	<b>1.0853</b>	<b>2.8700e-003</b>		<b>0.0581</b>	<b>0.0581</b>		<b>0.0535</b>	<b>0.0535</b>	<b>0.0000</b>	<b>251.7135</b>	<b>251.7135</b>	<b>0.0810</b>	<b>0.0000</b>	<b>253.7390</b>

3.5 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	2.3500e-003	0.0232	0.0302	5.0000e-005		1.2000e-003	1.2000e-003		1.1000e-003	1.1000e-003	0.0000	3.9844	3.9844	1.2600e-003	0.0000	4.0160
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	2.3500e-003	0.0232	0.0302	5.0000e-005		1.2000e-003	1.2000e-003		1.1000e-003	1.1000e-003	0.0000	3.9844	3.9844	1.2600e-003	0.0000	4.0160

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.3500e-003	0.0232	0.0302	5.0000e-005		1.2000e-003	1.2000e-003		1.1000e-003	1.1000e-003	0.0000	3.9844	3.9844	1.2600e-003	0.0000	4.0160
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	2.3500e-003	0.0232	0.0302	5.0000e-005		1.2000e-003	1.2000e-003		1.1000e-003	1.1000e-003	0.0000	3.9844	3.9844	1.2600e-003	0.0000	4.0160

Tehachapi GPS - Recharge Facilities - Construction - Kern County APCD Air District, Annual

## Tehachapi GPS - Recharge Facilities - Construction

### Kern County APCD Air District, Annual

## 1.0 Project Characteristics

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### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	8.31	Acre	8.31	361,896.48	0

### 1.2 Other Project Characteristics

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.7	<b>Precipitation Freq (Days)</b>	32
<b>Climate Zone</b>	7			<b>Operational Year</b>	2023
<b>Utility Company</b>	Southern California Edison				
<b>CO2 Intensity (lb/MW hr)</b>	702.44	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - see construction assumptions

Off-road Equipment - see construction assumptions

Off-road Equipment - see construction assumptions

Trips and VMT - construction mobile emissions calculated outside of CalEEMod.

Grading -

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	65.00
tblConstructionPhase	NumDays	10.00	22.00
tblGrading	MaterialExported	0.00	13,404.00
tblGrading	MaterialExported	0.00	33,509.00
tblLandUse	LandUseSquareFeet	361,983.60	361,896.48
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	3.00
tblTripsAndVMT	HaulingTripNumber	4,189.00	0.00
tblTripsAndVMT	HaulingTripNumber	1,676.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00

2.0 Emissions Summary

2.1 Overall Construction  
Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0732	0.7101	0.6955	1.4800e-003	0.0496	0.0312	0.0808	5.5100e-003	0.0287	0.0342	0.0000	129.7983	129.7983	0.0418	0.0000	130.8441
2023	0.0255	0.2387	0.2595	5.5000e-004	0.0355	0.0104	0.0459	3.8700e-003	9.5800e-003	0.0135	0.0000	47.7756	47.7756	0.0154	0.0000	48.1600
Maximum	0.0732	0.7101	0.6955	1.4800e-003	0.0496	0.0312	0.0808	5.5100e-003	0.0287	0.0342	0.0000	129.7983	129.7983	0.0418	0.0000	130.8441



Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0732	0.7101	0.6955	1.4800e-003	0.0193	0.0312	0.0506	2.1500e-003	0.0287	0.0309	0.0000	129.7981	129.7981	0.0418	0.0000	130.8439
2023	0.0255	0.2387	0.2595	5.5000e-004	0.0138	0.0104	0.0242	1.5100e-003	9.5800e-003	0.0111	0.0000	47.7755	47.7755	0.0154	0.0000	48.1599
Maximum	0.0732	0.7101	0.6955	1.4800e-003	0.0193	0.0312	0.0506	2.1500e-003	0.0287	0.0309	0.0000	129.7981	129.7981	0.0418	0.0000	130.8439

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	61.00	0.00	40.96	60.98	0.00	11.99	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	10-1-2022	12-31-2022	0.7899	0.7899
2	1-1-2023	3-31-2023	0.2659	0.2659
		Highest	0.7899	0.7899

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/1/2022	11/1/2022	5	22	
2	Grading	Grading	11/2/2022	1/31/2023	5	65	

Acres of Grading (Site Preparation Phase): 22

Acres of Grading (Grading Phase): 65

Acres of Paving: 8.31

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Off-Highway Trucks	1	8.00	402	0.38
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	0	8.00	187	0.41
Grading	Off-Highway Trucks	1	8.00	402	0.38
Grading	Other Construction Equipment	1	8.00	172	0.42
Grading	Plate Compactors	1	8.00	8	0.43
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	1	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	5	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

- Use Soil Stabilizer
- Water Exposed Area
- Reduce Vehicle Speed on Unpaved Roads

### 3.2 Site Preparation - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0141	0.0000	0.0141	1.6300e-003	0.0000	1.6300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0203	0.1978	0.1809	4.2000e-004		8.4200e-003	8.4200e-003		7.7500e-003	7.7500e-003	0.0000	36.4534	36.4534	0.0118	0.0000	36.7481
<b>Total</b>	<b>0.0203</b>	<b>0.1978</b>	<b>0.1809</b>	<b>4.2000e-004</b>	<b>0.0141</b>	<b>8.4200e-003</b>	<b>0.0226</b>	<b>1.6300e-003</b>	<b>7.7500e-003</b>	<b>9.3800e-003</b>	<b>0.0000</b>	<b>36.4534</b>	<b>36.4534</b>	<b>0.0118</b>	<b>0.0000</b>	<b>36.7481</b>

