





INITIAL STUDY/
PROPOSED MITIGATED NEGATIVE DECLARATION

Tuolumne Biomass LLC Biomass Utilization Project

Prepared for:

Tuolumne County

DECEMBER 2022

20200116.02

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Tuolumne Biomass LLC Biomass Utilization Project

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DECEMBER 2022

20200116.02

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LIST OF ABBREVIATIONS

APN	assessor's parcel number
BLM	US Bureau of Land Management
BMP	best management practice
Cal ARP	California Accidental Release Prevention
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CBC	California Building Code
CCIC	Central California Information Center
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CHP	California Highway Patrol
CHP	combined heat and power
CNEL	Community Noise Equivalent Level
CRHR	California Register of Historical Resources
CUPA	Certified Unified Program Agency
dB	decibels
DBH	diameter at breast height
DOC	California Department of Conservation
EHD	Tuolumne County Environmental Health Division of the Community Resources Agency
EPA	US Environmental Protection Agency
ESA	federal Endangered Species Act
FEMA	Federal Emergency Management Agency
FHSZ	fire hazard severity zone
FPD	Fire Protection District
IS/Proposed MND	Initial Study/Proposed Mitigated Negative Declaration
kW	kilowatt
kWh	kilowatt per hour
L_{dn}	day-night average sound level
L_{eq}	Equivalent Continuous Sound Level
LOS	level of service
LUST	leaking underground storage tank
MBTA	Migratory Bird Treaty Act

mmBTU	metric million British thermal unit
NAHC	Native American Heritage Commission
NRHP	National Register of Historic Places
OPR	Governor's Office of Planning and Research
OSHA	federal Occupational Safety and Health Administration
PG&E	Pacific Gas & Electricity
PPV	peak particle velocity
RMS	root-mean-square
RTP	regional transportation plan
SB	Senate Bill
sf	square foot
SLF	Sacred Lands File
SPL	sound pressure level
SR	State Route
SWPPP	stormwater pollution prevention plan
TBLLC	Tuolumne Biomass LLC
TCFD	Tuolumne County Fire Department
TCTC	Tuolumne County Transportation Council
Technical Advisory	*Technical Advisory on Evaluating Transportation Impacts in CEQA*
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
VdB	vibration decibels
VMT	vehicle miles traveled

1 INTRODUCTION

1.1 INTRODUCTION AND REGULATORY GUIDANCE

This Initial Study/Proposed Mitigated Negative Declaration (IS/Proposed MND) has been prepared by Tuolumne County to evaluate potential environmental effects resulting from the Tuolumne Biomass LLC (TBLLC) Biomass Utilization Project (proposed project). Chapter 2, "Project Description," presents detailed project information.

This document has been prepared in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations Section 15000 et seq.). An initial study is prepared by a lead agency to determine if a project may have a significant effect on the environment (State CEQA Guidelines Section 15063[a]), and thus to determine the appropriate environmental document. In accordance with State CEQA Guidelines Section 15070, a "public agency shall prepare…a proposed negative declaration or mitigated negative declaration…when: (a) The Initial Study shows that there is no substantial evidence…that the project may have a significant impact on the environment, or (b) The Initial Study identifies potentially significant effects but revisions to the project plans or proposal are agreed to by the applicant and such revisions would reduce potentially significant effects to a less-than-significant level." In this circumstance, the lead agency prepares a written statement describing its reasons for concluding that the project would not have a significant effect on the environment and, therefore, does not require the preparation of an Environmental Impact Report (EIR). By contrast, an EIR is required when the project may have a significant environmental impact that cannot clearly be reduced to a less-than-significant impact by adoption of mitigation or by revisions in the project design.

As described in the environmental checklist (Chapter 3), the project would not result in any unmitigated significant environmental impacts. Therefore, an IS/Proposed MND is the appropriate document for compliance with the requirements of CEQA. This IS/Proposed MND conforms to these requirements and to the content requirements of State CEQA Guidelines Section 15071. Under CEQA, the lead agency is the public agency with primary responsibility over approval of the project. Tuolumne County is the CEQA lead agency because they are responsible for the primary approvals and permitting of the proposed project.

1.2 PUBLIC REVIEW

The purpose of this document is to present to decision-makers and the public information about the environmental consequences of implementing the project. This disclosure document is being made available to the public for review and comment. This IS/Proposed MND will be available for a 30-day public review period from December 20, 2022 to January 19, 2023.

Supporting documentation referenced in this document is available for review at:

Tuolumne County Community Development Department
48 Yaney Avenue
Sonora, CA 95370

Comments should be addressed to:

Natalie Rizzi, Senior Planner
Tuolumne County Community Development Department
2 South Green Street
Sonora, CA 95370

E-mail comments may be addressed to: nrizzi@co.tuolumne.ca.us

If you have questions regarding the IS/Proposed MND, please call Natalie Rizzi at: (209) 533-5936. If you wish to send written comments (including via e-mail), they must be postmarked by January 19, 2023.

After comments are received from the public and reviewing agencies, the Tuolumne County Board of Supervisors may (1) adopt the MND and approve the project; (2) undertake additional environmental studies; or (3) abandon the project. If the project is approved and funded, the project proponent may proceed with the project.

1.3 SUMMARY OF FINDINGS

Chapter 3 of this document contains the analysis and discussion of potential environmental impacts of the project.

Based on the issues evaluated in that chapter, it was determined that the project would have either no impact or a less-than-significant impact related to most of the issue areas identified in the Environmental Checklist, included as Appendix G of the State CEQA Guidelines. These include the following issue areas:

- Agriculture and Forest Resources
- Air Quality
- Energy
- Geology/ Soils
- Greenhouse Gas Emissions
- Hazards/ Hazardous Materials
- Hydrology/ Water Quality
- Land Use/ Planning
- Mineral Resources
- Noise
- Population/Housing
- Public Services
- Recreation
- Transportation
- Utilities/Service Systems
- Wildfire

Potentially significant impacts were identified for aesthetics, biological resources, cultural resources, and tribal cultural resources; however, mitigation measures included in the IS/Proposed MND would reduce all impacts to a less-than-significant level.

1.4 ENVIRONMENTAL PERMITS

The project would require the following permits and/or approvals:

- Tuolumne County Conditional Use Permit CUP22-003 to allow for the development of a wood processing facility on a 161.5-acre parcel zone AE-37:AP (Exclusive Agricultural, Thirty-Seven Acre Minimum: Agricultural Preserve Combining) under Title 17 of the Tuolumne County Ordinance Code
- Tuolumne County Air Pollution Control District application for Authority to Construct/ Permit to Operate to allow for construction of the facility and operation of the gasification system
- Tuolumne County Grading, Encroachment, and Building Permits to allow for site grading, building construction, and access driveway relocation
- Williamson Act Contract WA22-001 to allow a permanent conversion of 17 acres of land used for cattle grazing to a different agricultural use as a biomass processing facility. This would require submission of a new Williamson Act management plan that includes the use of the site as a biomass processing facility.
- California State Water Resources Control Board Construction Stormwater General Permit (2009-0009-DWQ as amended by 2010-0014-DWQ and 2012-0006-DWQ)
- California State Water Resources Control Board Industrial General Permit (2014-0057-DWQ as amended by 2015-0122-DWQ)

1.5 DOCUMENT ORGANIZATION

This IS/Proposed MND is organized as follows:

- **Chapter 1: Introduction.** This chapter provides an introduction to the environmental review process. It describes the purpose and organization of this document as well as presents a summary of findings.
- **Chapter 2: Project Description.** This chapter identifies project objectives and provides a detailed description of the project.
- **Chapter 3: Environmental Checklist.** This chapter presents an analysis of a range of environmental issues identified in the CEQA Environmental Checklist and determines if project actions would result in no impact, a less-than-significant impact, a less-than-significant impact with mitigation incorporated, or a potentially significant impact. If any impacts were determined to be potentially significant, an EIR would be required. For this project, however, none of the impacts were determined to be significant after implementation of mitigation measures.
- **Chapter 4: References.** This chapter lists the references used in preparation of this IS/Proposed MND.
- **Chapter 5: List of Preparers.** This chapter identifies report preparers.

Information to Review the Associated NEPA Documents:

The California Deparmtent of Housing and Community Development (HCD) has determined that the project will have no significant impact on the human environment. Therefore, an Environmental Impact Statement under the National Environmental Policy Act of 1969 (NEPA) is not required. Additional project information is contained in the Environmental Review Record (ERR), which can be accessed at any time on the HUD Environmental Review Online System (HEROS). The site does not require any log in or credentials. The public can access the review for the Tuolumne Biomass LLC Biomass Utilization Project at: https://cpd.hud.gov/cpd-public/environmental-reviews

From there, make the following selections: under Report Status, select Public Comment; under State, select California; for City, select Jamestown, and then click Show Reviews. Click on Tuolumne Biomass LLC Biomass Utilization Project and the environmental review will download as a Microsoft Word document. The Microsoft Word document will contain links to additional documents, maps, and analysis.

2 PROJECT DESCRIPTION

2.1 PROJECT LOCATION

The Tuolumne Biomass LLC (TBLLC) Biomass Utilization Project (proposed project) is situated on a 17-acre project site within a 161.5-acre parcel (assessor's parcel number [APN] 063-070-086) in Tuolumne County near Jamestown, California. TBLLC and the property owner, T-Five Ranches, Inc., have signed a letter of intent that outlines the basic terms of a 17-acre land lease that would be granted to TBLLC to operate the proposed biomass utilization facility. The lease is being negotiated and drafted separate from the environmental review process.

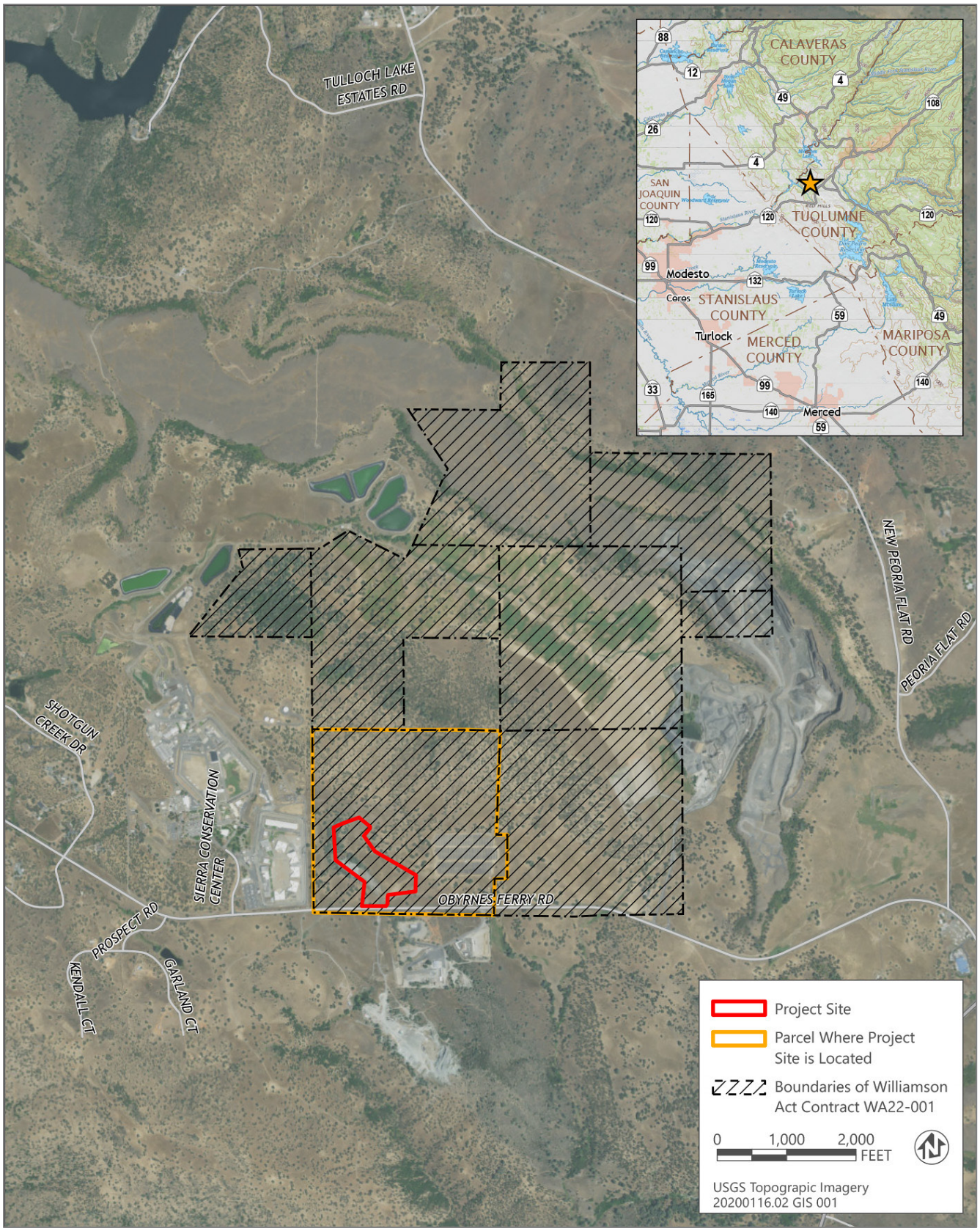
The parcel is bounded on the south by O'Byrnes Ferry Road, on the west by a California Correctional Facility, on the north by private property owned by T-Five Ranches, Inc. and federal land managed by the US Bureau of Land Management (BLM), and on the east by private land owned by T-Five Ranches, Inc. (Figures 2-1 and 2-2). There is an existing solar farm located partially on the same parcel and to the east of the project site, which would remain in use. Access to the site would be provided via O'Byrnes Ferry Road.

2.2 PROJECT OVERVIEW

The proposed project would utilize woody biomass material from forest stewardship projects, including forest restoration and wildfire mitigation activities, to manufacture a number of value-added products. This material would otherwise be burned. This project would fill a market niche in the Tuolumne County region by constructing a facility to handle logs (slash) of varying diameters and lengths that are too small or irregular to make a traditional saw log. The minimum size log would be 16 feet long and 2 inches in diameter and the maximum size log would be 23 inches in diameter. Any saw log with a 6- to 8-inch wide top and 32 feet long would be sold directly from the forest location where the material was removed and would not be processed at the TBLLC facility. The proposed project would be modeled after Heartwood Biomass, an existing biomass utilization facility in Wallowa, Oregon. The project would enable more complete utilization of woody biomass inputs (particularly small-diameter logs and biomass residuals), create local jobs, produce a diversified group of wood product lines, and generate heat and electricity for on-site purposes. Excess power generated, beyond that which is needed for on-site operations, would be returned to the electrical grid through a net energy metering (NEM) agreement with Pacific Gas and Electric (PG&E). NEM is an electricity billing mechanism that allows participants that generate some or all of their own electricity to sell surplus power to the utility operator in exchange for credits, which offset the costs of any electricity that may be needed from the grid. The proposed site design (Figure 2-3) and operations would realize economic efficiencies by operating a sort-yard to recover maximum value from a wide range of products from the biomass supply mostly from the Stanislaus National Forest. Based on the project proponent's operating experience and an analysis of available feedstock and markets in the region, the proposed project would produce a variety of manufactured products, including posts and poles, bundled firewood, wood chips, and hog fuel with the opportunity to expand into additional product lines in the future, including short saw logs (about 8.5 feet) that could be sold to regional mills..

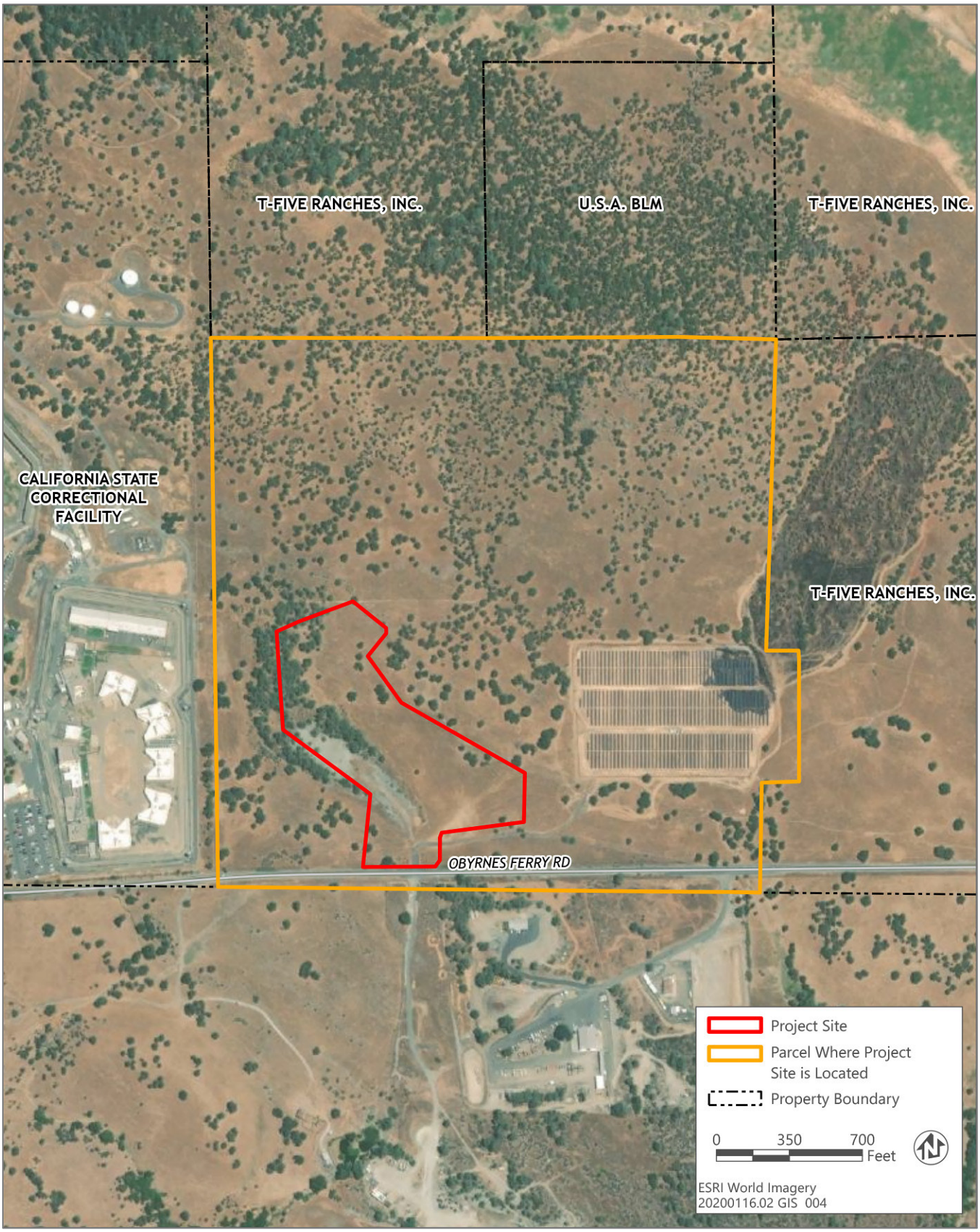
As shown in Figure 2-3, the approximately 17-acre site would include a truck scale, an approximately 14-foot-wide access road, a 2.5-acre log deck yard, a 3-acre outdoor storage/wood drying area, a 42,000-square foot (sf) merchandizing line, a 3,200-sf millwright shop, a retention pond, on-site wastewater disposal, a well and water storage tank, and a 30,000-sf warehouse building with an adjacent 1,800 sf office. Most of the site surfaces would be gravel, but the proposed outdoor storage and wood drying area would be situated on an asphalt surface. The only concrete work required at the project site would be for the foundations of buildings and specific equipment on the merchandizing line (approximately 75,000 sf). It is anticipated that one oak tree (*Quercus wislizeni*) and 40 pine trees (*Pinus sabiniana*) would need to be removed to construct the project. They would remain on-site to be processed at the facility.

The expected volume of throughput at the proposed facility would grow from an estimated 10,000 tons to 20,000 tons of biomass (moisture content of 40 percent) per year over a 5-year period. At full capacity and with current product assumptions, the proposed facility could convert over 20,000 tons of biomass into value-added products.



Source: Adapted by Ascent in 2021.