#### 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					5.5100e-003	0.0000	5.5100e-003	6.4000e-004	0.0000	6.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0203	0.1978	0.1809	4.2000e-004		8.4200e-003	8.4200e-003		7.7500e-003	7.7500e-003	0.0000	36.4533	36.4533	0.0118	0.0000	36.7481
<b>Total</b>	<b>0.0203</b>	<b>0.1978</b>	<b>0.1809</b>	<b>4.2000e-004</b>	<b>5.5100e-003</b>	<b>8.4200e-003</b>	<b>0.0139</b>	<b>6.4000e-004</b>	<b>7.7500e-003</b>	<b>8.3900e-003</b>	<b>0.0000</b>	<b>36.4533</b>	<b>36.4533</b>	<b>0.0118</b>	<b>0.0000</b>	<b>36.7481</b>

### 3.3 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					0.0355	0.0000	0.0355	3.8700e-003	0.0000	3.8700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0529	0.5123	0.5146	1.0700e-003		0.0228	0.0228		0.0210	0.0210	0.0000	93.3449	93.3449	0.0300	0.0000	94.0960
<b>Total</b>	<b>0.0529</b>	<b>0.5123</b>	<b>0.5146</b>	<b>1.0700e-003</b>	<b>0.0355</b>	<b>0.0228</b>	<b>0.0583</b>	<b>3.8700e-003</b>	<b>0.0210</b>	<b>0.0249</b>	<b>0.0000</b>	<b>93.3449</b>	<b>93.3449</b>	<b>0.0300</b>	<b>0.0000</b>	<b>94.0960</b>

#### 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					0.0138	0.0000	0.0138	1.5100e-003	0.0000	1.5100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0529	0.5123	0.5146	1.0700e-003		0.0228	0.0228		0.0210	0.0210	0.0000	93.3448	93.3448	0.0300	0.0000	94.0959
<b>Total</b>	<b>0.0529</b>	<b>0.5123</b>	<b>0.5146</b>	<b>1.0700e-003</b>	<b>0.0138</b>	<b>0.0228</b>	<b>0.0366</b>	<b>1.5100e-003</b>	<b>0.0210</b>	<b>0.0225</b>	<b>0.0000</b>	<b>93.3448</b>	<b>93.3448</b>	<b>0.0300</b>	<b>0.0000</b>	<b>94.0959</b>

### 3.3 Grading - 2023

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0355	0.0000	0.0355	3.8700e-003	0.0000	3.8700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0255	0.2387	0.2595	5.5000e-004		0.0104	0.0104		9.5800e-003	9.5800e-003	0.0000	47.7756	47.7756	0.0154	0.0000	48.1600
<b>Total</b>	<b>0.0255</b>	<b>0.2387</b>	<b>0.2595</b>	<b>5.5000e-004</b>	<b>0.0355</b>	<b>0.0104</b>	<b>0.0459</b>	<b>3.8700e-003</b>	<b>9.5800e-003</b>	<b>0.0135</b>	<b>0.0000</b>	<b>47.7756</b>	<b>47.7756</b>	<b>0.0154</b>	<b>0.0000</b>	<b>48.1600</b>

#### 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					0.0138	0.0000	0.0138	1.5100e-003	0.0000	1.5100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0255	0.2387	0.2595	5.5000e-004		0.0104	0.0104		9.5800e-003	9.5800e-003	0.0000	47.7755	47.7755	0.0154	0.0000	48.1599
<b>Total</b>	<b>0.0255</b>	<b>0.2387</b>	<b>0.2595</b>	<b>5.5000e-004</b>	<b>0.0138</b>	<b>0.0104</b>	<b>0.0242</b>	<b>1.5100e-003</b>	<b>9.5800e-003</b>	<b>0.0111</b>	<b>0.0000</b>	<b>47.7755</b>	<b>47.7755</b>	<b>0.0154</b>	<b>0.0000</b>	<b>48.1599</b>

Tehapachi GSP - Coveyance Facilities - Pump Station - Construction - Kern County APCD Air District, Annual

**Tehapachi GSP - Coveyance Facilities - Pump Station - Construction**  
**Kern County APCD Air District, Annual**

**1.0 Project Characteristics****1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	2.50	1000sqft	0.06	2,500.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.7	<b>Precipitation Freq (Days)</b>	32
<b>Climate Zone</b>	7			<b>Operational Year</b>	2023
<b>Utility Company</b>	Southern California Edison				
<b>CO2 Intensity (lb/MW hr)</b>	702.44	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use -

Construction Phase - See construction assumptions. Start/Testing phase not included as no heavy duty equipment is required and mobile emissions calculated outside of CalEEMod.

Off-road Equipment - see construction assumptions

Off-road Equipment - see construction assumptions

Off-road Equipment - see construction assumptions

Off-road Equipment - see construction assumptions

Trips and VMT - construction mobile emissions calculated outside of CalEEMod.

Grading - see construction assumptions

# Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	100.00	63.00
tblConstructionPhase	NumDays	2.00	31.00
tblConstructionPhase	NumDays	5.00	3.00
tblConstructionPhase	NumDays	1.00	5.00
tblGrading	AcresOfGrading	0.00	0.06
tblGrading	AcresOfGrading	0.00	0.06
tblGrading	MaterialExported	0.00	1,389.00
tblGrading	MaterialExported	0.00	231.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	HaulingTripNumber	29.00	0.00
tblTripsAndVMT	HaulingTripNumber	174.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	1.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0565	0.5083	0.5130	1.1900e-003	1.8000e-004	0.0229	0.0231	2.0000e-005	0.0211	0.0211	0.0000	104.5495	104.5495	0.0337	0.0000	105.3923
2023	0.0362	0.3132	0.3061	7.9000e-004	0.0000	0.0135	0.0135	0.0000	0.0124	0.0124	0.0000	69.2165	69.2165	0.0222	0.0000	69.7717
Maximum	0.0565	0.5083	0.5130	1.1900e-003	1.8000e-004	0.0229	0.0231	2.0000e-005	0.0211	0.0211	0.0000	104.5495	104.5495	0.0337	0.0000	105.3923

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0565	0.5083	0.5130	1.1900e-003	7.0000e-005	0.0229	0.0230	1.0000e-005	0.0211	0.0211	0.0000	104.5493	104.5493	0.0337	0.0000	105.3922
2023	0.0362	0.3132	0.3061	7.9000e-004	0.0000	0.0135	0.0135	0.0000	0.0124	0.0124	0.0000	69.2164	69.2164	0.0222	0.0000	69.7717
Maximum	0.0565	0.5083	0.5130	1.1900e-003	7.0000e-005	0.0229	0.0230	1.0000e-005	0.0211	0.0211	0.0000	104.5493	104.5493	0.0337	0.0000	105.3922

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	61.11	0.00	0.30	50.00	0.00	0.03	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)
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1	10-1-2022	12-31-2022	0.5683	0.5683
2	1-1-2023	3-31-2023	0.3477	0.3477
		Highest	0.5683	0.5683

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/1/2022	10/7/2022	5	5	
2	Grading	Grading	10/8/2022	11/21/2022	5	31	
3	Building Construction	Building Construction	11/22/2022	2/16/2023	5	63	
4	Paving	Paving	2/17/2023	2/21/2023	5	3	

Acres of Grading (Site Preparation Phase): 0.06

Acres of Grading (Grading Phase): 0.06

Acres of Paving: 0.06

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Excavators	1	8.00	158	0.38
Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Off-Highway Trucks	1	8.00	402	0.38
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Excavators	1	8.00	158	0.38
Grading	Off-Highway Trucks	1	8.00	402	0.38
Grading	Other Construction Equipment	1	8.00	172	0.42
Grading	Rubber Tired Dozers	0	1.00	247	0.40

Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	0	6.00	89	0.20
Building Construction	Off-Highway Trucks	2	8.00	402	0.38
Building Construction	Other Construction Equipment	1	8.00	172	0.42
Building Construction	Plate Compactors	1	8.00	8	0.43
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	2	8.00	97	0.37

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	4	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

- Use Soil Stabilizer
- Water Exposed Area
- Reduce Vehicle Speed on Unpaved Roads

### 3.2 Site Preparation - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6500e-003	0.0229	0.0277	6.0000e-005		1.0300e-003	1.0300e-003		9.5000e-004	9.5000e-004	0.0000	5.4011	5.4011	1.7500e-003	0.0000	5.4448
<b>Total</b>	<b>2.6500e-003</b>	<b>0.0229</b>	<b>0.0277</b>	<b>6.0000e-005</b>	<b>5.0000e-005</b>	<b>1.0300e-003</b>	<b>1.0800e-003</b>	<b>1.0000e-005</b>	<b>9.5000e-004</b>	<b>9.6000e-004</b>	<b>0.0000</b>	<b>5.4011</b>	<b>5.4011</b>	<b>1.7500e-003</b>	<b>0.0000</b>	<b>5.4448</b>

#### 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					2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6500e-003	0.0229	0.0277	6.0000e-005		1.0300e-003	1.0300e-003		9.5000e-004	9.5000e-004	0.0000	5.4011	5.4011	1.7500e-003	0.0000	5.4448
<b>Total</b>	<b>2.6500e-003</b>	<b>0.0229</b>	<b>0.0277</b>	<b>6.0000e-005</b>	<b>2.0000e-005</b>	<b>1.0300e-003</b>	<b>1.0500e-003</b>	<b>0.0000</b>	<b>9.5000e-004</b>	<b>9.5000e-004</b>	<b>0.0000</b>	<b>5.4011</b>	<b>5.4011</b>	<b>1.7500e-003</b>	<b>0.0000</b>	<b>5.4448</b>

### 3.3 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					1.3000e-004	0.0000	1.3000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0223	0.2008	0.2342	4.8000e-004		9.4700e-003	9.4700e-003		8.7200e-003	8.7200e-003	0.0000	41.9002	41.9002	0.0136	0.0000	42.2390
<b>Total</b>	<b>0.0223</b>	<b>0.2008</b>	<b>0.2342</b>	<b>4.8000e-004</b>	<b>1.3000e-004</b>	<b>9.4700e-003</b>	<b>9.6000e-003</b>	<b>2.0000e-005</b>	<b>8.7200e-003</b>	<b>8.7400e-003</b>	<b>0.0000</b>	<b>41.9002</b>	<b>41.9002</b>	<b>0.0136</b>	<b>0.0000</b>	<b>42.2390</b>