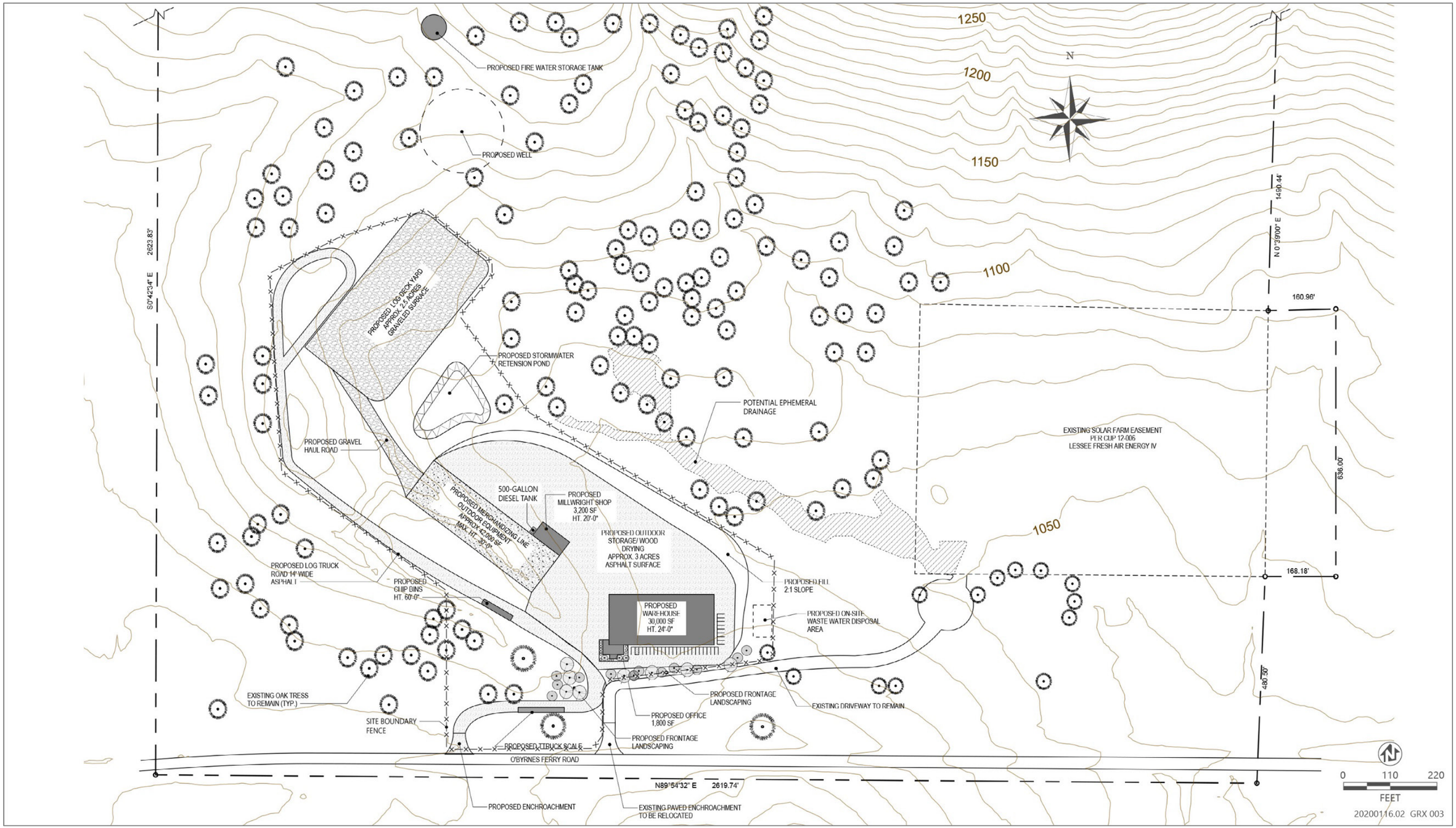
Figure 2-1 Project Location



Source: Adapted by Ascent in 2022.

Figure 2-2 Project Site

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Source: TBLLC 2022.

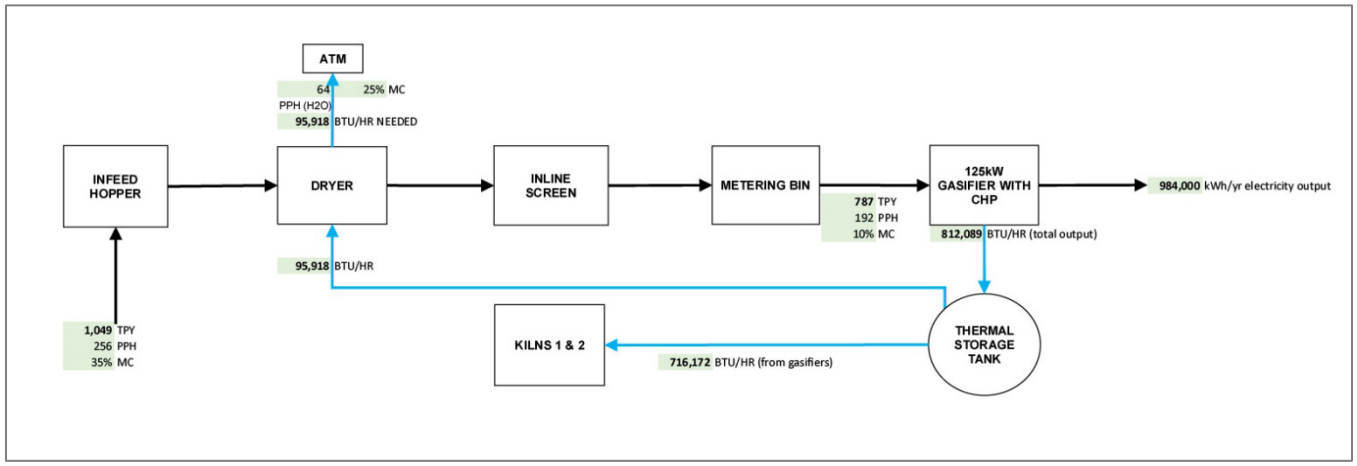
Figure 2-3 Project Site Plan

In addition to manufacturing wood products, the proposed project includes a combined heat and power (CHP) system to support site operations as described below.

2.2.1 Combined Heat and Power System (Gasification System)

The proposed CHP system would generate energy to match the thermal and electrical demands of the proposed facility. The CHP system, which would use a gasification technology, would be operated through a partnership between TBLLC and Wisewood Energy, a leader in small-scale biomass energy systems. Gasification systems generate electricity through transformation of biomass into a "syngas" (i.e., synthetic gas) and combustion of the syngas in an internal combustion engine. The CHP system would combust the syngas to (1) provide the site's thermal energy demand from the heat-treating kilns, dryers, and building space heating; (2) generate ash as a by-product; and (3) generate electricity on-site and sell any excess electricity to PG&E through a NEM agreement. The CHP system would feature a particulate cycle and gas scrubbing system, which, when combined, would represent the most stringent commercially available emissions control technology. Figure 2-4 includes a schematic diagram that illustrates the CHP system, which includes an infeed bin, a dedicated chip dryer, overs/fines screening, a metering bin, an infeed system, a gasifier, an internal combustion engine, and emissions controls. The CHP system would provide thermal energy via hot water to firewood drying kilns and the chip drier. The site would be designed to support an efficient flow of wood chips and residuals from the manufacturing lines to the CHP system. The CHP system would require an initial fill of water of approximately 1,000 gallons, but would not require any ongoing water input or replacement because the system is closed. The biomass energy system would have a rated capacity of 0.8 metric million British thermal units (mmBTU).

Residuals from the manufacturing of the various product lines on-site would partially fuel the CHP system; forest biomass brought to the site and chipped on-site would constitute the balance of fuel needed for its operation. Total biomass consumption to fuel the 125 kilowatt (kW) CHP system is anticipated to be 1,049 green tons per year.



Source: TBLLC and Wisewood Energy 2022; adapted by Ascent Environmental in 2022.

Figure 2-4 CHP Thermal and Gasifier System Diagram

2.2.2 Facility Design and Operations

The proposed site layout is designed to facilitate efficient site operations. Project site features shown in Figure 2-3 include:

- **Truck Scales.** The truck scales would be located near the entrance of the facility to ensure efficient weighing of inbound log trucks carrying raw logs and outbound chip vans carrying finished wood chips and hog fuel. Generally, inbound log trucks would carry a payload of 20-27 tons per truck depending on the nature of the material being hauled (e.g., whole logs versus small pieces). An estimated 70 chip vans would leave the facility

each year. Haul trucks typically haul 28-30 tons of chips. Other outbound finished products (e.g., bundled firewood, posts, and poles) would not require scaling before leaving the facility.

- **Log Storage.** The log storage area (i.e., log deck yard and outdoor storage/wood drying area) would be used to stockpile whole logs that are received by the facility.
- **Merchandizing Line.** The merchandizing area would be approximately 1 acre at the western end of the project site and includes log conveyers, saws, a debarking machine, and a chipping station. All motors would be run on electricity. The merchandizing line would be loaded with logs directly from the log storage area and would sort material into the various product lines according to highest and best use. Residuals from the merchandizing line, including sawdust, bark, and hog fuel, would be collected on secondary conveyors and transported to the chip bins. The merchandizing line would not be enclosed in a building.
- **Equipment.** The facility would require the use of diesel equipment to move logs and other materials and perform maintenance. Equipment would include a truck loader, wheel loader, two forklifts, two small wheel loaders, telehandler, short-haul truck, skid steer, and man lift.
- **Main Warehouse Building.** The main warehouse building would house the firewood packaging line, CHP system, kilns, shop, office space, storage, break room, and loading dock. Finished product would be packaged on the packaging line and loaded onto outbound trucks from this building.
- **Chip Bins.** The chip bins would hold both clean chips and hog fuel and would be used to both store and load various grades of wood fiber.
- **Water Storage.** A water storage tank would be located on top of a large outcropping in the northwesternmost portion of the site to provide gravity-fed fire protection in the event of an emergency.
- **Exclusionary Fence.** A fence would be constructed around the perimeter of the site to exclude cows from the site and avoid disturbance of the adjacent seasonal stream, near the existing solar facility.

2.2.3 Workforce

The proposed project would create about 20 full-time hourly jobs. At least 51 percent of the new jobs would be filled by low-moderate income people under the Community Development Block Grant National Disaster Resiliency program. Mother Lode Job Training would assist with the recruitment and training of employees and documentation of the jobs. The facility is anticipated to include 16 on site jobs when first operating, 11 of which would meet the definition of people with a low-moderate income (69 percent of jobs), and ramping up to 20 on-site with 15 meeting the definition of people with a low-moderate income (75 percent of jobs).

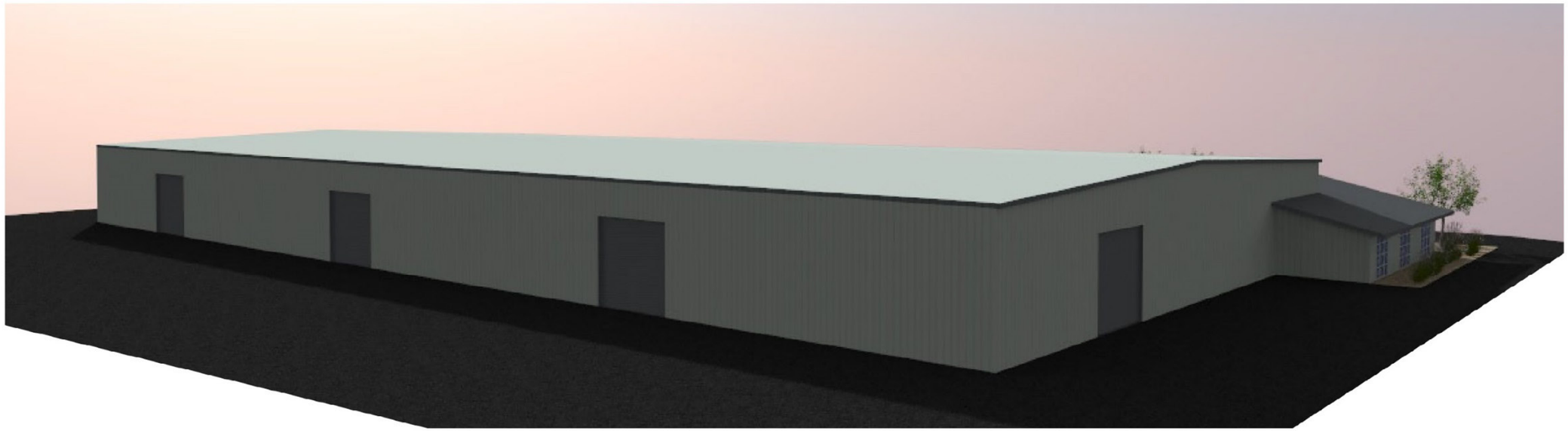
2.2.4 Project Construction

Construction would be completed in several phases with site construction to be completed over approximately 1 year, depending on availability of materials (Figure 2-5). Phase 1, Engineering Design and Site Planning, has begun and would be completed in 2022. Phase 2, Site Preparation and Equipment Acquisition, and Phase 3, Plant Construction, are anticipated to begin in spring 2023 and take approximately 1 year to complete. Phase 3 would include transport of equipment to the site, installation of equipment controls and electrical, CHP system installation, and initial operations. Construction activities would take place on a 10-hour daytime shift, 5 days each week, with overtime as needed to complete the project in a timely manner. The first full year of operations is anticipated to be in 2024.

The equipment required to construct the proposed project would be similar to construction equipment used for other industrial building projects. Loaders, boom-lifts, cranes, welders, service trucks, bulldozers and various other large pieces of equipment would be used. This equipment would not be operated outside of daylight hours.



SOUTH RENDERING
SCALE : NTS



NORTH RENDERING
SCALE : NTS

20200116.02 GRX 002

Source: TBLLC 2022.

Figure 2-5 Rendering of Proposed Warehouse Building

The site has a moderate northeastern slope in the northern portion of the project site, with a high point at the edge of the former gravel pit and a low point near the seasonal stream. No work is proposed in the seasonal stream, which would be separated from the site by perimeter fencing. There is a potential seasonal drainage to the northeast of the project site just outside of the project fence. The presence of the potential seasonal drainage is based on aerial imagery taken during a wet year (2017). The southern portion of the potential seasonal drainage in the project site underwent an aquatic resources delineation and was determined not to be an aquatic resource. The northern portion was not delineated because it was outside of the project site. It is not mapped in the National Wetlands Inventory. The potential seasonal drainage slopes to the east. The topography of project site does not allow stormwater from the site to drain to the potential seasonal drainage. The site would be graded to accommodate log storage and efficient flow of material from log storage to the merchandizing line. During site grading and preparation, a permanent stormwater basin would be installed and maintained in compliance with the grading and drainage plan approved by Tuolumne County, as required by the building permit. The site would be designed such that all impervious surfaces would drain into the proposed stormwater basin. The grading plan would include an erosion control plan that identifies best management practices (BMPs) required to be implemented during construction. Construction of the project would disturb over 1 acre and, therefore, the project would be required to comply with the California Construction General Permit (2009-0009-DWQ as amended by 2010-0014-DWQ and 2012-0006-DWQ) and develop and implement a stormwater pollution prevention plan (SWPPP).

2.2.5 Site Operations

Manufacturing operations would occur 5 days per week from 7:30 a.m. to 3:30 p.m. The CHP system would operate 24 hours per day, except when routine maintenance would be required.

UTILITIES

The only utility energy use at the facility would be electricity through an interconnection with PG&E. The facility would produce about 984,000 kilowatt hours (kWh) of electricity per year and the anticipated demand of the facility would be 1-1.2 million kWh per year. The estimated electrical use is estimated to be 80,000 to 100,000 kWh per month.

Water would be sourced from an on-site well, with drinking water supplied through a bottled water service. Estimated well water use would be 13 gallons per person per day, or approximately 65,000 gallons per year, with a projected total of 20 employees.

Domestic wastewater would be exhausted into an on-site septic system.

The site would generally be graveled and allow for stormwater to infiltrate directly into the ground. However, to protect the site from any adverse effects associated with stormwater runoff in periods of heavy rainfall, erosion control wattles would be installed and maintained at the bottom of the slope on the northern and eastern portions of the property. Additionally, there would be a stormwater retention pond to allow water to infiltrate and reduce the risk of pollutants leaving the site. These features would minimize the possibility of harmful erosion through the site and avoid any impacts to the adjacent property.

BYPRODUCTS/PRODUCTS

The facility would strive to operate as a waste-free facility. Any residuals produced at the facility that cannot be manufactured into a marketable product or used as fuel for the CHP system would be sold as hog fuel to power a nearby wood-to-energy facility. TBLLC anticipates selling 2,000 tons per year of residuals (wood chips) to Pacific Ultrapower Chinese Station, a 25-gross-megawatt biomass plant in Jamestown, California. Poles manufactured at the site would be delivered to Riverbank, California for agricultural use. Wood products produced at the site is anticipated to be delivered to Modesto, Sacramento, and potentially the Los Angeles region. Bark would be sold to Sierra Pacific Industries in the region. The annual products sold by volume is anticipated to be 6,186 tons of firewood, 2,435 tons of poles, 2,435 tons of dowls, and 3,246 of clean residuals (including wood chips and bark) (King, pers.

comm., 2022). There is a possibility that in the future ash generated by the CHP system could be provided to agricultural producers for use as a soil amendment.

2.3 EXISTING SETTING

Although the site is currently undeveloped, it was formerly used as a gravel pit with an area of approximately 2 acres already graded and graveled, and there is only a very small number of trees/shrubs at the site, consisting mostly of gray pine (*Pinus sabiniana*), although there are a few small oak trees (*Quercus wislizeni*).

Additionally, there is a utility scale solar plant adjacent to the project site and an access road approximately 1,000 feet long that crosses the property to access the solar facility.

Part of the project site is under a Williamson Act contract, which provides a reduction in property tax for keeping the acreage in agriculture or grazing for a specified period. The County has the option of approving the biomass utilization facility on the parcel as an approved use under the Williamson Act. The proposed project would retain the agricultural land use designation of the site, which is consistent with surrounding zoning and land uses.

2.4 PROJECT OBJECTIVES

The prevention of wildfires is usually limited by budgets, the availability of a trained work force, and adequate infrastructure, such as sawmills and bioenergy plants. The purpose of this project is to improve forest health and resiliency by providing alternatives to pile burning of forest biomass, reduce greenhouse gas emissions, create employment opportunities for local residents, and supplement existing businesses in Tuolumne County.

In 2019, the Beck Group feasibility study identified sufficient biomass feedstock in the local forests within an approximate 40-mile radius of the city of Sonora. The existing accumulation of biomass feedstock increases the risk of large wildfires. Currently, there are multiple initiatives from local, state, and federal agencies to reduce biomass and, thus, reduce the risk of catastrophic wildfire and improve forest health and resiliency. These initiatives will generate millions of tons of biomass regionally in future years that will require management of this material.

Despite the presence of some existing facilities to utilize wood waste in Tuolumne County, currently much of the unmarketable material from these forest treatments will be burned in place in slash piles, which will contribute to reduced air quality in the short term and an increase in greenhouse gas emissions in the long term. A beneficial use of this biomass material would be to use it in industries and products that would not be feasible when using valuable raw timber material. The proposed project would create a market for otherwise unmarketable biomass, removing it as a source of fuel from forests, and offsetting future greenhouse gas emissions generated if the material is burned in place.

The US Forest Service (USFS) and other landowners are challenged by limited budgets and staffing for biomass removal. During active fire seasons, funding for forest management and fire prevention may be limiting, thus delaying or preventing forest health activities. As these activities are delayed, more fuel builds up and the risk of severe wildfire increases. Lack of nearby biomass energy or wood products facilities further weakens the demand for biomass removal. This accumulation of biomass becomes fuel for fires and increases susceptibility to pest invasions, inherently decreasing forest resilience in the face of climate change and under threat of extreme wildfire. Furthermore, due to a lack of facilities to absorb wood waste, USFS staff and private forestland owners spend considerable time and effort burning piles of forest waste in the winter and spring. While the proposed project would not directly result in new forest fuel reduction activities, it would improve the feasibility and sustainability of forest fuel reduction projects proposed by USFS and other land managers.

Recent history in Tuolumne County has seen a decrease in economic activity from industries utilizing natural resources. Like many rural California areas, the County economics have trended toward tourism and service sector industries. The Rim Fire and subsequent fires in the area have demonstrated the vulnerability of Tuolumne County's tourism and hospitality industries. In addition to providing a beneficial use for material that would otherwise be burned in the forest, this project seeks to diversify Tuolumne County's economy by creating businesses that can

process biomass. The proposed project may stimulate use of biomass by other existing biomass businesses in the County, thus supplementing, complementing and creating synergy for the County's biomass industry.

The project would also create jobs for local residents and set aside half of the new jobs for low-income workers.

2.5 FUNDING AND REQUIRED PERMITS AND APPROVALS

Table 2-1 identifies the funding sources for the proposed project. Table 2-2 identifies the permits and approvals required for the proposed project.

Table 2-1 TBLLC Project – Funding Sources

Funding Source	Total Project Cost by Funding Source (HUD and non-HUD Funds [24 CFR 58.32(d)])1
HUD National Disaster Resilience Program (CDBG-NDR), Grant Number B-13-DS-06-0001 Loan	$3,500,000
HUD National Disaster Resilience Program (CDBG-NDR), Grant Number B-13-DS-06-0001 Grant	$4,200,000
HUD National Disaster Resilience Program (CDBG-NDR), Grant Number B-13-DS-06-0001 Residual Receipts Loan	$2,000,000
RCAC/EDA Revolving Small Business Loan	$600,000
CAL FIRE Business and Workforce Development Grant	$2,000,000
US Forest Service Community Wood Grant	$800,000
Private equity funding	$1,500,000
Estimated Total Project Cost	**$14,600,000**

NA = Not applicable; HUD = US Department of Housing and Urban Development; RCAC = Rural Community Assistance Corporation; CDBG = Community Development Block Grant; CAL FIRE = California Department of Forestry and Fire Protection

[1] Total HUD grant funding = $9,700,000; total non-HUD grant funding = $4,900,000

Source: Adapted by Ascent Environmental in 2022.

Table 2-2 TBLLC Project – Required Permits and Approvals

Permit/Approval Required	Responsible Agency	Description
Tuolumne County Conditional Use Permit CUP22-003; Grading Permit; Building Permit; Septic Permit; Well Permit	Tuolumne County	Allow for the development of a wood processing facility on a 161.5-acre parcel zone AE-37:AP (Exclusive Agricultural, Thirty-Seven Acre Minimum: Agricultural Preserve Combining) under Title 17 of the Tuolumne County Ordinance Code (TCOC). Grading and building permits would be required for construction purposes. Septic and well permits would be required from Environmental Health.
Tuolumne County Air Pollution Control District Application for Authority to Construct/Permit to Operate	Tuolumne County	Allow for the construction of the biomass facility and operation of the gasification system.
Williamson Act Contract WA22-001	Tuolumne County	To allow a permanent conversion of 17 acres of land used for cattle grazing to a different agricultural use as a biomass processing facility. The submission of a new Williamson Act management plan has been completed.
Encroachment Permit	Tuolumne County	For work in the County road right-of-way associated with modifying or relocating the existing site driveway on O'Byrnes Ferry Road.
State Water Resources Control Board California Construction General Permit (2009-0009-DWQ as amended by 2010-0014-DWQ and 2012-0006-DWQ)	State Water Resources Control Board	Regulates all construction projects over one acre in size and requires implementation of a SWPPP and best management practices (BMPs).
State Water Resources Control Board California Industrial General Permit (2014-0057-DWQ as amended by 2015-0122-DWQ)	State Water Resources Control Board	Regulates industrial storm water discharges and authorized non-storm water discharges from industrial facilities.

Source: Adapted by Ascent Environmental in 2022.

3 ENVIRONMENTAL CHECKLIST

PROJECT INFORMATION

1. **Project Title:** Tuolumne Biomass LLC Biomass Utilization Project

2. **Lead Agency Name and Address:** Tuolumne County, Community Development Department
   48 Yaney Avenue, Sonora, California 95370

3. **Contact Person and Phone Number:** Natalie Rizzi, Senior Planner, nrizzi@co.tuolumne.ca.us, 209-533-5936

4. **Project Location:** 5400 O'Byrnes Ferry Road, Jamestown, CA

5. **Project Sponsor's Name and Address:** Matt King, Heartwood Biomass,
   75100 Lower Diamond Lane, Wallowa, OR 97885

6. **General Plan Designation:** Agricultural

7. **Zoning:** AE-37: AP (Exclusive Agricultural, Thirty-Seven Acre Minimum: Agricultural Preserve Combining)

8. **Description of Project:** See Chapter 2, "Project Description"

9. **Surrounding Land Uses and Setting:** The proposed project is located in a rural area of the County and is surrounded primarily by undeveloped rural land. It is bounded on the south by O'Byrnes Ferry Road and an area zoned heavy industrial, on the west by a California Correctional Facility, on the north by private property owned by T-Five Ranches, Inc. used for grazing and federal land managed by the Bureau of Land Management (BLM), and on the east by private land owned by T-Five Ranches, Inc. used for grazing. There is an existing solar farm located partially on the same parcel and to the east of the project site, which would remain in use.

10. **Other public agencies whose approval is required:**
    California Department of Housing and Community Development, US Department of Housing and Urban Development, and Tuolumne County Air Pollution Control District.

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 21083.3.2.) 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.

    Consultation letters were sent to the Tuolumne Band of Me-Wuk Indians and Chicken Ranch Rancheria on June 3, 2022. A response from the Me-Wuk Tribe was received on August 31, 2022. A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed on April 15, 2021. The NAHC search indicated that the Sacred Lands File was negative for the presence of Native American resources within the project site (NIC 2021).

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. Where noted below with a "Y" for yes, the topic with a potentially significant impact will be addressed in an environmental impact report.

☐ Aesthetics	☐ Agriculture and Forest Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Energy
☐ Geology / Soils	☐ Greenhouse Gas Emissions	☐ Hazards / Hazardous Materials
☐ Hydrology / Water Quality	☐ Land Use / Planning	☐ Mineral Resources
☐ Noise	☐ Population / Housing	☐ Public Services
☐ Recreation	☐ Transportation	☐ Tribal Cultural Resources
☐ Utilities / Service Systems	☐ Wildfire	☐ Mandatory Findings of Significance
	☐ None	☒ None with Mitigation Incorporated

DETERMINATION (To be completed by the Lead Agency)

On the basis of this initial evaluation:

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

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

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

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

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier **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 Quincy Yaley Date 12-15-22

Printed Name QUINCY YALEY Title Director

Agency Community Development Tuolumne County

EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less-Than-Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
    a) Earlier Analysis Used. Identify and state where they are available for review.
    b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
    c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
    a) the significance criteria or threshold, if any, used to evaluate each question; and
    b) the mitigation measure identified, if any, to reduce the impact to less than significance.

3.1 AESTHETICS

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

3.1.1 Environmental Setting

The visual or aesthetic resources of a landscape are generally comprised of its natural and built features that can be seen. These natural and built landscape features or visual resources contribute to the public's experience and appreciation of the environment. Depending on the extent to which a project's presence would alter the perceived visual character and quality of the environment, visual or aesthetic impacts may occur. It should be noted that visual change in and of itself does not necessarily represent an adverse impact, and in some cases may result in a beneficial visual effect.

The aesthetic analysis is based on field observations and the review of information including site maps, drawings, technical data, aerial- and ground-level photographs of the area, and the Tuolumne County General Plan.

The Tuolumne County General Plan recognizes agricultural and timberlands as having historically defined the rural character and scenic beauty of the County. There are no scenic vistas within the vicinity of the project site, although the project does contain agricultural lands currently used for grazing. Vegetation on the project site includes pine and oak trees and shrubs. Potentially affected viewers in the area includes motorists and other viewers along O'Byrnes Ferry Road. Motorists would represent the largest of the affected viewer groups and include the public views of the project site.

3.1.2 Discussion

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

Less-than-significant impact. A scenic vista is defined as a view of an area that has remarkable scenery or a natural or cultural resource that is indigenous to the area. The California Department of Transportation (Caltrans) has officially designated three vista points within Tuolumne County as scenic vista points. Two of these are located at Lake Don Pedro, and another is found along State Route (SR) 120 east of the community of Groveland; these scenic vista points are further than 8 miles from the project site. The project site is located on a mostly vacant area of the property that does not offer long-distance or unique scenic views. The project consists of constructing a biomass utilization facility that includes a building, outdoor equipment, covered storage, outdoor storage, and associated infrastructure. Therefore, the project site does not have qualities that would require preservation or mitigation and would have a less-than-significant impact on a scenic vista.

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

No impact. The project site is not visible from any officially designated or locally designated state scenic highway. The nearest locally designated scenic route is 5.4 miles east of the site at the intersection of Highways 108 and 49.

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 points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less-than-significant impact. Construction and operation of the project could result in potential effects to the visual character of the site and its surroundings. Temporary construction activities would involve grading, erecting buildings, installing equipment, paving, and landscaping. These activities would be short-term and consistent in visual character with other typical industrial construction and landscaping projects. Construction activities would, therefore, not substantially degrade the existing visual character or quality of public views of the site and its surroundings.

Although the site is currently undeveloped, approximately 2 acres of the site were previously used as a gravel pit resulting in an area that is already graded and includes exposed rock. The project site includes a limited number of trees and shrubs on-site. There is also an existing solar facility and a 1,000-foot-long access road to the solar facility on the project parcel. The project site is, therefore, disturbed and does not contain a substantial amount of vegetation. While there are about 40 pine trees and one oak tree that would need to be removed from the 17-acre site to construct the biomass utilization facility, this would not substantially affect the visual character of the area. The facility itself would be visually consistent with typical light industrial uses in the project vicinity, and would include frontage landscaping to enhance the aesthetics of publicly visible portions of the project. For these reasons, the project would not degrade the existing visual character or quality of public views of the site and surroundings. The impact would be less than significant.

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

Less than significant with mitigation incorporated. Some light and glare would be introduced as a part of the project. New sources of light would be placed on the exterior of the building and within the facility for safety purposes, some of which is industrial in nature. Because of the rural nature of the area and limited surrounding development, these new sources of light could have a potentially significant impact on nighttime views in the area.

Mitigation Measure 3.1-1: Lighting Plan

A lighting plan shall be submitted and approved by the Tuolumne County Land Use and Natural Resources Division prior to the issuance of a building permit by the County. Any exterior lighting shall direct the light downward to the area to be illuminated, install shields to direct light and reduce glare, utilize low rise light standards or fixtures attached to the building, and utilize low- or high-pressure sodium lamps instead of halogen or equivalent lights.

Significance after Mitigation

Mitigation Measure 3.1-1 has been incorporated into the project to reduce the impact on nighttime views to a less-than-significant level by requiring light fixtures to direct light downward and reduce light pollution. The project proponent would be required to submit a lighting plan to show consistency with the mitigation measure. The lighting plan would be required to be reviewed and approved by County staff prior to the issuance of a building permit. There would be a less-than-significant impact with mitigation.

3.2 AGRICULTURE AND FOREST RESOURCES

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

3.2.1 Environmental Setting

TUOLUMNE COUNTY GENERAL PLAN

Agricultural lands in Tuolumne County are designated one of the following: AG (Agricultural), TPZ (Timber Production), or O (Open Space) in the Tuolumne County General Plan (Tuolumne County 2018). Exclusive agricultural properties are designated by the AE-160 (Exclusive Agricultural, One Hundred Sixty Acre Minimum), AE-80 (Exclusive Agricultural, Eighty Acre Minimum), and AE-37 (Exclusive Agricultural, Thirty-Seven Acre Minimum) zoning designations. Parcels under a Williamson Act contract, contracts that are formed between the County and a landowner for the purpose of restricting specific parcels of land to agricultural or related open space use, must contain the Agricultural Preserve Combining (:AP) zoning, as required by Tuolumne County Resolution 106-04. Land uses and development on agricultural lands within Tuolumne County are governed by the goals, policies, and implementation programs in the Agriculture Element of the Tuolumne County General Plan (Tuolumne County 2018). The Agriculture Element identifies an overarching vision for agricultural lands that promotes development that reflects local values and the vision of the community. The project site is zoned agricultural: specifically, AE-37:AP (Exclusive Agricultural, Thirty-Seven Acre Minimum:Agricultural Preserve Combining). The site is designated grazing land because the existing vegetation is suited to the grazing of livestock. Vegetation consists of blue oak woodland habitat and contains gray pine woodland habitat, developed areas, and seasonal streams.

To accommodate development on the project site, Tuolumne County reviewed the proposed project for consistency with the Agricultural Element of the General Plan and will consider issuance of Conditional Use Permit CUP22-003 to allow for the development of a wood processing facility (i.e., the proposed biomass utilization facility) on the 161.5-acre parcel zoned AE-37:AP under Title 17 of the Tuolumne County Ordinance Code.

CALIFORNIA LAND CONSERVATION ACT

As stated above, the California Land Conservation Act of 1965 (Williamson Act) enables local governments to enter into contracts with private landowners for preserving agricultural land or related open space uses. Land under agricultural production can have its annual assessed valuation for property tax calculation reduced if the owner agrees to place the land under a Williamson Act contract for 10 years, renewable annually. This is a mechanism to restrict the uses of agricultural and open space lands to farming and ranching uses during the length of the contract period. The Williamson Act Program enables local governments (in this case, Tuolumne County) to enter contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use and offers substantial reductions in property taxes in exchange. The minimum contract term is 10 years; however, because the contract term automatically renews on each anniversary date of the contract, the practical term is indefinite. Contracts may be exited at the option of the landowner or local government by initiating the process of term nonrenewal. Under this process, the remaining contract term (9 years in the case of an original term of 10 years) is allowed to lapse. Williamson Act lands can also be used for other, non-agricultural, or open space uses under terms specified by Tuolumne County, if the use is deemed compatible.

Tuolumne County Resolution 106-04, approved by the Board of Supervisors on June 15, 2004, contains the County's rules and regulations to govern land within Agricultural Preserves and land within the Williamson Act Land Conservation Program. The project site is currently used for cattle grazing under Williamson Act Contract WA12-002; the contract includes lands that extend beyond the project site boundaries (Figure 2-1). At its July 21, 2022 meeting, the County's Agricultural Advisory Committee took action to recommend to the Board that the biomass facility be considered a compatible agricultural use on the basis that it involves "processing of agricultural product." The Tuolumne County Board of Supervisors will consider the Committee's recommendation and approval of a new Williamson Act Contract (WA22-001) and Agricultural Management Plan as part of the Conditional Use Permit authorization for the project.

Z'BERG-NEJEDLY FOREST PRACTICE ACT OF 1973

Private property in Tuolumne County is subject to the provisions of the Z'berg-Nejedly Forest Practice Act of 1973 that have been promulgated as the California Forest Practice Rules. Land within Tuolumne County that is subject to the Z'berg-Nejedly Forest Practice Act of 1973 is demonstrated by the TPZ (Timberland Preserve) zoning district and the TPZ General Plan land use designation. No such land exists on the project site.

3.2.2 Discussion

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?

Less-than-significant impact. Available data for designated Important Farmland is provided by the California Department of Conservation (DOC). The project site includes lands designated for grazing. The project site is also within an active Williamson Act contract (see item "b," below, for a discussion of impacts related to Williamson Act contracted lands). Development of the project would transition the project site from its current use for cattle grazing to an agricultural biomass processing facility. The project site has been determined to be high value agricultural land with a score of 184 pursuant to the Agricultural Rating System matrix contained in the Agricultural Resources Element of the Tuolumne County General Plan. For the project to be approved, the Tuolumne County Board of Supervisors, with recommendation from the Agricultural Advisory Committee, would need to find that the processing of agricultural products is a compatible use for high value agricultural land. While a review of the 2014 Important Farmland Map for Tuolumne County, produced by DOC under the Farmland Mapping and Monitoring Program, identifies that the project site is designated as Important Farmland, grazing land is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance pursuant to DOC or Tuolumne County. Additionally, because the site is held under a Williamson Act contract and is designated Agriculture by the County, site soils were reviewed for suitability for other non-grazing agricultural uses and were not found to be high value, productive agricultural soils. The following soil series types were identified within the project area: bonanza, loafercreek, gopheridge, jasperpeak, crimeahouse, and sixbit (see Section 3.7, below). These soil types are primarily developed in colluvial and residuum deposits derived from metavolcanic rocks, and occur in foothill slopes of the Sierra Nevada mountains. Identified uses for these soil types are grazing, recreation, wildlife habitat, and homesite development. These soils support the vegetation and cover types on the project site, which includes blue oak woodland and gray pine habitat, developed areas, and seasonal streams. Aside from grazing, no agricultural uses have been identified for these soil types by the Natural Resources Conservation Service (NRCS) (NRCS 2018a, 2018b, 2018c, 2018d, 2018e, and 2019). Consequently, conversion of the project site to a compatible agricultural use, that is, conversion to processing of agricultural product under the proposed project, would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance and as such this impact is less than significant.

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

Less-than-significant impact. An active Williamson Act contract exists for the site. As described above under the header "California Land Conservation Act," the project site is used for grazing cattle under an existing Williamson Act contract. On July 21, 2022, the Tuolumne County Agricultural Advisory Committee determined that the 17 acre biomass processing facility is an approved compatible use and recommended approval of a new Williamson Act contract and Agricultural Management Plan to the Board of Supervisors. The existing contract is held by Tuolumne County and the named landholder is T-Five Ranches, Inc., who is also the lessor for the proposed project. The contract governs 872.3 acres of land for commercial agricultural production and includes a 15-acre photovoltaic solar use easement. The Williamson Act contract management plan describes current uses and a comprehensive description of the agricultural operations for the contract area, which includes cattle grazing, residential, irrigation, mining, and solar power generation uses. Consequently, the proposed project would not conflict with existing zoning for agricultural use or the Williamson Act contract for the site because (1) the area that would be removed from cattle grazing and dedicated to biomass utilization represents a small proportion (less than 2 percent) of the overall existing

contract area, (2) grazing would be maintained on the remainder of contract lands where it occurs today, and (3) the Tuolumne County Board of Supervisors, with recommendation from the Agricultural Advisory Committee, would be required to find the development of a wood processing facility is a compatible agricultural use within the contract area. For these reasons, this impact related to agricultural use and the Williamson Act contract for the project site is less than significant.

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

No impact. The project site does not contain forest land, timberland, or timberland zoned Timberland Production areas pursuant to state law or the Tuolumne County General Plan; therefore, there would be no impact on these resources.

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

No impact. The project site does not contain forest land or conversion of forest land; therefore, development of the proposed project would not result in the loss of forest land or conversion of forest land to non-forest use and there is no impact.

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?

Less-than-significant impact. Soils on the project site were reviewed for suitability for other agricultural uses and were not found to be of high value agricultural soils. Additionally, the conversion of 17 acres of land used for cattle grazing to a different type of agricultural use represents a small amount of land relative to the overall area that is designated for grazing (less than 2 percent; see item "b," above), and as such this impact is less than significant.

3.3 AIR QUALITY

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

Criteria air pollutant emissions estimates and calculations are available in Appendix A.

3.3.1 Environmental Setting

CRITERIA AIR POLLUTANTS

The US Environmental Protection Agency has established National Ambient Air Quality Standards (NAAQS) for six criteria air pollutants, which are known to be harmful to human health and the environment: carbon monoxide (CO), lead, nitrogen dioxide, ozone, particulate matter (which is categorized into particulate matter less than or equal to 10 microns in diameter [PM_{10}] and particulate matter less than or equal to 2.5 microns in diameter [$PM_{2.5}$]), and sulfur dioxide. The State of California has established the California ambient air quality standards (CAAQS) for these six pollutants, as well as for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. NAAQS and CAAQS were established to protect the public from adverse health impacts caused by exposure to air pollution. A brief description of the criteria air pollutants and their effects on health is provided in Table 3.3-1.

The project site is located in the Mountain Counties Air Basin (MCAB). MCAB also includes all of Tuolumne County along with Amador, Calaveras, El Dorado (western), Mariposa, Nevada, Placer (central), Sierra, and Plumas counties. The Tuolumne County portion of MCAB is a nonattainment area for the state and federal standards for ozone and is unclassified attainment for the federal and state standards for CO, nitrogen dioxide, SO_2, PM_{10}, $PM_{2.5}$, and lead (CARB 2020).