#### 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					5.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0223	0.2008	0.2342	4.8000e-004		9.4700e-003	9.4700e-003		8.7200e-003	8.7200e-003	0.0000	41.9001	41.9001	0.0136	0.0000	42.2389
<b>Total</b>	<b>0.0223</b>	<b>0.2008</b>	<b>0.2342</b>	<b>4.8000e-004</b>	<b>5.0000e-005</b>	<b>9.4700e-003</b>	<b>9.5200e-003</b>	<b>1.0000e-005</b>	<b>8.7200e-003</b>	<b>8.7300e-003</b>	<b>0.0000</b>	<b>41.9001</b>	<b>41.9001</b>	<b>0.0136</b>	<b>0.0000</b>	<b>42.2389</b>

### 3.4 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	0.0315	0.2846	0.2511	6.5000e-004		0.0124	0.0124		0.0114	0.0114	0.0000	57.2482	57.2482	0.0184	0.0000	57.7086
<b>Total</b>	<b>0.0315</b>	<b>0.2846</b>	<b>0.2511</b>	<b>6.5000e-004</b>		<b>0.0124</b>	<b>0.0124</b>		<b>0.0114</b>	<b>0.0114</b>	<b>0.0000</b>	<b>57.2482</b>	<b>57.2482</b>	<b>0.0184</b>	<b>0.0000</b>	<b>57.7086</b>

#### 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	0.0315	0.2846	0.2511	6.5000e-004		0.0124	0.0124		0.0114	0.0114	0.0000	57.2481	57.2481	0.0184	0.0000	57.7085
<b>Total</b>	<b>0.0315</b>	<b>0.2846</b>	<b>0.2511</b>	<b>6.5000e-004</b>		<b>0.0124</b>	<b>0.0124</b>		<b>0.0114</b>	<b>0.0114</b>	<b>0.0000</b>	<b>57.2481</b>	<b>57.2481</b>	<b>0.0184</b>	<b>0.0000</b>	<b>57.7085</b>

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0349	0.3011	0.2905	7.7000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	67.1556	67.1556	0.0216	0.0000	67.6956
Total	0.0349	0.3011	0.2905	7.7000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	67.1556	67.1556	0.0216	0.0000	67.6956

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	0.0349	0.3011	0.2905	7.7000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	67.1555	67.1555	0.0216	0.0000	67.6956
Total	0.0349	0.3011	0.2905	7.7000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	67.1555	67.1555	0.0216	0.0000	67.6956

### 3.5 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	1.3300e-003	0.0121	0.0157	2.0000e-005		5.8000e-004	5.8000e-004		5.4000e-004	5.4000e-004	0.0000	2.0610	2.0610	6.1000e-004	0.0000	2.0761
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.3300e-003	0.0121	0.0157	2.0000e-005		5.8000e-004	5.8000e-004		5.4000e-004	5.4000e-004	0.0000	2.0610	2.0610	6.1000e-004	0.0000	2.0761

### Unmitigated Construction Off-Site

[illegible]

### 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	1.3300e-003	0.0121	0.0157	2.0000e-005		5.8000e-004	5.8000e-004		5.4000e-004	5.4000e-004	0.0000	2.0610	2.0610	6.1000e-004	0.0000	2.0761
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.3300e-003	0.0121	0.0157	2.0000e-005		5.8000e-004	5.8000e-004		5.4000e-004	5.4000e-004	0.0000	2.0610	2.0610	6.1000e-004	0.0000	2.0761

### Mitigated Construction Off-Site

[illegible]



Tehachapi GSP - Coveyance Facilities - Pipeline - Construction - Kern County APCD Air District, Annual

## Tehachapi GSP - Coveyance Facilities - Pipeline - Construction

### Kern County APCD Air District, Annual

## 1.0 Project Characteristics

### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	10.56	1000sqft	0.24	10,560.00	0

### 1.2 Other Project Characteristics

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.7	<b>Precipitation Freq (Days)</b>	32
<b>Climate Zone</b>	7			<b>Operational Year</b>	2023
<b>Utility Company</b>	Southern California Edison				
<b>CO2 Intensity (lb/MWhr)</b>	702.44	<b>CH4 Intensity (lb/MWhr)</b>	0.029	<b>N2O Intensity (lb/MWhr)</b>	0.006

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - See construction assumptions. Start/Testing phase not included as no heavy duty equipment is required and mobile emissions calculated outside of CalEEMod.

Off-road Equipment - see construction assumptions

Off-road Equipment - see construction assumptions

Off-road Equipment - see construction assumptions

Trips and VMT - construction mobile emissions calculated outside of CalEEMod.

Grading - see construction assumptions

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	100.00	53.00
tblConstructionPhase	NumDays	2.00	26.00
tblConstructionPhase	NumDays	5.00	3.00
tblGrading	AcresOfGrading	0.00	0.24
tblGrading	MaterialExported	0.00	250.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	HaulingTripNumber	31.00	0.00
tblTripsAndVMT	VendorTripNumber	2.00	0.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00
tblTripsAndVMT	WorkerTripNumber	4.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0663	0.5909	0.5845	1.3700e-003	1.5000e-004	0.0267	0.0268	2.0000e-005	0.0247	0.0248	0.0000	119.5272	119.5272	0.0366	0.0000	120.4410
2023	0.0157	0.1360	0.1353	3.4000e-004	0.0000	5.8800e-003	5.8800e-003	0.0000	5.4200e-003	5.4200e-003	0.0000	29.7133	29.7133	9.5000e-003	0.0000	29.9508
Maximum	0.0663	0.5909	0.5845	1.3700e-003	1.5000e-004	0.0267	0.0268	2.0000e-005	0.0247	0.0248	0.0000	119.5272	119.5272	0.0366	0.0000	120.4410