Table 3.3-1 Sources and Health Effects of Criteria Air Pollutants

Pollutant	Sources	Acute[1] Health Effects	Chronic[2] Health Effects
Ozone	secondary pollutant resulting from reaction of ROG and NO_X in presence of sunlight. ROG emissions result from incomplete combustion and evaporation of chemical solvents and fuels; NO_X results from the combustion of fuels	increased respiration and pulmonary resistance; cough, pain, shortness of breath, lung inflammation	permeability of respiratory epithelia, possibility of permanent lung impairment
Carbon monoxide (CO)	incomplete combustion of fuels; motor vehicle exhaust	headache, dizziness, fatigue, nausea, vomiting, death	permanent heart and brain damage
Nitrogen dioxide (NO_2)	combustion devices; e.g., boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines	coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis or pulmonary edema; breathing abnormalities, cough, cyanosis, chest pain, rapid heartbeat, death	chronic bronchitis, decreased lung function
Sulfur dioxide (SO_2)	coal and oil combustion, steel mills, refineries, and pulp and paper mills	irritation of upper respiratory tract, increased asthma symptoms	insufficient evidence linking SO_2 exposure to chronic health impacts
Respirable particulate matter (PM_{10}), Fine particulate matter ($PM_{2.5}$)	fugitive dust, soot, smoke, mobile and stationary sources, construction, fires and natural windblown dust, and formation in the atmosphere by condensation and/or transformation of SO_2 and ROG	breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, premature death	alterations to the immune system, carcinogenesis
Lead	metal processing	reproductive/ developmental effects (fetuses and children)	numerous effects including neurological, endocrine, and cardiovascular effects

1. "Acute" refers to effects of short-term exposures to criteria air pollutants, usually at fairly high concentrations.

2 "Chronic" refers to effects of long-term exposures to criteria air pollutants, usually at lower, ambient concentrations.

Notes: NO_X = oxides of nitrogen; ROG = reactive organic gases.

Sources: EPA 2018.

TOXIC AIR CONTAMINANTS

According to the *California Almanac of Emissions and Air Quality* (CARB 2013), the majority of the estimated health risks from toxic air contaminants (TACs) can be attributed to relatively few compounds, the most important being diesel particulate matter (diesel PM). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emissions control system is being used. In addition to diesel PM, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene.

ODORS

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). Odor sources of concern include wastewater treatment plants, landfill and composting facilities, petroleum refineries, chemical manufacturing plants, painting/coating operations, and food processing facilities.

SENSITIVE RECEPTORS

Sensitive receptors (related to air quality emissions) are generally considered to include those land uses where exposure to pollutants could result in health-related risks to sensitive individuals, such as children or the elderly. Residential dwellings, medical facilities, and places where people recreate or congregate outdoors for extended periods of time such as parks or schools are of primary concern because of the potential for increased and prolonged exposure of individuals to pollutants. The nearest sensitive receptor to the project site is a minimum- to medium-security California Correctional Facility located west of the project site with inmate quarters and outdoor recreational facilities located between 500 and 900 feet from the nearest project features, the proposed perimeter fence and access road on the west side of the project site. The next closest sensitive receptors are scattered low-density residential land uses located 3,000 feet southwest of the project site.

AIR QUALITY PLANNING

The Tuolumne County Air Pollution Control District (TCAPCD) attains and maintains air quality conditions in the Tuolumne County portion of MCAB, through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of TCAPCD includes the preparation of plans and programs for the attainment of NAAQS and CAAQS, adoption and enforcement of rules and regulations, and issuance of permits for stationary sources. TCAPCD also inspects stationary sources, responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements other programs and regulations required by the federal Clean Air Act (CAA) and California Clean Air Act (CCAA).

The Tuolumne County portion of MCAB is a nonattainment area for the state standards for ozone and is unclassified or in attainment for the federal standards for ozone and for the federal and state standards for CO, nitrogen dioxide, SO_2, PM_{10}, $PM_{2.5}$, and lead (CARB 2020). TCAPCD is responsible for implementing emissions standards and other requirements of federal and state laws regarding most types of stationary emission sources. The California Air Resources Board (CARB) has determined that the ozone levels in Tuolumne County are caused by "overwhelming transport" of emissions into the air district (California Air Pollution Control Officers Association [CAPCOA] 2014). Therefore, TCAPCD is relieved from preparing an attainment plan for ozone, and no other criteria air pollutant levels are high enough to require an attainment plan. Although there are no required attainment plans, or other local plans specifically addressing air quality, Tuolumne County must conform to existing state and federal air quality standards.

Thresholds of Significance

TCAPCD has established specific thresholds for air quality impacts evaluated under CEQA. Pursuant to the State CEQA Guidelines, air quality impacts related to the proposed biomass utilization facility would be significant if the project would:

- conflict with or obstruct implementation of the applicable air quality plan;
- violate any air quality standard or contribute substantially to an existing or project air quality violation—for the purposes of the proposed project, result in construction or operations that generate emissions in excess of the following thresholds, except CO, used by TCAPCD (TCAPD 2017):
  - ROG – 1,000 pounds per day or 100 tons per year
  - NO_X – 1,000 pounds per day or 100 tons per year
  - PM_{10} – 1,000 pounds per day or 100 tons per year
  - CO – 1,000 pounds per day or 100 tons per year
- result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed qualitative thresholds for ozone precursors);

- expose sensitive receptors to a substantial incremental increase in TAC emissions that exceed 10 in 1 million for carcinogenic risk (i.e., the risk of developing cancer) and/or a noncarcinogenic hazard index of 1.0 or greater; or
- create objectionable odors affecting a substantial number of people.

3.3.2 Discussion

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

Less-than-significant impact. Apart from short term construction-related emissions, project operations would result in a net decrease in daily and annual emissions of ROG, NO_X, PM_{10}, and CO. The project would eliminate criteria air pollutant emissions that are currently associated with pile burning of biomass in forests. The emissions generated by the project site and operations would be lower than emissions generated from pile burning (Appendix A). Therefore, implementation of the proposed project would not conflict with or obstruct implementation of any air quality planning efforts. As a result, this impact would be less than significant.

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

Less-than-significant impact. The proposed project would result in emissions of criteria air pollutants and precursors, including ROG, NO_X, PM_{10}, and CO associated with construction (short term) and result in a net reduction in emissions during operations (long term). Emissions estimates and a description of the calculation assumptions are detailed in Appendix A. As detailed below, impacts from short-term construction emissions and long-term operational emissions would be less than significant.

Short-Term Construction Emissions

Table 3.3-2 summarizes the modeled construction-related emissions of criteria air pollutants and ozone precursors for the proposed project. The significance of construction-related air quality impacts was determined by comparing these modeling results with applicable significance thresholds.

Table 3.3-2 Maximum Daily Emissions of Criteria Air Pollutants and Precursors Associated with Construction

Construction Phase	Maximum Daily Emissions (lb/day)			
	ROG	NO_X	PM_{10}	CO
Site Preparation	3.5	34.5	26.4	23.9
Grading	2.3	22.5	9.5	19.4
Building Construction	3.7	24.5	3.5	33.0
Paving	2.1	12.0	0.8	19.1
Architectural Coating	48.3	2.2	0.5	4.9
Maximum Daily Emissions	48.3	34.5	26.4	33.0
TCAPCD Thresholds	**1,000**	**1,000**	**1,000**	**1,000**
Exceed Significance Threshold?	No	No	No	No

Notes: CO = carbon monoxide; lb/day = pounds per day; NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter; ROG = reactive organic gases; TCAPCD = Tuolumne County Air Pollution Control District.

See Appendix A for detailed input parameters and modeling results.

Source: Modeling performed by Ascent Environmental in 2022.

In addition to daily emissions thresholds, TCAPCD has established annual mass emissions thresholds for certain criteria air pollutants. Table 3.3-3 provides annual emissions from construction activity, as well as the annual thresholds established by TCAPCD.

Table 3.3-3 Maximum Annual Emissions of Criteria Air Pollutants and Precursors Associated with Construction

Construction Phase	Annual Emissions (tons/year)			
	ROG	NO_X	PM_{10}	CO
Site Preparation	0.02	0.17	0.13	0.12
Grading	0.02	0.23	0.09	0.19
Building Construction	0.41	2.81	0.39	3.66
Paving	0.02	0.12	0.01	0.19
Architectural Coating	0.48	0.02	0.01	0.05
Annual Emissions	0.95	3.35	0.63	4.21
TCAPCD Thresholds	**100**	**100**	**100**	**100**
Exceed Significance Threshold?	No	No	No	No

Notes: CO = carbon monoxide; lb/day = pounds per day; NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter; ROG = reactive organic gases; TCAPCD = Tuolumne County Air Pollution Control District.

See Appendix A for detailed input parameters and modeling results.

Source: Modeling performed by Ascent Environmental in 2022.

As shown in Table 3.3-2 and Table 3.3-3, construction emissions of criteria air pollutants and precursors would be below the daily and annual emissions thresholds established by TCAPCD. Annual construction activity associated with the project would not violate an existing air quality standard, and therefore this impact would be less than significant.

Long-Term Operational Emissions

Operation of the proposed project would involve receiving woody biomass by way of log trucks, processing the raw logs at the project site, and distributing the products and by-products produced. Additionally, approximately 5 percent of the woody biomass received would be used to fuel the on-site combined heat and power (CHP) system, which would provide electricity for on-site equipment and facility operation. These activities would result in criteria air pollutant and precursor emissions from:

- diesel truck haul trips delivering woody biomass to the project site,
- worker trips to and from the project site,
- the high heat drying of biomass in preparation for gasification,
- combustion of syngas generated by the gasifier in the CHP system to provide heat and electricity to power the merchandizing line as well as buildings and lighting,
- off-road equipment used for material handling on-site, and
- truck trips associated with deliveries of products and by-products.

These activities would offset emissions generated by pile burning that currently occurs under existing conditions. The calculation assumptions for these activities can be found in Appendix A.

Table 3.3-4 summarizes the modeled operational emissions of criteria air pollutants and ozone precursors for the proposed project. The significance of operations-related air quality impacts was determined by comparing these modeling results with applicable significance thresholds.

Based on the modeling conducted, operation of the proposed project would result in net reduction in maximum daily and annual emissions. The majority of this net reduction is due to the high level of emissions that would be offset from off-site pile burning within Tuolumne County. Consequently, the project would result in net beneficial reduction in emissions that would help the region achieve and maintain CAAQS and NAAQS and would not contribute to an existing or projected air quality violation. Therefore, this impact is considered less than significant.

Table 3.3-4 Maximum Daily Emissions of Criteria Air Pollutants and Precursors Associated with Operations

Emissions Category	Maximum Daily Emissions (lb/day)			
	ROG	NO_X	PM_{10}	CO
Proposed Project				
Field-to-Project Haul Trips	0.01	0.78	0.01	0.06
Worker Trips	0.04	0.14	<0.01	2.49
CHP	0.22	11.38	9.05	9.05
Dryer	*0.13*	*<0.01*	*8.58*	*<0.01*
Gasifier	*0.08*	*11.38*	*0.47*	*8.71*
Off-Road Equipment	0.15	1.58	0.02	5.66
Delivery Trips	0.01	0.61	<0.01	0.04
Total	0.42	14.49	9.08	16.96
Existing Conditions				
Pile Burning	1,392	492	2,267	2,052
Net Change in Operational Emissions	**-1,392**	**-478**	**-2,258**	**-20,263**
TCAPCD Threshold of Significance[3]	**1,000**	**1,000**	**1,000**	**1,000**
Exceeds Thresholds?	**No**	**No**	**No**	**No**

Notes: lb/day = pounds per day; NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter; CO = carbon monoxide; ROG = reactive organic gases; TCAPCD = Tuolumne County Air Pollution Control District

See Appendix A for detailed input parameters and modeling results.

Source: Modeling performed by Ascent Environmental in 2022.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less-than-significant impact. The nearest sensitive receptor to the project site is a California Correctional Facility, located 500 feet west of the project's westernmost perimeter fence. Construction and operation of the project would result in short-term and long-term emissions that could affect nearby sensitive receptors. However, as discussed below, impacts from short-term construction and long-term operation would be less than significant.

Short-Term Construction

Construction-related activities would result in temporary, short-term project-generated emissions of diesel PM from the exhaust of off-road, heavy-duty diesel equipment for site preparation (e.g., grading); underground work; equipment installation; and other miscellaneous activities. Particulate exhaust emissions from diesel-fueled engines (i.e., diesel PM) was identified as a TAC by CARB in 1998. The potential cancer risk from the inhalation of diesel PM, as discussed below, outweighs the potential for all other health impacts (CARB 2003), so diesel PM is the focus of this discussion. Based on the emission modeling conducted and presented in Appendix A, maximum daily emissions of $PM_{10,}$ considered a surrogate for diesel PM, would not exceed 1.6 lb per day during construction.

Additionally, the dose to which receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for any exposed receptor. Thus, the risks estimated for an exposed individual are higher if a fixed exposure occurs over a longer period of time. Project construction is anticipated to last 1 year. Consequently, it is important to consider that the use of off-road heavy-duty diesel equipment would be intermittent and limited to the 1-year construction period. Also, studies show that diesel PM is highly dispersive (e.g., decrease of 70 percent at 500 feet from the source) (Zhu et al. 2002a).

Residential receptors are generally of primary concern when discussing TAC exposure, as they would be exposed to project-generated TACs for extended periods of time. However, the nearest sensitive receptors at the California Correctional Facility, located within 500 feet of the nearest project site boundary, would have limited exposure potential due to the nature and purpose of the facility (i.e., generally shorter-term stays because many of the prisoners are trained as fire fighters and are deployed on fires). The distance between outdoor areas at the California Correctional Facility and activities at the project site that generate diesel PM would be greater than 800 feet. The receptors would spend limited time outdoors and windows would be sealed, limiting the dispersion of outdoor TACs into the buildings. The next nearest sensitive receptors are located 3,000 feet from the project site. Thus, given the distance to residential land uses and the exposure potential at the California Correctional Facility from the project site, TAC exposure at this land use would not be substantial.

Considering the highly dispersive properties of diesel PM, the relatively low mass of diesel PM emissions that would be generated during project construction, and the relatively short duration of construction activities; construction-related TAC emissions would not expose sensitive receptors to an incremental increase in cancer risk that exceeds 10 in 1 million or a hazard index greater than 1.0.

As a result, the project would not exceed TCAPCD thresholds for risks and hazards to receptors associated with new emissions sources. Additionally, the project would not exceed applicable thresholds with respect to short-term construction emissions, as discussed under b). Thus, the project would not expose sensitive receptors to substantial pollutant concentrations during construction. This impact would be less than significant.

Long-Term Operation

The project would be a permitted stationary source under TCAPCD's jurisdiction. Under existing conditions at the project site, no activity is currently generating emissions. Toxic air contaminants (TACs) emissions from the project site would occur both from the operation of diesel off-road material handling equipment and loading and unloading of diesel-powered haul trucks; the chip dryer; and syngas combustion emissions from the gasifier system. Based on information provided by the applicant, the on-site operations would result in emissions of diesel PM, formaldehyde, benzene, methanol, acetaldehyde, acrolein, toluene, ethyl benzene, xylenes, and styrene. Emission rates for the gasifier and dryer were provided by the applicant. Emission rates for diesel operations were based on the operational equipment list and hours provided by the applicant. Additional emission rates for the maintenance activities for the gasifier were based on studies on the combustion of charcoal emissions.

Residential receptors are generally of primary concern when discussing TAC exposure, as they would generally be exposed to project generated TACs for extended periods of time. The nearest and only sensitive receptor within 0.5 mile (2,500 feet) of the project site is a California Correctional Facility with inmates residing in cell blocks located as close as 160 feet from the project boundary and 550 feet from the nearest project emissions source (e.g., the proposed deck yard where on-site diesel off-road vehicles would operate). Relative locations of the California Correctional Facility and proposed emissions sources are shown in Figure 3.3-1.

Due to the various types of TACs involved and presence of a sensitive receptor located within 600 feet of the proposed emissions sources, a health risk assessment (HRA) was performed for the project to ascertain the potential health risk impacts of the project. The HRA evaluates health risks by performing an air dispersion to determine how the pollutants emitted by the project would travel in the vicinity of the project area given the source locations, building locations, local topography, and local meteorological conditions. The dispersion modeling, conducted using EPA's American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) Version 22112, provides the relative ground-level concentrations of each pollutant in areas surrounding the emissions sources. These concentrations are then input into a risk analysis model, CARB's Hotspots Analysis and Reporting Program Air Dispersion Modeling and Risk Assessment Tool (Version 2) (HARP 2), to determine the relative health risks based on the types of receptors being exposed, primarily accounting for such factors as age, breathing rates, and duration of exposure.

For this project, modeling used conservative residential exposure rates assuming inmates would reside at the California Correctional Facility for up to 70 years starting at age 18. The gasifier was modeled as a point source and assumed to operate 8,200 hours per year and the dryer and diesel operation at the deck yard were modeled as area

sources. Additional details associated with the inputs and assumptions of the HRA can be found in Appendix B. The results of the HRA are shown in Figures 3.3-1 through 3.3-4. Figure 3.3-1 shows the buildings, receptors, and sources modeled in the HRA. Figure 3.3-2 shows the resulting cancer risk contours, which show that the project would not result in an incremental increase of cancer risks by more than 3.2 chances in a million. Figure 3.3-4 shows the resulting chronic risk contours, which show that the project would not exceed a chronic hazard risk index of greater than 0.006. Figure 3.3-5 shows the resulting acute risk contours, which show that the project would not exceed an acute hazard risk index of greater than 0.028. These results are summarized in Table 3.3-5.

Table 3.3-5 Project-Generated Health Risks from Operational Emissions Sources

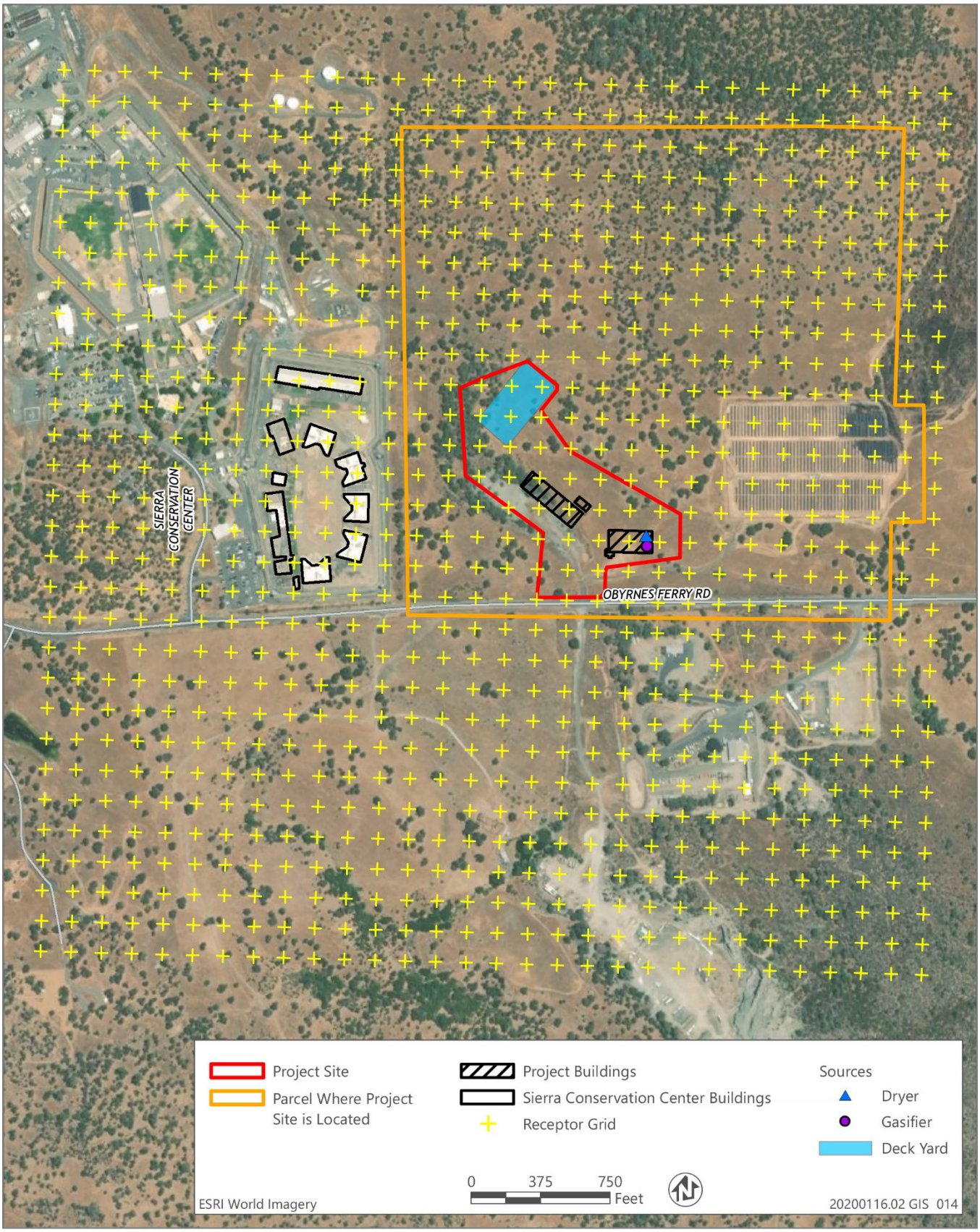
	Carcinogenic	Non-Carcinogenic	
	Cancer Risk	Chronic Risk	Acute Risk
Location (Easting [m], Northing [m])	717076.65, 4196644.52	717276.65, 4196444.52	717076.65, 4196444.52
Project-Added Risk Value	3.2 in a million	0.006 HHI	0.028 HHI
TCAPCD Significance Threshold	10.0 in a million	1.0 HHI	1.0 HHI
Threshold Exceeded?	No	No	No

Notes: PMI = point of maximum impact; N/A = not applicable; HHI = health hazard index, TCPACD = Tuolumne County Air Pollution Control District

[1] Based on Universal Transverse Mercator coordinates.