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0663	0.5909	0.5845	1.3700e-003	6.0000e-005	0.0267	0.0268	1.0000e-005	0.0247	0.0247	0.0000	119.5270	119.5270	0.0366	0.0000	120.4409
2023	0.0157	0.1360	0.1353	3.4000e-004	0.0000	5.8800e-003	5.8800e-003	0.0000	5.4200e-003	5.4200e-003	0.0000	29.7132	29.7132	9.5000e-003	0.0000	29.9508
Maximum	0.0663	0.5909	0.5845	1.3700e-003	6.0000e-005	0.0267	0.0268	1.0000e-005	0.0247	0.0247	0.0000	119.5270	119.5270	0.0366	0.0000	120.4409

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	60.00	0.00	0.28	50.00	0.00	0.03	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)
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1	10-1-2022	12-31-2022	0.6627	0.6627
2	1-1-2023	3-31-2023	0.1500	0.1500
		Highest	0.6627	0.6627

### 3.0 Construction Detail

#### Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	10/1/2022	11/7/2022	5	26	
2	Building Construction	Building Construction	11/8/2022	1/19/2023	5	53	
3	Paving	Paving	1/20/2023	1/24/2023	5	3	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0.24

Acres of Paving: 0.24

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

#### OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	1	8.00	158	0.38
Grading	Off-Highway Trucks	1	8.00	402	0.38
Grading	Other Construction Equipment	1	8.00	172	0.42
Grading	Plate Compactors	1	8.00	8	0.43
Grading	Rubber Tired Dozers	0	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	0	6.00	89	0.20
Building Construction	Off-Highway Trucks	2	8.00	402	0.38

Building Construction	Other Construction Equipment	1	8.00	172	0.42
Building Construction	Plate Compactors	1	8.00	8	0.43
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

- Use Soil Stabilizer
- Water Exposed Area
- Reduce Vehicle Speed on Unpaved Roads

3.2 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					1.5000e-004	0.0000	1.5000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0238	0.2081	0.2468	4.9000e-004		0.0100	0.0100		9.3900e-003	9.3900e-003	0.0000	42.5383	42.5383	0.0118	0.0000	42.8330
Total	0.0238	0.2081	0.2468	4.9000e-004	1.5000e-004	0.0100	0.0102	2.0000e-005	9.3900e-003	9.4100e-003	0.0000	42.5383	42.5383	0.0118	0.0000	42.8330

### 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					6.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0238	0.2081	0.2468	4.9000e-004		0.0100	0.0100		9.3900e-003	9.3900e-003	0.0000	42.5382	42.5382	0.0118	0.0000	42.8329
Total	0.0238	0.2081	0.2468	4.9000e-004	6.0000e-005	0.0100	0.0101	1.0000e-005	9.3900e-003	9.4000e-003	0.0000	42.5382	42.5382	0.0118	0.0000	42.8329

### 3.3 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	0.0424	0.3828	0.3377	8.8000e-004		0.0167	0.0167		0.0154	0.0154	0.0000	76.9889	76.9889	0.0248	0.0000	77.6081
Total	0.0424	0.3828	0.3377	8.8000e-004		0.0167	0.0167		0.0154	0.0154	0.0000	76.9889	76.9889	0.0248	0.0000	77.6081

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	0.0424	0.3828	0.3377	8.8000e-004		0.0167	0.0167		0.0154	0.0154	0.0000	76.9888	76.9888	0.0248	0.0000	77.6080
Total	0.0424	0.3828	0.3377	8.8000e-004		0.0167	0.0167		0.0154	0.0154	0.0000	76.9888	76.9888	0.0248	0.0000	77.6080

3.3 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0144	0.1240	0.1196	3.2000e-004		5.3000e-003	5.3000e-003		4.8900e-003	4.8900e-003	0.0000	27.6523	27.6523	8.9000e-003	0.0000	27.8747
Total	0.0144	0.1240	0.1196	3.2000e-004		5.3000e-003	5.3000e-003		4.8900e-003	4.8900e-003	0.0000	27.6523	27.6523	8.9000e-003	0.0000	27.8747

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	0.0144	0.1240	0.1196	3.2000e-004		5.3000e-003	5.3000e-003		4.8900e-003	4.8900e-003	0.0000	27.6523	27.6523	8.9000e-003	0.0000	27.8746
Total	0.0144	0.1240	0.1196	3.2000e-004		5.3000e-003	5.3000e-003		4.8900e-003	4.8900e-003	0.0000	27.6523	27.6523	8.9000e-003	0.0000	27.8746

3.4 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	1.3300e-003	0.0121	0.0157	2.0000e-005		5.8000e-004	5.8000e-004		5.4000e-004	5.4000e-004	0.0000	2.0610	2.0610	6.1000e-004	0.0000	2.0761
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.3300e-003	0.0121	0.0157	2.0000e-005		5.8000e-004	5.8000e-004		5.4000e-004	5.4000e-004	0.0000	2.0610	2.0610	6.1000e-004	0.0000	2.0761



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	1.3300e-003	0.0121	0.0157	2.0000e-005		5.8000e-004	5.8000e-004		5.4000e-004	5.4000e-004	0.0000	2.0610	2.0610	6.1000e-004	0.0000	2.0761
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.3300e-003	0.0121	0.0157	2.0000e-005		5.8000e-004	5.8000e-004		5.4000e-004	5.4000e-004	0.0000	2.0610	2.0610	6.1000e-004	0.0000	2.0761

Tehachapi GSP - Treatment Facilities - Operations - Kern County APCD Air District, Annual

## Tehachapi GSP - Treatment Facilities - Operations

### Kern County APCD Air District, Annual

## 1.0 Project Characteristics

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### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	37.60	1000sqft	2.00	37,600.00	0

### 1.2 Other Project Characteristics

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.7	<b>Precipitation Freq (Days)</b>	32
<b>Climate Zone</b>	7			<b>Operational Year</b>	2023
<b>Utility Company</b>	Southern California Edison				
<b>CO2 Intensity (lb/MW hr)</b>	355.26	<b>CH4 Intensity (lb/MW hr)</b>	0	<b>N2O Intensity (lb/MW hr)</b>	0

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2e intensity factor linearly adjusted to account for SB100 RPS by year 2023.

Land Use - see operational assumptions

Construction Phase -

Vehicle Trips - operational mobile emissions calculated outside of CalEEMod.

Energy Use - Adjusted to account for 2019 Title 24 Standards. Project operational electricity consumption related emissions calculated outside of CalEEMod.

Waste Mitigation - consistent with AB939.

Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	0.65	0.00
tblEnergyUse	NT24E	1.31	0.00
tblEnergyUse	T24E	0.40	0.00
tblEnergyUse	T24NG	16.68	16.51
tblLandUse	LotAcreage	0.86	2.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0
tblProjectCharacteristics	CO2IntensityFactor	702.44	355.26
tblProjectCharacteristics	N2OIntensityFactor	0.006	0
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	WD_TR	6.97	0.00

## 2.0 Emissions Summary

### 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	0.1905	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.7000e-004	6.7000e-004	0.0000	0.0000	7.2000e-004
Energy	3.3700e-003	0.0307	0.0258	1.8000e-004		2.3300e-003	2.3300e-003		2.3300e-003	2.3300e-003	0.0000	33.3678	33.3678	6.4000e-004	6.1000e-004	33.5660
Waste						0.0000	0.0000		0.0000	0.0000	9.4634	0.0000	9.4634	0.5593	0.0000	23.4453
Water						0.0000	0.0000		0.0000	0.0000	2.7585	18.2443	21.0028	0.2833	6.6900e-003	30.0796

### 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	0.1905	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.7000e-004	6.7000e-004	0.0000	0.0000	7.2000e-004
Energy	3.3700e-003	0.0307	0.0258	1.8000e-004		2.3300e-003	2.3300e-003		2.3300e-003	2.3300e-003	0.0000	33.3678	33.3678	6.4000e-004	6.1000e-004	33.5660
Waste						0.0000	0.0000		0.0000	0.0000	4.7317	0.0000	4.7317	0.2796	0.0000	11.7226
Water						0.0000	0.0000		0.0000	0.0000	2.7585	18.2443	21.0028	0.2833	6.6900e-003	30.0796

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
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## 4.0 Operational Detail - Mobile

#### 4.1 Mitigation Measures Mobile

[illegible]

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.490526	0.031452	0.181589	0.105458	0.018536	0.005406	0.011222	0.141571	0.002199	0.001433	0.008294	0.001173	0.001143

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	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	3.3700e-003	0.0307	0.0258	1.8000e-004		2.3300e-003	2.3300e-003		2.3300e-003	2.3300e-003	0.0000	33.3678	33.3678	6.4000e-004	6.1000e-004	33.5660
NaturalGas Unmitigated	3.3700e-003	0.0307	0.0258	1.8000e-004		2.3300e-003	2.3300e-003		2.3300e-003	2.3300e-003	0.0000	33.3678	33.3678	6.4000e-004	6.1000e-004	33.5660

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	625288	3.3700e-003	0.0307	0.0258	1.8000e-004		2.3300e-003	2.3300e-003		2.3300e-003	2.3300e-003	0.0000	33.3678	33.3678	6.4000e-004	6.1000e-004	33.5660
Total		3.3700e-003	0.0307	0.0258	1.8000e-004		2.3300e-003	2.3300e-003		2.3300e-003	2.3300e-003	0.0000	33.3678	33.3678	6.4000e-004	6.1000e-004	33.5660

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	625288	3.3700e-003	0.0307	0.0258	1.8000e-004		2.3300e-003	2.3300e-003		2.3300e-003	2.3300e-003	0.0000	33.3678	33.3678	6.4000e-004	6.1000e-004	33.5660
Total		3.3700e-003	0.0307	0.0258	1.8000e-004		2.3300e-003	2.3300e-003		2.3300e-003	2.3300e-003	0.0000	33.3678	33.3678	6.4000e-004	6.1000e-004	33.5660

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1905	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.7000e-004	6.7000e-004	0.0000	0.0000	7.2000e-004
Unmitigated	0.1905	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.7000e-004	6.7000e-004	0.0000	0.0000	7.2000e-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	0.0436					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1469					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.7000e-004	6.7000e-004	0.0000	0.0000	7.2000e-004
Total	0.1905	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.7000e-004	6.7000e-004	0.0000	0.0000	7.2000e-004



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	0.0436					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1469					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.7000e-004	6.7000e-004	0.0000	0.0000	7.2000e-004
Total	0.1905	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.7000e-004	6.7000e-004	0.0000	0.0000	7.2000e-004