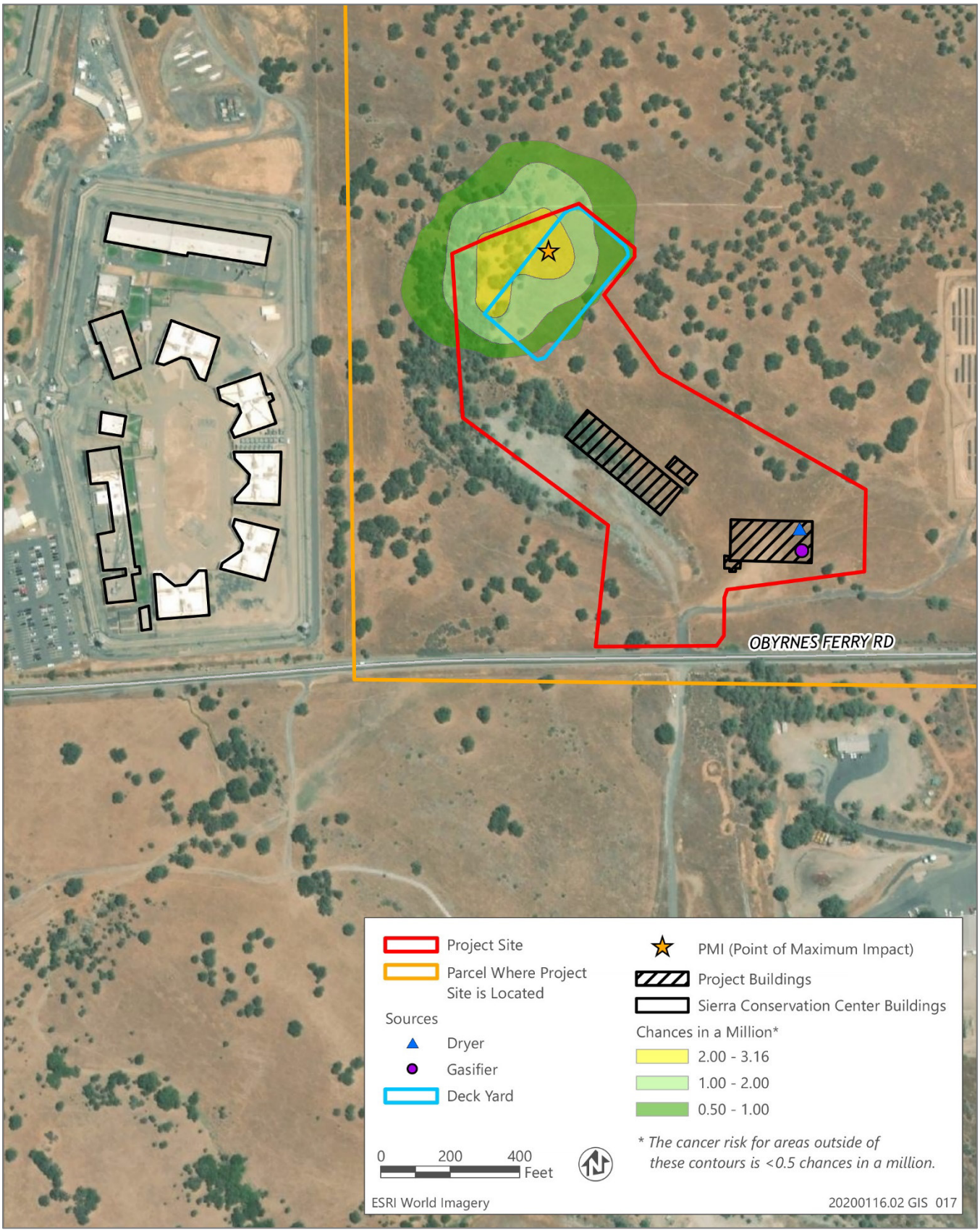
Source: Modeling performed by Ascent Environmental in 2022.

As shown in the results in Table 3.3-5, the project would not exceed applicable thresholds for risks and hazards to receptors associated with new emissions sources. Thus, the project would not expose sensitive receptors to substantial pollutant concentrations during operation. This impact would be less than significant.



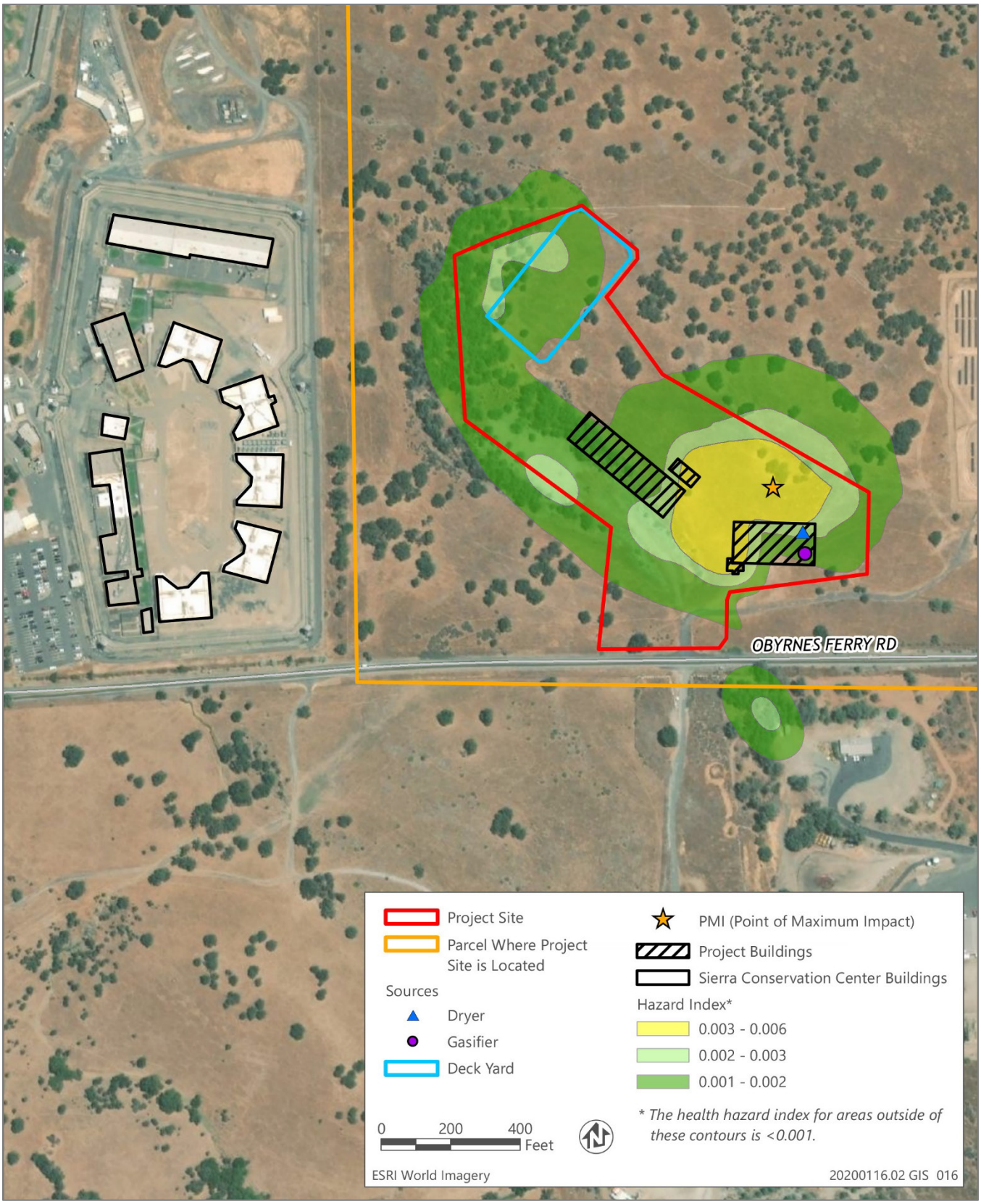
Source: Adapted by Ascent in 2022.

Figure 3.3-1 Project Buildings, Receptors, and TAC Emission Sources



Source: Adapted by Ascent in 2022.

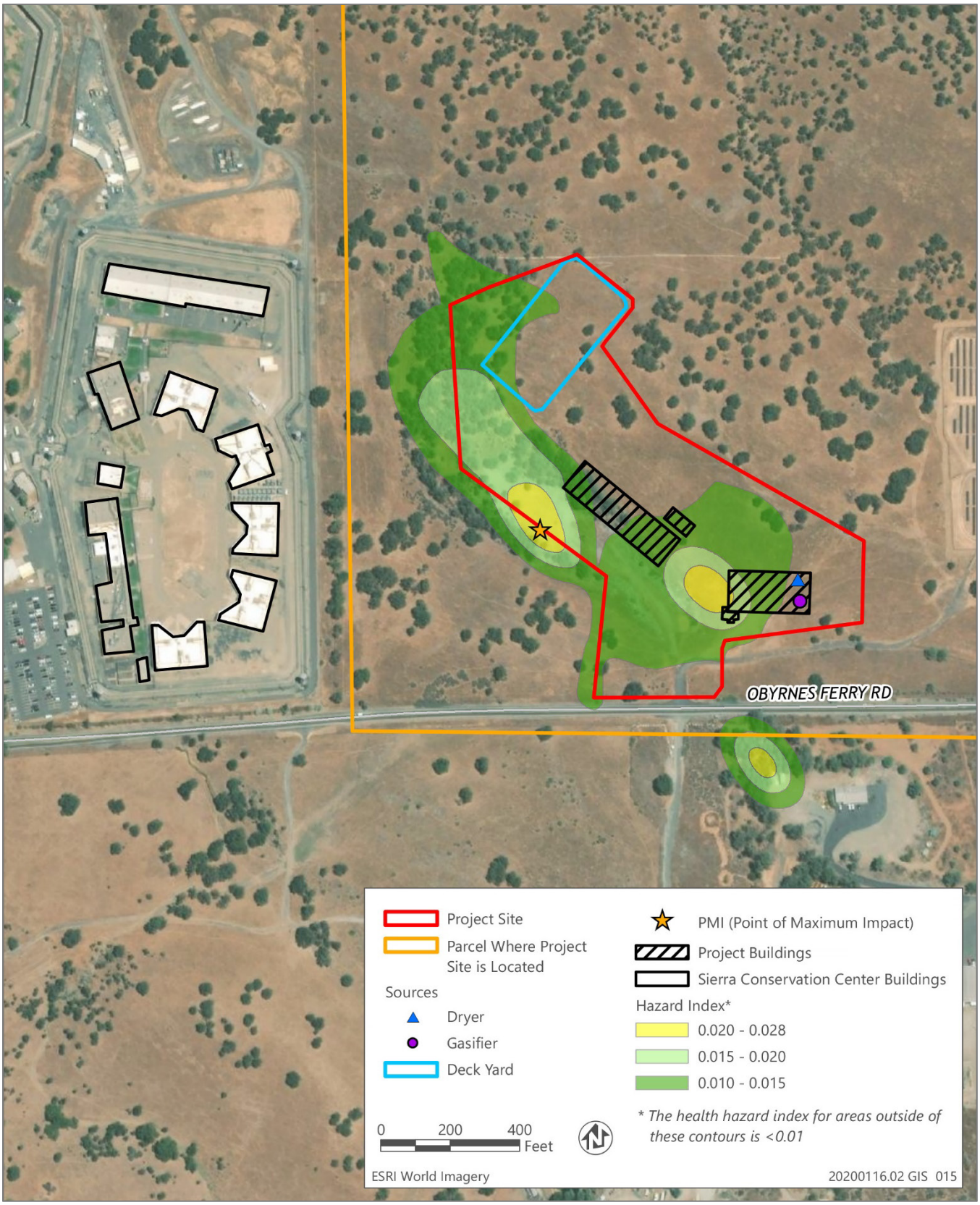
Figure 3.3-2 Cancer Risk Contours



Note: The contours appearing to the southwest outside of the project site boundaries are a product of local topography and meteorology. No sources outside the project site have been modeled.

Source: Adapted by Ascent in 2022.

Figure 3.3-3 Chronic Risk Contours



Note: The contours appearing to the southwest outside of the project site boundaries are a product of local topography and meteorology. No sources outside the project site have been modeled.
Source: Adapted by Ascent in 2022.

Figure 3.3-4 Acute Risk Contours

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

Less-than-significant impact. 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 physical harm, they may still be very unpleasant, leading to considerable distress and often generating citizen complaints to local governments and regulatory agencies.

Project construction would generate temporary odors from diesel exhaust emission associated with off-road and on-road equipment. These emissions would generally dissipate rapidly into the atmosphere as distance increases from the sources. TCAPCD has not adopted thresholds of significance for odors.

Project operations would result in odor emissions from diesel exhaust emissions associated with diesel equipment and vehicles operating on-site, such as during delivery and material handling. However, due to the characteristics of diesel exhaust emissions, odors generated from the use of heavy-duty diesel equipment would dissipate rapidly within 150 meters (492 feet) (Zhu et al. 2002a, cited in CARB 2005; Zhu et al. 2002b). The project would not operate other major sources of odors, apart from the potential drift of sawdust. The generation of odor emissions from sawdust would likely not disperse further than diesel exhaust as airborne sawdust is denser than diesel exhaust and would fall to the ground more quickly that diesel exhaust. Additionally, dust emissions (e.g., sawdust) from the manufacturing of wood products is assumed to be fully contained, minimizing any sawdust-related emissions. Due to the nature of the California Correctional Facility, the closest sensitive receptors would be exposed to any potential odors outdoors for only a limited amount of time each day. Additionally, the next closest receptors are residential land uses located 3,000 feet from the project site.

Thus, implementation of the project would not involve the construction or operation of any major odor sources and there would be limited exposure to nearby sensitive receptors. Thus, the proposed project would not be anticipated to result in the exposure of sensitive receptors to objectionable odors. As a result, this impact would be less than significant.

3.4 BIOLOGICAL RESOURCES

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

3.4.1 Environmental Setting

The setting and analysis within this section are based on the Biological Resource Analysis prepared for the project (Ascent Environmental 2021), and a reconnaissance survey of the project site on May 27, 2021 by Ascent biologist, Allison Fuller. Available data were reviewed in June 2022 to confirm no conditions had changed since the 2021 report (CNDDB 2022, CNPS 2022). The reconnaissance survey was conducted to identify and document sensitive resources (e.g., aquatic habitat, sensitive natural communities) and to assess the suitability of habitat in the project site vicinity for special-status plant and wildlife species. Vegetation communities were identified and incidental wildlife observations were recorded.

The project site is in an undeveloped area north of O'Byrnes Ferry Road in unincorporated Tuolumne County, a portion of which was formerly used as a gravel pit. The project site is surrounded by mostly undeveloped rural land but also aggregate quarries to the south and east and a California Correctional Facility to the west. Land north of the

project site is relatively undeveloped and includes woodlands, grazing land, water and wastewater treatment ponds associated with the California Correctional Facility, Shotgun Creek, and a hill called Table Mountain.

The proposed project would include development of a biomass utilization facility that would replicate an existing facility in Wallowa, Oregon, operated by the project applicant. This facility would function as an integrated forest waste processing facility for converting forest biomass into bundled firewood, posts, poles, sawdust, shavings, and ground material. Biomass material would be sourced from local forest restoration and wildfire mitigation projects on public and private lands.

SPECIAL-STATUS SPECIES

Special-status species include botanical species (plants, lichen, and fungi) and animals that are legally protected or otherwise considered sensitive by federal, state, or local resource agencies and conservation organizations. In this document, special-status species are defined as botanical species and animals in the following categories.

- Listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (ESA).
- Designated as a candidate for listing as threatened or endangered under ESA.
- Listed, proposed for listing, or a candidate for listing as threatened or endangered under the California Endangered Species Act (CESA).
- Listed as fully protected under the California Fish and Game Code.
- Animals identified by California Department of Fish and Wildlife (CDFW) as species of special concern.
- Plants considered by CDFW to be "rare, threatened or endangered in California" (California Rare Plant Ranks of 1A, presumed extinct in California; 1B, considered rare or endangered in California and elsewhere; and 2, considered rare or endangered in California but more common elsewhere). The California Rare Plant Ranks correspond with and replace former California Native Plant Society listings. While these rankings do not afford the same type of legal protection as ESA or CESA, the uniqueness of these species requires special consideration under the CEQA.
- Considered a locally significant species, that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a County or region (CEQA Section 15125 [c]) or is so designated in local or regional plans, policies, or ordinances (State CEQA Guidelines, Appendix G).
- Otherwise meet the definition of rare or endangered under State CEQA Guidelines Sections 15380(b) and (d).

Special-Status Animals

Of the 32 special-status wildlife species that could occur within the nine US Geological Survey (USGS) 7.5-minute quadrangles including and surrounding the project site, 11 species were determined to have potential to occur based on the presence of habitat suitable for the species or direct observation of the species during the reconnaissance-level survey (i.e., tricolored blackbird) (Ascent Environmental 2021: Table 4; CNDDB 2022).

Nesting Birds

While common raptors and other native bird species may not be considered special-status species as defined in this analysis, all native bird nests are protected by California Fish and Game Code Sections 3505 and 3503.5 and the federal Migratory Bird Treaty Act (MBTA). Trees, shrubs, and grasslands associated with blue oak woodland on the project site likely provide nesting habitat for various common native birds. Several native bird species were observed on the project site during the reconnaissance-level survey that may nest on the project site.

Bald Eagle, Golden Eagle, Grasshopper Sparrow, and Tricolored Blackbird

Habitat potentially suitable for bald eagle and golden eagle is present in the northeastern portion of the project site, which contains large trees with less exposure to human disturbance (e.g., O'Byrnes Ferry Road, California Correctional Facility, quarry activities) than the rest of the project site. Habitat potentially suitable for grasshopper sparrow is

present in the rolling grasslands associated with blue oak woodland habitat on the project site. While a flock of tricolored blackbirds was observed foraging on the project site, and the species is known to nest nearby, the project site does not contain nesting habitat suitable for this species.

Coast Horned Lizard

Habitat potentially suitable for coast horned lizard within the project site includes open areas interspersed with shrubs (e.g., buck brush, California coffeeberry) in gray pine woodland habitat. There is one known occurrence of coast horned lizard approximately 2 miles southeast of the project site within habitat similar to habitat present on the project site (CNDDB 2022).

Burrowing Owl

The project site contains grassland habitat in openings within the blue oak woodland, which may be suitable for this species. The project site and vicinity are located in the westernmost extent of the range of burrowing owl on the western slope of the Sierra Nevada. The portion of the species' range that overlaps the project site is considered winter range for burrowing owl; therefore, burrowing owls are not expected to nest on the project site. However, burrowing owls may overwinter on the project site. There is one recent (2007) documented burrowing owl occurrence approximately 8.2 miles east of the project site (CNDDB 2022).

American Badger

Grasslands associated with blue oak woodland habitat on the project site may provide habitat suitable for American badgers.

Ringtail

Ringtails use a variety of habitats for denning, including rock crevices, snags, and tree hollows. Habitat potentially suitable for ringtail is present in the blue oak woodland on the project site. Large blue oak trees with cavities may provide denning habitat suitable for this species.

Pallid Bat, Western Mastiff Bat, and Western Red Bat

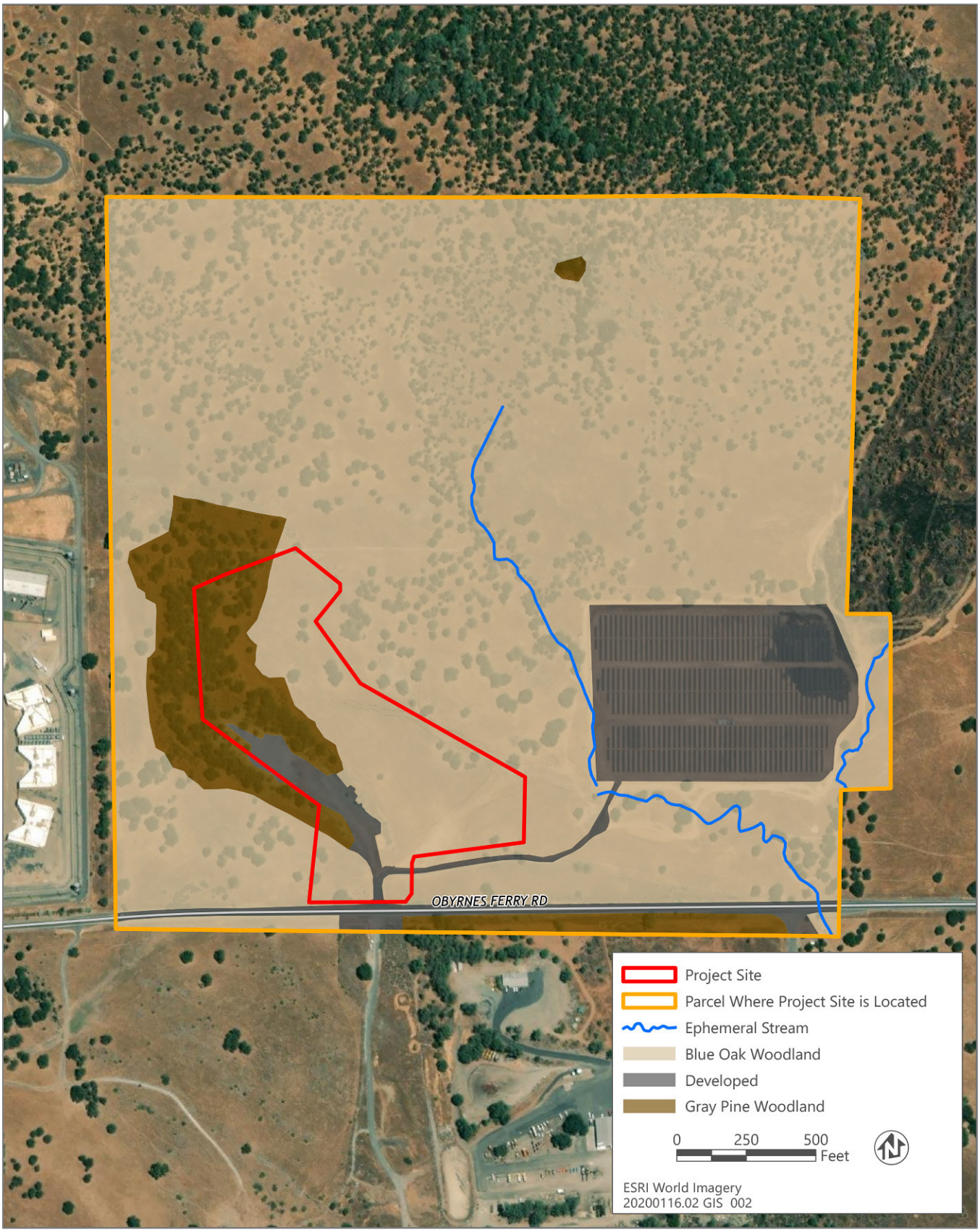
Roosting habitat potentially suitable for these species is present within large trees (i.e., in cavities, crevices) and rocky areas in the blue oak woodland and gray pine woodland habitats on the project site.

Special-Status Botanical Species

Of the 34 special-status plant species that are known to occur within the nine USGS 7.5-minute quadrangles including and surrounding the project site, 24 species were determined to have potential to occur based on the presence of habitat suitable for the species (Ascent Environmental 2021).

Vegetation and Habitat Types

Habitat types on the project parcel and site (Table 3.4-1; Figure 3.4-1) were verified during the reconnaissance-level survey and were characterized using the Classification and Assessment with Landsat of Visible Ecological Groupings (CALVEG) system of vegetation classification. The 161.5-acre parcel, in which the 17-acre project site is located, is dominated by blue oak (*Quercus douglasii*) woodland habitat and also contains gray pine (*Pinus sabiniana*) woodland habitat, developed areas, and seasonal streams. Blue oak woodland habitat, comprises 130 acres of the parcel but only 9.6 acres of the project site, represents approximately 56 percent of the project site. Blue oak woodland is dominated by blue oak with an understory of predominately nonnative grasses and native and nonnative forbs. Gray pine woodland occurs on a 14-acre of the parcel but only 5.6 acres of the project site in the southwestern portion of the site, which comprises approximately 33 percent of the project site. Gray pine woodland is dominated by gray pine with some blue oak trees interspersed where the two habitats intergrade. Gray pine woodland is present adjacent to the area previously used for aggregate mining and contains areas of exposed rock. The remaining 1.8 acres, representing approximately 11 percent of the project site, contains developed areas, which includes a disturbed area that was previously used for aggregate mining. The developed area generally does not contain native vegetation or support native species.



Source: Mapped by Ascent in 2021 and 2022.

Figure 3.4-1 Habitat Types

Table 3.4-1 Habitat Types on the Project Site

Land Cover/Habitat Type	Acreage	
	Parcel Where Project Site is Located	Project Site
Blue Oak Woodland	130	9.6
Developed	18	1.8
Gray Pine Woodland	13.5	5.6
Seasonal (Ephemeral) Stream	0.7 mile	-
TOTAL	161.5	17.0

Source: Data compiled by Ascent Environmental in 2021.

Sensitive Natural Communities and Habitats

Sensitive natural communities are those native plant communities defined by CDFW as having limited distribution statewide or within a County or region and that are often vulnerable to environmental effects of projects (CDFW 2018). These communities may or may not contain special-status plants or their habitat. Although CDFW ranks the habitat type as apparently secure (uncommon but not rare), the Blue oak woodland found on-site is considered a Sensitive Natural Community in this analysis because it is protected under the Oak Woodlands Protection Act (California Fish and Game Code Division 2, Chapter 6.3, Section 1625-1636), commonly known as AB 2162, the Premature Removal of Oak Trees Ordinance (Tuolumne County Ordinance Code, Chapter 9.24), and Public Resources Code Section 21083.4, which addresses how County lead agencies must address impacts to oak woodlands in environmental documents.

Seasonal Stream

The US Fish and Wildlife Service (USFWS) National Wetlands Inventory mapping shows a riverine feature bisecting the project parcel (Ascent Environmental 2021), flowing from O'Byrnes Ferry Road north along the western edge of the solar array. The reconnaissance-level survey on May 27, 2021, was conducted during a dry period, and no flowing surface water or wetland vegetation was observed on-site. During the aquatic resources delineation conducted on March 4, 2022, water was still not present in the stream area. A bridge crossing over this stream was observed along the dirt road leading to the solar panel array, and the stream appears to be ephemeral based on a lack of riparian or wetland vegetation and lack of deep scouring. Ephemeral streams are also likely present in the steeper northern portion of the project site within natural gullies (Ascent Environmental 2021). No project activities would affect the ephemeral streams and the project site would be separated from the ephemeral stream by a fence.

3.4.2 Discussion

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

Common Nesting Birds and Raptors

Less than significant with mitigation incorporated. Common nesting raptors and other common nesting birds do not meet the definition of special-status wildlife, but are protected by the Migratory Bird Treaty Act, and Section 3503 and Section 3503.5 of the California Fish and Game Code. The structures, trees, and other vegetation within and directly adjacent to the project site provide potential nesting habitat for common raptors and other common nesting birds, such as those previously observed within the project site (e.g., California scrub-jay [*Aphelocomo californica*], California quail [*Callipepla californica*], Cliff swallow [*Petrochelidon pyrrhonota*] and oak titmouse [*Baeolophus inornatus*], as well as common bird species (Ascent Environmental 2021). Construction of the proposed biomass utilization facility would permanently remove nesting and foraging habitat for common birds and raptors where

construction occurs but this reduction in habitat would not be substantial because suitable nesting and foraging habitat is relatively abundant in the vicinity of the project site, especially compared to the relatively small amount of vegetation that would be removed by the project. However, if construction occurs during the nesting season (approximately February 1 to August 31), removal of ruderal vegetation within the project site may destroy the nests of common nesting birds, and construction activities may also result in the disturbance of common raptor and other common bird nests on adjacent buildings and trees. The destruction of nests or the disturbance of nests would potentially result in the loss of eggs and young, which could have a substantial adverse effect on the local populations of these species. This impact would be potentially significant.

Mitigation Measure 3.4-1: Preconstruction Bird Nest Surveys and Non-disturbance Buffers

To avoid impacts to nesting raptors and nesting birds the following mitigation will be implemented.

- To minimize the potential for loss of special-status bird species, raptors, and other native birds, project activities (e.g., tree removal, vegetation clearing, ground disturbance, staging) will be conducted during the nonbreeding season (approximately September 1-January 31, as determined by a qualified biologist), if feasible. If project activities are conducted during the nonbreeding season, no further mitigation will be required.
- Within 14 days before the onset of project activities during the breeding season (approximately February 1 through August 31, as determined by a qualified biologist), a qualified biologist familiar with birds of California and with experience conducting nesting bird surveys will conduct focused surveys for special-status birds, other nesting raptors, and other native birds. Surveys will be conducted in accessible areas within 0.25 mile of the project site for bald eagles and golden eagles, within 500 feet of the project site for other raptor species, and within 50 feet of the project site for non-raptor common native bird nests, except for where access is not allowed at the adjacent correctional facility.
- If no active nests are found, the qualified biologist will submit a report documenting the survey methods and results to the applicant and Tuolumne County, and no further mitigation will be required.
- If active nests are found, impacts on nesting birds will be avoided by establishing appropriate buffers around active nest sites identified during focused surveys to prevent disturbance to the nest. Project activity will not commence within the buffer areas until a qualified biologist has determined that the young have fledged, the nest is no longer active, or reducing the buffer will not likely result in nest abandonment. Buffers typically will be 0.25 mile for bald eagle and golden eagle, and 500 feet for other raptors. Buffer size for non-raptor bird species will be determined by a qualified biologist. Factors to be considered for determining buffer size will include presence of natural buffers provided by vegetation or topography, nest height above ground, baseline levels of noise and human activity, species sensitivity, and proposed project activities. Generally, the buffer size for these species will be at least 20 feet. The size of the buffer may be adjusted if a qualified biologist, determines that such an adjustment will not be likely to adversely affect the nest. Any buffer reduction for a special-status species will require consultation with CDFW. Periodic monitoring of the nest by a qualified biologist during project activities will be required if the activity has potential to adversely affect the nest, the buffer has been reduced, or if birds within active nests are showing behavioral signs of agitation (e.g., standing up from a brooding position, flying off the nest) during project activities, as determined by the qualified biologist.
- Removal of bald eagle and golden eagle nests is prohibited regardless of the occupancy status under the federal Bald and Golden Eagle Protection Act. If bald eagle or golden eagle nests are found during focused surveys, then the nest will not be removed.

Significance after Mitigation

The implementation of Mitigation Measure 3.4-1 would avoid destruction and disturbance of common raptor and other common nesting birds that may occur within or adjacent to the project site. This mitigation measure would avoid loss or disturbance of nesting common birds and raptors by requiring preconstruction surveys of nesting birds, and implementation of species-specific non-disturbance buffers around each located active nest. Therefore, impacts on common nesting raptors and other common nesting birds from project implementation would be less than significant with mitigation incorporated.

Special-Status Birds and Raptors

Less than significant with mitigation incorporated. As discussed in Section 3.4.1, "Environmental Setting," potentially suitable habitat for bald eagle, golden eagle, burrowing owl, and grasshopper sparrow is present in the project site. Suitable nesting habitat for tricolored blackbird is not present. These species are protected by the federal endangered species act; the California endangered species act; Sections 3503 and 3503.5 of the Fish and Game Code; MBTA; Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code (for fully protected species); and the Bald and Golden Eagle Protection Act. The grassland, burrows, trees, brush, structures, and other vegetation within and adjacent to the project site provide potential nesting habitat for these species, and vegetation removal or construction activities in these areas would permanently remove nesting and foraging habitat for special-status birds and raptors where construction occurs but this reduction in habitat would not be substantial because suitable nesting and foraging habitat is relatively abundant in the vicinity of the project site, especially compared to the limited amount of vegetation that would be removed by the project. However, if construction occurs during the nesting season (approximately February 1 to August 31), removal of vegetation within the project site may destroy the nests of special-status nesting birds and raptors, and construction activities may also result in the disturbance of nests on adjacent buildings and trees. The destruction of nests or the disturbance of nests would potentially result in the loss of eggs and young, which could have a substantial adverse effect on the local populations of these species. This impact would be potentially significant.

Significance after Mitigation

The implementation of Mitigation Measure 3.4-1 would avoid destruction and disturbance of special-status birds and raptors that may occur within or adjacent to the project site by requiring preconstruction surveys and implementation of species-specific non-disturbance buffers around each active nest. Therefore, impacts on special-status birds and raptors from project implementation would be less than significant with mitigation incorporated.

Burrowing Owl

Less than significant with mitigation incorporated. Although the project site is located outside of the species' known breeding range, potential overwintering habitat for burrowing owl is present in the project footprint. This species is protected by the California endangered species act, Sections 3503 and 3503.5 of the Fish and Game Code, and MBTA. Burrows in open grassland and structures (culverts) within and adjacent to the project site provide potential overwintering habitat for this species. Construction of the project would result in removal of overwintering habitat for this special-status bird but this reduction in habitat would not be substantial due the relatively small impact area when compared to the available habitat in the project vicinity. However, work activities have the potential to destroy or disturb overwintering individuals. Burrowing owls occupy burrows during the overwintering, or non-breeding season (September 1 through January 31), and during this time, destruction of occupied burrows has the potential to kill, injure, or disturb individual owls. Additionally, although burrowing owl is not known to breed in the project site vicinity, the area is known to be utilized by overwintering burrowing owls and does represent the outer edge of the species' known breeding range. Individuals may potentially nest in suitable burrows and structure outside of the margins of their known nesting range, such as in the overwintering habitat in the project site. If a breeding pair nests in the project site, construction activities could collapse breeding burrows and directly kill, injure, or disturb nesting adults, chicks, or eggs. The destruction of occupied burrows year-round would potentially result in the loss of burrowing owl adults, chicks, or eggs, which could constitute a substantial adverse effect on the local populations of this species. This impact would be potentially significant.

Mitigation Measure 3.4-2: Preconstruction Survey for Burrowing Owl, Non-disturbance buffers, and Compensate for Loss of Occupied Burrows

A qualified biologist will conduct a focused survey for burrowing owls in areas of habitat suitable for the species on and within 1,640 feet (500 meters) of the 17-acre project site, except for where access is not allowed at the adjacent correctional facility, no less than 14 days prior to initiating ground disturbance activities using survey methods described in Appendix D of the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012).

- If no occupied burrows are found, the qualified biologist will submit a report documenting the survey methods and results to the applicant and Tuolumne County, and no further mitigation will be required.

- If an active burrow is found within 1,500 feet of pending construction activities that will occur during the nonbreeding season (September 1 through January 31), the applicant will establish and maintain a minimum protection buffer of 164 feet (50 meters) around the occupied burrow throughout construction. The actual buffer size will be determined by the qualified biologist based on the time of year and level of disturbance in accordance with guidance provided in the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012). The protection buffer may be adjusted if, in consultation with CDFW, a qualified biologist determines that an alternative buffer will not disturb burrowing owl use of the burrow because of particular site features or other buffering measures. If occupied burrows are present that cannot be avoided or adequately protected with a no-disturbance buffer, a burrowing owl exclusion plan will be developed, as described in Appendix E of the CDFW Staff Report. Burrowing owls will not be excluded from occupied burrows until the project burrowing owl exclusion plan is approved by CDFW. The exclusion plan will include a compensatory habitat mitigation plan (see below).
- If an active burrow is found during the breeding season (February 1 through August 31), occupied burrows will not be disturbed and will be provided with a protective buffer at a minimum of 164 feet unless a qualified biologist verifies through noninvasive means that either: (1) the birds have not begun egg laying, or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. The size of the buffer may be adjusted depending on the time of year and level of disturbance as outlined in the CDFW Staff Report. The size of the buffer may be reduced if a broad-scale, long-term, monitoring program acceptable to CDFW is implemented so that burrowing owls are not adversely affected. Once the fledglings are capable of independent survival, the owls can be evicted, and the burrow can be destroyed per the terms of a CDFW-approved burrowing owl exclusion plan developed in accordance with Appendix E of CDFW Staff Report.
    - If burrowing owls are evicted from burrows and the burrows are destroyed by implementation of project activities, the applicant will mitigate the loss of occupied habitat in accordance with guidance provided in the CDFW Staff Report, which states that permanent impacts on nesting, occupied and satellite burrows, and burrowing owl habitat (i.e., grassland habitat with suitable burrows) will be mitigated such that habitat acreage and number of burrows are replaced through permanent conservation of comparable or better habitat with similar vegetation communities and burrowing mammals (e.g., ground squirrels) present to provide for nesting, foraging, wintering, and dispersal. The applicant will retain a qualified biologist to develop a burrowing owl mitigation and management plan that incorporates the following goals and standards:
        - Mitigation lands will be selected based on comparison of the habitat lost to the compensatory habitat, including type and structure of habitat, disturbance levels, potential for conflicts with humans, pets, and other wildlife, density of burrowing owls, and relative importance of the habitat to the species throughout its range.
        - If feasible, mitigation lands will be provided adjacent or proximate to the project site so that displaced owls can relocate with reduced risk of injury or mortality. Feasibility of providing mitigation adjacent or proximate to the project site depends on availability of sufficient habitat to support displaced owls that may be preserved in perpetuity.
        - If habitat suitable for burrowing owl is not available for conservation adjacent or proximate to the project site, mitigation lands can be secured off-site and will aim to consolidate and enlarge conservation areas outside of planned development areas and within foraging distance of other conservation lands. Mitigation may be also accomplished through purchase of mitigation credits at a CDFW-approved mitigation bank, if available. Alternative mitigation sites and acreages may also be determined in consultation with CDFW.

If burrowing owl habitat mitigation is completed through permittee-responsible conservation lands, the mitigation plan will include mitigation objectives, site selection factors, site management roles and responsibilities, vegetation management goals, financial assurances and funding mechanisms, performance standards and success criteria, monitoring and reporting protocols, and adaptive management measures. Success will be based on the number of adult burrowing owls and pairs using the site and if the numbers are maintained over time. Measures of success, as

suggested in the CDFW Staff Report, will include site tenacity, number of adult owls present and reproducing, colonization by burrowing owls from elsewhere, changes in distribution, and trends in stressors.

Significance after Mitigation

The implementation of Mitigation Measure 3.4-2 would avoid destruction and disturbance of burrowing owl that may occur within or adjacent to the project site by requiring preconstruction surveys. If burrowing owls are detected during surveys, Mitigation Measure 3.4-2 requires the implementation of avoidance buffers or, if avoidance is not possible, burrowing owls may be evicted from burrows following guidelines from the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012), which also requires compensation for destruction of habitat. Therefore, impacts on burrowing owl from project implementation would be less-than-significant with mitigation incorporated.