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	21.0028	0.2833	6.6900e-003	30.0796
Unmitigated	21.0028	0.2833	6.6900e-003	30.0796

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	8.695 / 0	21.0028	0.2833	6.6900e-003	30.0796
Total		21.0028	0.2833	6.6900e-003	30.0796

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	8.695 / 0	21.0028	0.2833	6.6900e-003	30.0796
Total		21.0028	0.2833	6.6900e-003	30.0796

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	4.7317	0.2796	0.0000	11.7226
Unmitigated	9.4634	0.5593	0.0000	23.4453

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	46.62	9.4634	0.5593	0.0000	23.4453
Total		9.4634	0.5593	0.0000	23.4453

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	23.31	4.7317	0.2796	0.0000	11.7226
Total		4.7317	0.2796	0.0000	11.7226

9.0 Operational Offroad

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

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

# Appendix NOI

## **Project Noise Calculations**



# Construction

## **Assumptions and Calculations**

**Project: Tehachapi Construction**  
**Construction Noise Impact on Sensitive Receptors**

**Parameters**

<b>Construction Hours:</b>	8 Daytime hours (7 am to 7 pm)
	0 Evening hours (7 pm to 10 pm)
	0 Nighttime hours (10 pm to 7 am)
<b>Leq to L10 factor</b>	3

				R1				
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
<b>Treatment Facilities</b>								
<b>Site Preparation</b>					<b>86</b>	<b>80</b>		
Excavator	1	81	40%	50	81	77	80	0
Tractor/Loader/Backhoe	2	80	25%	50	83	77	80	0
Water Trucks	1	80	10%	50	80	70	73	0
<b>Grading/Excavation</b>					<b>90</b>	<b>85</b>		
Excavator	1	81	40%	50	81	77	80	0
Water Trucks	1	80	10%	50	80	70	73	0
Compactor (ground)	1	83	20%	50	83	76	79	0
Other Equipment	1	85	50%	50	85	82	85	0
Tractor/Loader/Backhoe	2	80	25%	50	83	77	80	0
<b>Building Construction - Installation of Facilities</b>					<b>91</b>	<b>85</b>		
Cranes	2	81	16%	50	84	76	79	0
Water Trucks	2	80	10%	50	83	73	76	0
Other Equipment	1	85	50%	50	85	82	85	0
Compactor (ground)	1	83	20%	50	83	76	79	0
Tractor/Loader/Backhoe	2	80	25%	50	83	77	80	0
<b>Paving</b>					<b>89</b>	<b>85</b>		
Tractor/Loader/Backhoe	2	80	25%	50	83	77	80	0
Paver	1	77	50%	50	77	74	77	0
Other Equipment	1	85	50%	50	85	82	85	0
Cement and Mortar Mixers	1	79	40%	50	79	75	78	0
Roller	1	80	20%	50	80	73	76	0
<b>Recharge Facilities</b>								
<b>Site Preparation</b>					<b>88</b>	<b>83</b>		
Tractor/Loader/Backhoe	3	80	25%	50	85	79	82	0
Scrapers	1	84	40%	50	84	80	83	0
Water Trucks	1	80	10%	50	80	70	73	0
<b>Grading/Excavation</b>					<b>91</b>	<b>86</b>		
Excavator	1	81	40%	50	81	77	80	0
Water Trucks	1	80	10%	50	80	70	73	0
Other Equipment	1	85	50%	50	85	82	85	0
Compactor (ground)	1	83	20%	50	83	76	79	0
Scrapers	1	84	40%	50	84	80	83	0
Tractor/Loader/Backhoe	3	80	25%	50	85	79	82	0
<b>Conveyance Facilities - Pipelines</b>								
<b>Trenching/Excavation/Shoring</b>					<b>93</b>	<b>87</b>		
Concrete Saw	1	90	20%	50	90	83	86	0
Excavator	1	81	40%	50	81	77	80	0
Water Trucks	1	80	10%	50	80	70	73	0
Compactor (ground)	1	83	20%	50	83	76	79	0
Other Equipment	1	85	50%	50	85	82	85	0
Tractor/Loader/Backhoe	2	80	25%	50	83	77	80	0
<b>Building Construction - Pipelines/Backfill</b>					<b>89</b>	<b>84</b>		

				R1				
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
Cranes	1	81	16%	50	81	73	76	0
Water Trucks	2	80	10%	50	83	73	76	0
Other Equipment	1	85	50%	50	85	82	85	0
Compactor (ground)	1	83	20%	50	83	76	79	0
Tractor/Loader/Backhoe	2	80	25%	50	83	77	80	0
<b>Site Restoration/Paving</b>					<b>88</b>	<b>83</b>		
Tractor/Loader/Backhoe	2	80	25%	50	83	77	80	0
Paver	1	77	50%	50	77	74	77	0
Cement and Mortar Mixers	4	79	40%	50	85	81	84	0
Roller	1	80	20%	50	80	73	76	0
<b>Conveyance Facilities - Pump Stations</b>								
<b>Site Preparation</b>					<b>86</b>	<b>80</b>		
Excavator	1	81	40%	50	81	77	80	0
Tractor/Loader/Backhoe	2	80	25%	50	83	77	80	0
Water Trucks	1	80	10%	50	80	70	73	0
<b>Grading/Excavation</b>					<b>89</b>	<b>84</b>		
Excavator	1	81	40%	50	81	77	80	0
Tractor/Loader/Backhoe	2	80	25%	50	83	77	80	0
Water Trucks	1	80	10%	50	80	70	73	0
Other Equipment	1	85	50%	50	85	82	85	0
<b>Building Construction</b>					<b>89</b>	<b>84</b>		
Cranes	1	81	16%	50	81	73	76	0
Water Trucks	2	80	10%	50	83	73	76	0
Other Equipment	1	85	50%	50	85	82	85	0
Compactor (ground)	1	83	20%	50	83	76	79	0
Tractor/Loader/Backhoe	2	80	25%	50	83	77	80	0
<b>Paving</b>					<b>92</b>	<b>87</b>		
Tractor/Loader/Backhoe	2	80	25%	25	89	83	86	0
Paver	1	77	50%	25	83	80	83	0
Cement and Mortar Mixers	4	79	40%	50	85	81	84	0
Roller	1	80	20%	50	80	73	76	0
<b>Monitoring Wells</b>								
<b>Drilling/Grading</b>					<b>83</b>	<b>74</b>		
Bore/Drill Rig Truck	1.055139	79	20%	50	79	72	75	0
Water Trucks	1.049736	80	10%	50	80	70	73	0
<b>Building Construction</b>					<b>83</b>	<b>80</b>		
Air Compressor	1.141594	78	40%	50	79	75	78	0
Generator Sets	1.136191	81	50%	50	82	79	82	0
<b>Overlapping Phase Noise Levels</b>								
Building Construction + Architectural Coating					<b>92.8</b>	<b>87.7</b>		
<b>Maximum Combined Noise Levels</b>					<b>93</b>	<b>88</b>		
Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005								



**Project: Tehachapi Construction - Mitigated**  
**Construction Noise Impact on Sensitive Receptors**

**Parameters**

<b>Construction Hours:</b>	8	Daytime hours (7 am to 7 pm)
	0	Evening hours (7 pm to 10 pm)
	0	Nighttime hours (10 pm to 7 am)
<b>Leq to L10 factor</b>	3	

				R1				
<b>Construction Phase Equipment Type</b>	<b>No. of Equip.</b>	<b>Reference Noise Level at 50ft, Lmax</b>	<b>Acoustical Usage Factor</b>	<b>Distance (ft)</b>	<b>Lmax</b>	<b>Leq</b>	<b>L10</b>	<b>Estimated Noise Shielding, dBA</b>
<b><i>Demolition</i></b>					<b>80.6</b>	<b>74.2</b>		
Concrete Saw	2	90	20%	50	80.0	73.0	76	13
Generator Sets	1	81	50%	50	68.0	65.0	68	13
Front End Loader	1	79	40%	50	66.0	62.0	65	13
Tractor/Loader/Backhoe	1	80	25%	50	67.0	61.0	64	13
<b><i>Grading/Excavation</i></b>					<b>72.9</b>	<b>67.9</b>		
Bore/Drill Rig Truck	1	79	20%	50	66.0	59.0	62	13
Excavator	1	81	40%	50	68.0	64.0	67	13
Front End Loader	1	79	40%	50	66.0	62.0	65	13
Tractor/Loader/Backhoe	1	80	25%	50	67.0	61.0	64	13
<b><i>Building Construction</i></b>					<b>74.1</b>	<b>70.3</b>		
Man Lift	1	75	20%	50	62.0	55.0	58	13
Air Compressor	4	78	40%	50	71.0	67.0	70	13
Generator Sets	1	81	50%	50	68.0	65.0	68	13
Front End Loader	1	79	40%	50	66.0	62.0	65	13
Welders	1	74	40%	50	61.0	57.0	60	13
<b><i>Architectural Coating</i></b>					<b>71.3</b>	<b>67.8</b>		
Air Compressor	1	78	40%	50	65.0	61.0	64	13
Front End Loader	1	79	40%	50	66.0	62.0	65	13
Generator Sets	1	81	50%	50	68.0	65.0	68	13
<b>Overlapping Phase Noise Levels</b>								
Building Construction + Architectural Coating					<b>75.9</b>	<b>72.2</b>		
<b>Maximum Combined Noise Levels</b>					<b>81</b>	<b>74</b>		

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

TRAFFIC NOISE ANALYSIS TOOL



Project: Tehachapi GW Sustainability  
Traffic Scenario: Construction  
Source: Client

Roadway Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)	Noise Level dBA CNEL
			Auto	MT	HT	Auto	MT	HT		
Construction Vehicles	Hard	30	35	35	30	20	0	38	63.8	64.1

Model Notes:  
The calculation is based on the methodology described in FHWA Traffic Noise Model Technical Manual (1998).  
The peak hour noise level at 50 feet was validated with the results from FHWA Traffic Noise Model Version 2.5.  
Accuracy of the calculation is within ±0.1 dB when comparing to TNM results.  
Noise propagation greater than 50 feet is based on the following assumptions:

Vehicles are assumed to be on a long straight roadway with cruise speed.  
Roadway grade is less than 1.5%.  
CNEL levels were obtained based on Figure 2-19, on page 2-58 Caltran's TeNS 2013.

# Operations

## **Assumptions and Calculations**

**Project: Tehachapi Operations**  
**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	

				R1				
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
<b>Conveyance Facilities - Pump Stations</b>								
Site Preparation					36	36		
Pumps	4	81	100%	370	36	36	39	34

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005