Coast Horned Lizard

Less than significant with mitigation incorporated. Potentially suitable habitat for coast horned lizard is present in the shrub and gray pine woodland in the project site. This species is protected by the California endangered species act. Coast horned lizards may be present in burrows, under brushy vegetation, and in open areas throughout the developed and blue oak woodland habitat throughout the site. Construction of the proposed biomass utilization facility would permanently remove refugia and foraging habitat for coast horned lizard where burrowing habitat is graded, where construction occurs over open habitat, and where brush suitable for coast horned lizard refugia is removed, however, this reduction in habitat would not be substantial because suitable refugia and foraging habitat is relatively abundant in the vicinity of the project site, especially compared to the relatively small amount of suitable habitat that would be removed by the project. Coast horned lizard could potentially be directly impacted by vehicle traffic, destruction of occupied refugia burrows, and ground disturbing construction activities, resulting in injury or death of individuals. The loss of coast horned lizard could result in a substantial adverse effect on the local and regional population of the species. This impact would be potentially significant.

Mitigation Measure 3.4-3: Preconstruction Surveys for Coast Horned Lizard, Implement Avoidance Measures, and Relocate Individuals

A qualified biologist familiar with the life history of coast horned lizard and experienced in performing surveys for the species will conduct a focused visual survey of habitat suitable for the species within the project site, which will include walking linear transects of the project site.

- If coast horned lizards are not detected during the focused survey, the qualified biologist will submit a report summarizing the results of the survey to the applicant and Tuolumne County, and further mitigation will not be required.
- If coast horned lizards are detected, a qualified biologist with an appropriate CDFW Scientific Collecting Permit that allows handling of reptiles will be present during initial ground disturbance activities and will inspect the project site before initiation of project activities. If coast horned lizards are detected, the qualified biologist will move the lizards into nearby habitat and out of harm's way.

Significance after Mitigation

The implementation of Mitigation Measure 3.4-3 would avoid impacts to this species by requiring a qualified biologist to survey for coast horned lizard and move any detected individuals out of harm's way. Therefore, impacts to coast horned lizards would be less than significant with mitigation incorporated.

Badger and Ringtail

Less than significant with mitigation incorporated. Potentially suitable habitat for badger and ringtail is present at the project site. Both species are generalists and are protected by the California endangered species act. In addition, ringtail is a fully protected species under the California Fish and Game Code. Badger and ringtail may be present in a variety of habitats throughout site, including grasslands, blue oak woodlands, and rocky crevices or snags in all habitat areas. Construction of the proposed biomass utilization facility would permanently remove suitable badger and ringtail habitat during grading, vegetation removal, and direct construction activities. However, this reduction in

habitat would not be substantial because both species are habitat generalists, suitable badger and ringtail habitat is relatively abundant in the vicinity of the project site, and project activities would result in removal of a relatively small amount of suitable habitat for these species.

Badger and ringtail could potentially be directly impacted by vehicle traffic, vegetation removal of occupied snags, and destruction of occupied dens during construction activities. The project could disturb active dens of these species if any are present within or adjacent to the project site during construction. The removal of active dens could result in injury or death of individuals of these species. Noise and vibration from construction activities could also result in the disturbance of maternity dens if disturbance occurs during the season when young may be in the den. The disturbance of maternity dens could result in the injury or death of young if the female abandons the den or is forced to leave the den for extended periods. The injury or death of young or adults could result in a substantial adverse effect on the local and regional population of the species. This impact would be potentially significant.

Mitigation Measure 3.4-4: Focused American Badger Survey and Protective Buffers

Within 30 days before commencement of project activities, a qualified wildlife biologist with familiarity with American badger and experience using survey methods for the species will conduct focused surveys of habitat suitable for the species within the project site to identify any American badger dens.

- If occupied dens are not found, the qualified biologist will submit a report summarizing the results of the survey to the applicant and Tuolumne County, and further mitigation will not be required.
- If occupied dens are found, impacts on active badger dens will be avoided by establishing exclusion zones around all active badger dens, the size of which will be determined by the qualified biologist. No project activities (e.g., vegetation removal, ground disturbance, staging) will occur within the exclusion zone until denning activities are complete or the den is abandoned, as confirmed by a qualified biologist. The qualified biologist will monitor each den once per week to track the status of the den and to determine when it is no longer occupied. When it is no longer occupied, project activities within the exclusion zone may occur.

Mitigation Measure 3.4-5: Focused Surveys for Ringtail

- To minimize the potential for loss of ringtail and active ringtail dens, project activities (e.g., tree removal, other vegetation removal, ground disturbance, staging) within habitat potentially suitable for ringtail will be conducted outside of the ringtail breeding season (not well defined, but likely approximately March 1 to July 31), if feasible.
- Within 7 days before initiation of project activities within potentially suitable ringtail habitat during the ringtail breeding season, a qualified biologist with familiarity with ringtail and experience conducting ringtail surveys will conduct a focused survey for potential ringtail dens (e.g., hollow trees, snags, rock crevices) within the project site. The qualified biologist will identify sightings of individual ringtails, as well as potential dens.
- If individuals or potential or occupied dens are not found, the qualified biologist will submit a report summarizing the results of the survey to the applicant and Tuolumne County, and further mitigation will not be required.
- If ringtails are identified or if potential dens are located, an appropriate method will be used by the qualified wildlife biologist to confirm whether a ringtail is occupying the den. This may include use of remote field cameras, track plates, or hair snares. Other devices, such as a fiber optic scope, may be utilized to determine occupancy.
    - If no ringtail occupies the potential den, the entrance will be temporarily blocked so that no other animals occupy the den during project activities, but only after it has been fully inspected. The blockage will be removed once the project activities are completed.
    - If a den is found to be occupied by a ringtail, a no-disturbance buffer will be established around the occupied den. The no-disturbance buffer will include the den tree (or other structure, i.e., rock piles) plus a suitable buffer as determined by the biologist in coordination with CDFW. Project activities in the no-disturbance buffer will be avoided until the den is unoccupied as determined by the qualified wildlife biologist in coordination with CDFW.

Significance after Mitigation

The implementation of Mitigation Measures 3.4-4 (badger) and 3.4-5 (ringtail) would avoid impacts to these species. These mitigation measures require a qualified biologist to survey for badger and ringtail prior to project activities, and if any active dens are found, require implementation of an exclusion zone or no-disturbance buffer around the occupied den. Therefore, impacts to coast Badger and Ringtail would be less than significant with mitigation incorporated.

Sensitive Bat Species

Less than significant with mitigation incorporated. Potentially suitable habitat for pallid bat, western mastiff bat, and western red bat is present in large trees and rocky areas in the blue oak woodland and gray pine woodland habitats on-site. These species are protected by the California endangered species act. Construction of the proposed biomass utilization facility would permanently remove suitable roosting habitat for sensitive bat species where large trees are removed and in any rocky areas that may be graded or constructed over. However, this reduction in habitat would not be substantial because suitable bat roosting habitat is relatively abundant in the vicinity of the project site, especially compared to the relatively small amount of suitable habitat that would be removed by the project activities. Sensitive bat species could potentially be directly impacted by construction activities including noise and vegetation removal. The disturbance, injury, or mortality of sensitive bats could result in a substantial adverse effect on the local and regional population of these species. This impact would be potentially significant.

Mitigation Measure 3.4-6: Focused Bat Surveys and Avoidance Measures

Prior to the start of project activities, a qualified biologist with familiarity with bats and bat ecology, and experienced in conducting bat surveys will conduct surveys for bat roosts in suitable habitat (e.g., large trees, crevices, cavities, exfoliating bark, foliage, bridges) within and adjacent to the project site.

- If no evidence of bat roosts is found, the qualified biologist will submit a report summarizing the results of the survey to applicant and Tuolumne County, and no further study will be required.
- If evidence of bat roosts is observed, the species and number of bats using the roost will be determined by a qualified biologist. Bat detectors will be used if deemed necessary to supplement survey efforts by the qualified biologist.
    - A no-disturbance buffer of 250 feet will be established around active pallid bat, western mastiff bat, or western red bat roosts, and project activities will not occur within this buffer until after the roosts are unoccupied. If the species of roosting bats cannot be determined during the survey, it will be assumed that the roost is occupied by special-status bats and the established buffer will be at least 250 feet.
    - If evidence of other roosting bats is observed (non-special status bat species), the qualified biologist will establish a species-specific appropriate no-disturbance buffer around the roost of at least 50 feet in diameter.
    - If roosts of pallid bat, western mastiff bat, western red bat, or other bat species are determined to be present and must be removed, the bats will be excluded from the roosting site before the tree, building, or other structure is removed. A program addressing compensation, exclusion methods, and roost removal procedures will be developed in consultation with CDFW before implementation. Exclusion methods may include use of one-way doors at roost entrances (bats may leave but not reenter) or sealing roost entrances when the site can be confirmed to contain no bats. Exclusion efforts may be restricted during periods of sensitive activity (e.g., during hibernation or while females in maternity colonies are nursing young). The loss of each roost (if any) will be replaced in consultation with CDFW and may require construction and installation of bat boxes suitable to the bat species and colony size excluded from the original roosting site. If determined necessary during consultation with CDFW, replacement roosts will be implemented before bats are excluded from the original roost sites. Once the replacement roosts are constructed and it is confirmed that bats are not present in the original roost site by a qualified biologist, the roost tree or other structure may be removed.

Significance after Mitigation

The implementation of Mitigation Measures 3.4-6 would avoid impacts to these species. This mitigation measure requires a qualified biologist to survey for and implement buffers around bat roosts prior to the start of work. Therefore, impacts to pallid bat, western mastiff bat, and western red bat would be less than significant with mitigation incorporated.

Sensitive Plant Species

Less than significant with mitigation incorporated. Potentially suitable habitat for 21 species of special-status plants was identified on the project parcel (Ascent Environmental 2021). The minor loss of or temporary disturbance to habitat associated with construction would not result in a substantial reduction in the habitat for special-status plants, due to the relative abundance of undisturbed land cover of the same types in the project vicinity. However, project activities (e.g., ground disturbance, vegetation removal, staging) could result in direct loss of special-status plants through trampling or damage to root systems, if present. The crushing or removal of special-status plants with potential to occur in the project area during project construction could result in a substantial adverse effect on local and regional populations of these species. This impact would be potentially significant.

Mitigation Measure 3.4-7: Special-Status Plant Surveys and Avoidance Measures and Mitigation

- Prior to implementation of project activities and during the blooming period for the special-status plant species with potential to occur on the project site (Ascent Environmental 2021), a qualified botanist will conduct protocol-level surveys for special-status plants within the project site following survey methods from CDFW's *Protocols for Surveying and Evaluating Impacts on Special-Status Native Plant Populations and Natural Communities* (CDFW 2018 or most recent version). The qualified botanist will: 1) be knowledgeable about plant taxonomy, 2) be familiar with plants of the Sierra Nevada region, including special-status plants and sensitive natural communities, 3) have experience conducting floristic botanical field surveys as described in CDFW 2018, 4) be familiar with the *California Manual of Vegetation* (Sawyer et al. 2009 or current version, including updated natural communities data at http://vegetation.cnps.org/), and 5) be familiar with federal and state statutes and regulations related to plants and plant collecting.
- If special-status plants are not found, the botanist will document the findings in a report to the applicant and Tuolumne County, and no further mitigation will be required.
- If special-status plant species are found, the plant will be avoided completely, if feasible (i.e., project objectives can still be met). This may include establishing a no-disturbance buffer around the plants and demarcation of this buffer by a qualified biologist or botanist using flagging or high-visibility construction fencing. The size of the buffer will be determined by the qualified biologist or botanist and will be large enough to avoid direct or indirect impacts on special-status plants and the occupied habitat.
- If special-status plants are found during special-status plant surveys and cannot be avoided, the applicant will, in consultation with CDFW or USFWS as appropriate depending on the particular species, develop and implement a site-specific mitigation strategy to achieve no net loss of occupied habitat or individuals. Mitigation measures will include, at a minimum, preserving and enhancing existing populations, establishing populations through seed collection or transplantation from the site that is to be affected, and/or restoring or creating habitat in sufficient quantities to achieve no net loss of occupied habitat or individuals. Potential mitigation sites could include suitable locations within or outside of the project site, with a preference for on-site mitigation. Habitat and individual plants lost will be mitigated at a minimum 1:1 ratio, considering acreage as well as function and value. Success criteria for preserved and compensatory populations will include:

The extent of occupied area and plant density (number of plants per unit area) in compensatory populations will be equal to or greater than the affected occupied habitat.

Compensatory and preserved populations will be self-producing. Populations will be considered self-producing when:

- plants reestablish annually for a minimum of 5 years with no human intervention such as supplemental seeding, and

- reestablished and preserved habitats contain an occupied area and flower density comparable to existing occupied habitat areas in similar habitat types in the project vicinity.

If off-site mitigation includes dedication of conservation easements, purchase of mitigation credits, or other off-site conservation measures, the details of these measures will be included in the mitigation plan, including information on responsible parties for long-term management, conservation easement holders, long-term management requirements, success criteria such as those listed above and other details, as appropriate to target the preservation of long-term viable populations.

Significance after Mitigation

The implementation of Mitigation Measures 3.4-7 would avoid impacts to these species by requiring a qualified biologist to survey for and either avoid special-status plants through implementation of no-disturbance buffers or develop a mitigation strategy to achieve no net loss of occupied habitat or individuals. Therefore, impacts to sensitive plants would be less than significant with mitigation incorporated.

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

Less-than-significant impact. Oak woodland habitat is considered a sensitive natural community in the project site because it is protected under the Oak Woodlands Protection Act, the Premature Removal of Oak Trees Ordinance, and Public Resources Code Section 21083.4. The project site does not contain riparian habitat or any other sensitive natural communities (Ascent Environmental 2021). Project activities include removal of one small (less than 20 inches diameter at breast height [DBH]) interior live oak tree (*Quercus wislizeni*), but no blue oak (*Quercus douglasii*) or other old-growth oak individuals would be removed. Vegetation removal would occur in areas outside of oak woodland habitat, and no oak woodland habitat would be converted into a different habitat type as a result of project activities. Work activities are not subject to the Oak Woodlands Protection Act, the Premature Removal of Oak Trees ordinance, or the Public Resources Code Section 21083.4, because no large diameter or heritage oak trees would be removed, and no conversion of oak woodland habitat areas would occur as a result of project activities, Therefore, the project would have a less-than-significant impact on sensitive natural communities.

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?

Less-than-significant impact. Ascent Environmental conducted a field delineation of aquatic resources on January 27, 2022 (Ascent Environmental 2022) within approximately 1 acre of the project parcel previously identified as potential freshwater emergent wetlands (Ascent Environmental 2021). The delineation focused on the portion of the project parcel where the biomass utilization facility would be located. While a desktop review of the USFWS National Wetlands Inventory Mapping (USFWS 2021) indicated a potential fresh emergent wetland, a jurisdictional determination determined that there was no hydrophytic vegetation, no hydric soils or wetland hydrology indicators, and therefore the area does not meet the criteria to be considered a jurisdictional wetland under either the federal or state wetland definitions.

The project site contains a stretch of approximately 0.3 mile of seasonal streams (Figure 3.4-1) that are potentially state or federally protected waters. During the reconnaissance survey, it was noted that the seasonal streams appear to have a hydrologic connection with other streams, creeks, and seeps in the vicinity of the project and therefore may qualify as waters of the United States or state. The project would avoid working within seasonal streams, and no direct impacts would occur to seasonal streams. In addition, temporary erosion control measures would be installed prior to construction, which would avoid or minimize erosion and sediment flow that could potentially degrade protected waters during construction. Therefore, with avoidance of seasonal streams and use of temporary erosion control, the impact to potential state or federally protected wetlands and other waters would be less than significant.

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

Less than significant with mitigation incorporated. The project site is not included in any modeled Essential Connectivity Area (ECA), and the project site is not considered to be a natural landscape block (Spencer et al. 2021). The project site does not function as a critical habitat linkage in the region and while it likely functions as a movement corridor for some wildlife species, development on the project site would not impede wildlife movement in the area or eliminate connectivity between areas of habitat making them isolated and unusable to local wildlife species. No migratory fish are anticipated on the project site. While no wildlife nursery sites are known to occur on-site, the blue oak woodland, gray pine woodland, and rocky areas on-site may provide roosting or nursery habitat potentially suitable for common bat species. Common bat species using the project site as nursery roosting could potentially be disturbed, injured, or killed by construction activities including noise and vegetation removal. The disturbance, injury, or death of common bat species in their nursery sites could result in a substantial adverse effect on the local and regional population of these species. This impact would be potentially significant.

Significance after Mitigation

The implementation of Mitigation Measures 3.4-6 would avoid impacts to common and special-status bat nursery sites by requiring a qualified biologist to survey for and implement no-disturbance buffers around bat maternity roost sites prior to the start of construction. Therefore, impacts to and the use of native nursery sites would be less than significant with mitigation incorporated.

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

No impact. Proposed project activities are not subject to the Tuolumne County Premature Removal of Oak Ordinance, because oak woodland was not assessed in the Conditional Use Permit, and because the project would not convert oak woodland habitat. Additionally, the Oak Woodlands Protection Act does not apply because this act is triggered only for removal of large (greater than 20 inches DBH) oak trees. The California Public Resources Code Section 21083.4 would not apply because oak woodland habitat would not be converted as a result of project activities. Removal of one small (less than 20 inches DBH) interior live oak is proposed, and removal would not result in an overall adverse impact to oak woodland habitat. The project would not conflict with any local policies or ordinances.

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

No impact. The project is not located within or adjacent to a Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, the project would not conflict with any conservation plan, and there would be no impact.

3.5 CULTURAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
V. Cultural Resources. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c) Substantially disturb human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

3.5.1 Environmental Setting

In April 2021 a cultural resources assessment was completed for the project site (NIC 2021). A cultural resources records search for the project site and a 0.5-mile radius was completed at the Central California Information Center (CCIC) of the California Historical Resources Information System on March 23, 2021 (File No. 11716O). The results of the CCIC search revealed no archaeological resources, built-environment historical resources, or previous reports within the project site. Six features have been recorded outside of the project site but inside the search radius; all are from the historic-era and include three stacked rock structures, segments of O'Byrnes Ferry Road, a circa 1875 ranch complex, and the Sierra Conservation Center Historic District. The project site was surveyed on April 8, 2021. An abandoned segment of one previously recorded historic-era resource, P-55-007439 (O'Byrnes Ferry Road), was identified within the project site. No pre-contact archaeological sites, ethnographic sites, or other historic-era resources were identified during the survey (NIC 2021:16-20).

P-55-007439, the historic alignment of O'Byrnes Ferry Road in Tuolumne County, appears eligible for National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR) listing under Criterion A/1 as the road is associated with events that have made a significant contribution to the broad patterns of California's history and the local history of Tuolumne County. However, the segment of this resource located within the project site does not retain its integrity and therefore is not eligible for either NRHP- or CRHR-listing (NIC 2021:24). The State Historic Preservation Officer (SHPO) concurred with this finding on June 25, 2021 (Reference HUD_2021_0602_007).

3.5.2 Discussion

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

No impact. There are no built-environment structures within the project site and the records search revealed no built-environment historical resources within the project vicinity. Therefore, there would be no impact to historical resources.

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

Less than significant with mitigation incorporated. Although the CCIC records search did not reveal any previously identified archaeological resources, the survey revealed one historic-era archaeological feature, a portion of the

historic alignment of O'Byrnes Ferry Road. However, the portion of the road located within the project site has been evaluated as not eligible for NRHP- or CRHR-listing and therefore is not a resource under CEQA. Nevertheless, the possibility remains that project-related ground-disturbing activities could result in discovery or damage of yet undiscovered archaeological resources as defined in State CEQA Guidelines Section 15064.5. This impact would be potentially significant.

Mitigation Measure 3.5-1: Unanticipated Discoveries of Archaeological Resources

In the event that a prehistoric archeological site (such as any unusual amounts of stone, bone, or shell) or a historic-period archaeological site (such as concentrated deposits of bottles or bricks, amethyst glass, or other historic refuse), is uncovered during grading or other construction activities, all ground-disturbing activity within 100 feet of the discovery shall be halted until a qualified archaeologist can assess the significance of the find. Tuolumne County will be notified of the potential find and a qualified archeologist shall be retained to investigate its significance. If the find is a prehistoric archeological site, the appropriate Native American group shall be notified, and Mitigation Measure 3.18-1 shall be implemented. Any previously undiscovered resources found during construction will be recorded on appropriate California Department of Parks and Recreation 523 forms and evaluated for significance under all applicable regulatory criteria. If the archaeologist determines that the find does not meet the CRHR standards of significance for cultural resources, construction may proceed. If the find is determined to be significant by the qualified archaeologist (i.e., because the find is determined to constitute either an historical resource or a unique archaeological resource), the archaeologist shall work with Tuolumne County to follow accepted professional standards such as further testing for evaluation or data recovery, as necessary. If artifacts are recovered from significant historic archaeological resources, they shall be housed at a qualified curation facility. The results of the identification, evaluation, and/or data recovery program for any unanticipated discoveries shall be presented in a professional-quality report that details all methods and findings, evaluates the nature and significance of the resources, and analyzes and interprets the results.

Significance after Mitigation

Implementation of Mitigation Measure 3.5-1 would reduce impacts to archaeological cultural resources to a less-than-significant level by requiring preservation options and proper curation if significant artifacts are recovered.

c) Substantially disturb human remains, including those interred outside of formal cemeteries?

Less-than-significant impact. There are no known cemeteries or burials on the project site or immediate area. However, because earthmoving activities associated with project construction would occur, there is potential to encounter buried human remains or unknown cemeteries in areas with little or no previous disturbance.

California law recognizes the need to protect Native American human burials, skeletal remains, and items associated with Native American burials from vandalism and inadvertent destruction. The procedures for the treatment of Native American human remains are contained in California Health and Safety Code Section 7050.5 and California Public Resources Code Section 5097.

These statutes require that, if human remains are discovered, potentially damaging ground-disturbing activities in the area of the remains shall be halted immediately, and the County coroner shall be notified immediately. If the remains are determined by the coroner to be Native American, NAHC shall be notified within 24 hours and the guidelines of the NAHC shall be adhered to in the treatment and disposition of the remains. Following the coroner's findings, the NAHC-designated Most Likely Descendant and the landowner shall determine the ultimate treatment and disposition of the remains and take appropriate steps to confirm that additional human interments, if present, are not disturbed. The responsibilities for acting upon notification of a discovery of Native American human remains are identified in Public Resources Code Section 5097.94.

Compliance with California Health and Safety Code Section 7050.5 and California Public Resources Code Section 5097 would provide an opportunity to avoid or minimize the disturbance of human remains, and to appropriately treat any remains that are discovered. Therefore, this impact would be less than significant.

3.6 ENERGY

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

3.6.1 Environmental Setting

The following sources of energy are used in Tuolumne County and may able be used by the project.

- **Electricity and renewables:** In 2002, Senate Bill 1078 established a renewables portfolio standard (RPS) program. The program is jointly implemented by the California Public Utilities Commission and the California Energy Commission (CEC) and requires all load-serving entities to procure 60 percent of their total electricity retail sales from renewable energy sources by 2030. Under Senate Bill (SB) 100, the state requires that all retail sales of electricity be 100 percent zero-carbon by 2045.
- **Petroleum:** Petroleum products (gasoline, diesel, jet fuel) are consumed almost exclusively by the transportation sector, which is responsible for almost 90 percent of the petroleum consumed in the state (EIA 2020). In 2015, a total of 15.1 billion gallons of gasoline were sold in California (CEC 2020). To meet CARB regulations, all gasoline and diesel fuel sold in California for motor vehicles is refined to be a specific blend of motor gasoline called California Reformulated Gasoline (EIA 2020).
- **Biomass fuels:** Conventional gasoline and diesel may be replaced (depending on the capability of the vehicle) with many alternative transportation fuels (e.g., renewable diesel, hydrogen, electricity). Use of alternative fuels is encouraged through various statewide regulations and plans (e.g., Low Carbon Fuel Standard, Assembly Bill 32 Scoping Plan).

3.6.2 Discussion

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

Less-than-significant impact. Implementation of the project would result in the consumption of energy resources during construction and operation. Energy would be consumed during project construction to operate construction equipment and transport construction materials. It also would be consumed for worker commutes and material and equipment haul trips. Levels of construction-related fuel consumption were calculated using equipment assumptions modeled in CalEEMod Version 2020.4.0 (CAPCOA 2020). See Appendix A for detailed calculations. An estimated 24,144 gallons of gasoline and 58,706 gallons of diesel would be consumed during project construction, accounting for both on-site equipment use and off-site vehicle travel for worker commutes and haul trips. This one-time energy expenditure required to construct the project would be nonrecoverable. However, energy needs for project construction would be temporary and would not require additional capacity or increase peak or base period demands for electricity or other forms of energy.

Project operations would increase electricity, diesel, and gasoline consumption in the region relative to existing conditions on-site and off-site at the biomass collection operations in the field. The project would also consume approximately 5 percent of the biomass (1,049 green tons per year, or 629 BDT per year) collected off-site as fuel in the CHP to provide electricity and heat to the on-site facilities and operations. The project would not use natural gas as a fuel. Only building operations, such as the proposed office building and warehouse, would be subject to Title 24 Building Energy Efficiency Standards. These standards do not apply to non-building facilities (e.g., merchandizing line). Table 3.6-1 summarizes the estimated energy consumption associated with project for the first full year (2024) of operations using results shown in Appendix A and diesel and gasoline fuel consumption emission factors from the Climate Registry (Climate Registry 2021).

Table 3.6-1 Proposed Project Operational Energy Consumption During the First Year of Operation (2024)

Energy Type	Energy Consumption	Units
Electricity	80,000 to 100,000	kWh/month
Provided by Gasifier	82,000	kWh/month
Provided by the Grid	18,000	kWh/month
Diesel	17,269	gal/year
Gasoline	6,864	gal/year
Biomass	629	BDT/year

Notes: kWh = kilowatt-hours; gal = gallons; BDT = bone dry tons

Source: Modeled by Ascent Environmental in 2022

The project does not propose any excessive or unnecessary energy consumption beyond what is typical for this type of development. Operation of the project would be typical of this type of land use, requiring electricity for lighting and manufacturing operations. Title 24 Building Energy Efficiency Standards would be integrated into a small component of the project to reduce the project's energy demands and increase energy efficiency. The proposed project's gasoline and diesel consumption would be subject to state and federal regulations regarding fuel efficiency standards for on-road vehicles and off-road equipment. The project would also utilize renewable energy sources in the form of biomass collected from off-site fuel management activities that would have otherwise combusted the biomass through pile burning. Additionally, the net purchase of electricity from the utility would be at least 30 percent renewable, based on PG&E's 2020 Power Content Label (California Energy Commission 2020). In 2024, PG&E's renewable portfolio is estimated to grow to 42 percent, based on the interpolation between its 2020 portfolio and an assumed 100 percent renewable portfolio by 2045, per targets set in SB 100.

Due to the use of renewable fuels in the project, the project would reduce wasteful combustion of biomass off-site. Also, regulations, such as SB 100, Title 24, and vehicle emissions standards, would reduce wasteful inefficient, and unnecessary use of energy for buildings and transportation. This impact would be less than significant.

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

Less-than-significant impact. As discussed above, the project would result in the use of renewable biomass for fuel and comply with all state and local requirements and policies related to the consumption of energy, including Title 24 Building Energy Efficiency Standards. In addition, PG&E, which provides electric service to the project site, would provide approximately 42 percent renewable electricity. Therefore, the proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. This impact would be less than significant.

3.7 GEOLOGY AND SOILS

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

3.7.1 Environmental Setting

The project is located in the foothills of the Sierra Nevada Geomorphic Province, which is approximately 50 miles wide and extends for 400 miles paralleling California's eastern border from the Cascade Range in the north to the central Transverse Ranges in the south. The Sierra Nevada Geomorphic Province is a tilted fault block with a steep slope on the east side and a gentle slope on the west cut by deep river canyons. The geology of the Sierra Nevada is characterized primarily by igneous and metamorphic rocks of diverse composition and age. The project site is underlain by Mesozoic ultramafic intrusive igneous rocks, mostly serpentine (DOC 2022a). The project site is located

west of the Melones Fault Zone very close to the Bear Mountains Fault Zone, a late quaternary fault (USGS 2022). The New Melones Fault Zone has an estimated maximum capability of a magnitude 6.5 earthquake (Tuolumne County 2018). The Bear Fountain Fault zone is considered to be "indeterminable inactive" (Tuolumne County 2018). Tuolumne County has one of the lowest earthquake risks in California (Tuolumne County 2018). A total of five historical earthquakes with magnitude 3.5 or greater have occurred in or within 50 miles of Tuolumne County in the past century (Tuolumne County 2018). The USGS database shows that there is a 28 percent chance of a major earthquake (magnitude 7.0 or greater) within the next 50 years and a 1-15 percent chance of a moderate earthquake (magnitude 5.0) in the next 30 years within 50 kilometers of Tuolumne, California (Tuolumne County 2018).

Four soil complexes are mapped in the project parcel (Figure 3.7-1), depending on location and slope (NRCS 2022). The Bonanza-Loafercreek-Gopheridge complex is located in the northwest portion of the project site, the Jasperpeak-Gopheridge complex in the northeast quarter of the site; the Loafercreek-Gopheridge complex in the furthest northeastern corner of the site, and the Crimeahouse-Sixbit complex in the southern half of the parcel where the project site is proposed. Soil properties are described in Table 3.7-1. None of the soils are listed as being suitable for agriculture. There are no unique soils on-site that may be better suited for unique natural area preservation. There is a former gravel quarry on-site but there is no visual indication of filled ground.

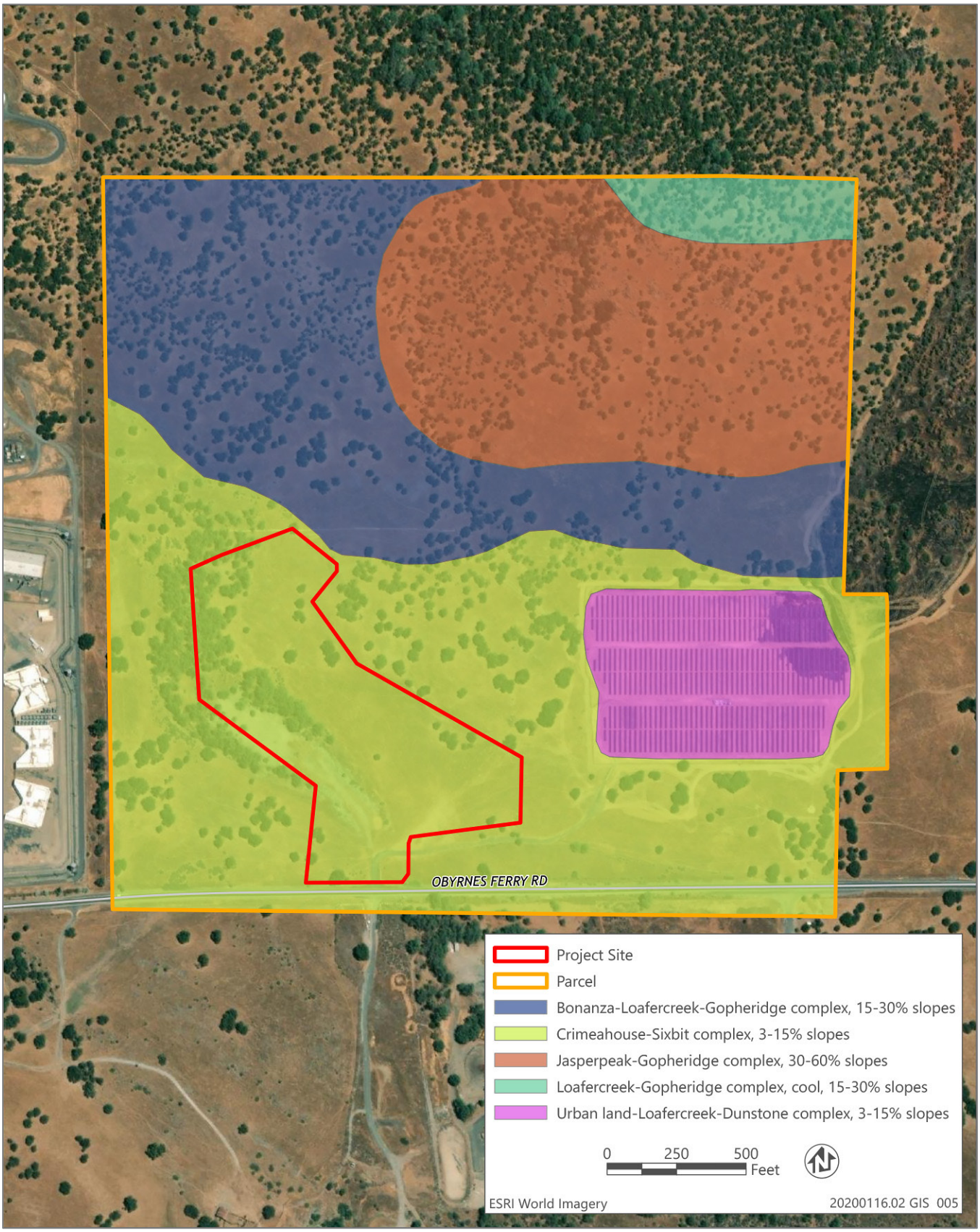
Table 3.7-1 Soil Types and Soil Characteristics of the Parcel Where the Project Site is Located

Soil Type	Parent Material	Erosion Factor (k)[1]	Linear Extensibility
Bonanza-Loafercreek-Gopheridge complex	Colluvium over residuum derived from metavolcanics	0.28	1.6
Jasperpeak-Gopheridge complex	Colluvium over residuum derived from metavolcanics	0.28	1.1
Loafercreek-Gopheridge complex	Colluvium over residuum derived from metavolcanics	None listed	2.0
Crimeahouse-Sixbit complex (project site)	Colluvium and/or residuum derived from serpentinite	0.10	1.5

[1] K values range from 0.02 to 0.69. The higher the value, the more susceptible to sheet and rill erosion by water.
[2] Linear extensibility is expressed as percent volume change between wet and dry. The higher the number, the higher the potential for shrink swell.

Source: NRCS 2022.

The University of California Museum of Paleontology records indicate no fossils are known from the project site, mapped as being underlain by Mesozoic ultramafic rocks (plutonic/igneous), which have no potential for preserving identifiable, significant paleontological resources. Also, the project site has no unique geologic features (NIC 2021).



Source: Data downloaded from NRCS in 2022; adapted by Ascent in 2022.

Figure 3.7-1 Soil Types

3.7.2 Discussion

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 California Geological Survey Special Publication 42.)

Less-than-significant impact. The project site is located very close to the Bear Mountains Fault Zone and is located west of the New Melones Fault Zone, which are both part of the Foothills Fault System. The Bear Mountain Fault zone is considered to be "indeterminable inactive," but the nearby New Melones Fault Zone has an estimated maximum capability of a magnitude 6.5 earthquake (Tuolumne County 2018). The project site is not mapped as Alquist-Priolo Earthquake Fault Zone and there is no evidence of past seismic activity at the site. The California Health and Safety Code (Section 19100 et seq.) requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes. Additionally, the California Building Code (CBC) identifies seismic factors that must be considered in structural design (Chapter 16). The proposed building would only be occupied during working hours and would comply with these code provisions. Additionally, the Tuolumne County General Plan Natural Hazards Element includes Policies 17.D.1 and 17.D.2 and Implementation Programs 17.D.a through 17.D.c intended to minimize primary hazards associated with fault rupture by identifying areas subject to this hazard and directing development away from high-risk areas. The proposed project would not exacerbate the risk of fault rupture. Because the project is not located on a known, active fault and because the project would comply with seismic related building codes, the risk of loss, injury, or death involving rupture of a known fault is less than significant.

ii) Strong seismic ground shaking?

Less-than-significant impact. The project site is located in an area mapped with low potential for earthquake induced ground shaking (DOC 2022b). The planning and building divisions of the County would verify that all new construction complies with current codes and ordinances regarding earthquake safety such as the California Health and Safety Code (Section 19100 et seq.) that requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes and CBC, which identifies seismic factors that must be considered in structural design (Chapter 16). For these reasons, the risk of loss, injury, or death involving strong seismic shaking is considered less than significant.

iii) Seismic-related ground failure, including liquefaction?

Less-than-significant impact. Liquefaction is a process whereby soil is temporarily transformed to a fluid state during strong ground shaking. Areas most prone to liquefaction are those that are saturated and consist of relatively uniform sands. The project site is not located in an area with a mapped risk of liquefaction (DOC 2022b). Because of the soil types, groundwater conditions (see Section 3.10, "Hydrology and Water Quality"), and the lower risk of seismicity in the County, the risk and danger of liquefaction and subsidence occurring within the County is considered to be minimal (Tuolumne County 2018). Additionally, the proposed building would be designed to comply with CBC (Chapter 18A) standards, which regulate construction on unstable soils. Therefore, the risk of loss, injury, or death resulting from seismic-related ground failure is less than significant.

iv) Landslides?

Less-than-significant impact. Landslide is a mass wasting of earthen material down a sloped section of land. The landslide susceptibility of the project site is low. There are no mapped landslides in the vicinity of the project site (DOC 2022b). The project site where construction is proposed is relatively flat but there is a hill in the northeastern corner of the property. The slope of the parcel where construction is proposed is slight at approximately 6 percent and therefore the risk of loss, injury, or death from landslides is less than significant.

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

Less-than-significant impact. Erosion is the process by which earthen materials are worn away and transported by wind and water. Land disturbance can accelerate the rate of the erosion and loss of topsoil by exposing soil to wind and water. Soils on the project site have low erosion factors, between 0.1 and 0.28, which indicate that they are less susceptible to sheet and rill erosion by water (NRCS 2022). There is no existing evidence of erosion at the site. The project would result in approximately 6 acres of grading during construction. Construction activities over 1 acre are required to comply with the National Pollutant Discharge Elimination System (NPDES) California Construction General Permit Order 2009-0009-DWQ as amended by Order 2010-0014-DWQ and 2012-0006-DWQ. This permit requires preparation and implementation of a SWPPP that identifies best management practices (BMPs) to minimize the potential for erosion. Additionally, the proposed project would be required to comply with Chapter 12.20 of the Tuolumne County Ordinance Code, which includes the following requirements:

- Section 12.20.150(H). An erosion control plan, showing the type and exact locations of measures to be taken, shall be supplied when determined necessary by the Department.
- Section 12.20.330(A). All drainage facilities shall be designed to carry waters to the nearest practicable natural drainage way approved by the Department as a safe place to deposit such waters. Erosion of ground in the area of discharge shall be prevented by installation of non-erosive down drains or other devices.
- Section 12.20.350. The faces of cut and fill slopes shall be prepared and maintained to control against erosion. This control may consist of effective planting. The protection of the slopes shall be installed as soon as practicable and before calling for final approval. If, in the opinion of the Department, the protection for the slopes is not subject to erosion due to the erosion-resistant character of the materials, such protection may be omitted.
- Section 12.20.360. When necessary, check dams, cribbing, rip rap or other devices or methods shall be employed to control erosion and provide safety.

Compliance with the Construction General Permit and Tuolumne County Ordinance Code would minimize the risk of substantial erosion and loss of topsoil. The impact would be less than significant.

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

Less-than-significant impact. Hazards associated with unstable soils or geologic units are dependent on site-specific conditions, as well as the specific nature of the individual project proposed. Liquefaction and landslide are discussed in items "a-iii" and "a-iv," above. Lateral spreading is horizontal displacement that occurs on gentle slopes or near free-faces, such as river channels. Subsidence is a downward shift in the earth surface. Soil collapse occurs when a soil is exposed to and weakened by water. The water causes the soil binding agents to break or dissolve such that the soil grains shear against each other and re-orient in a tighter, denser, configuration that results in settlement of the ground surface.

For the same reasons discuss under items "a-iii" and "a-iv" above, landslide risk does not exist at the project site. Linear extensibility can be used as an indicator of susceptibility to lateral spreading. As shown in Table 3.7-1, linear extensibility of the soils where construction is proposed (southwest portion of the parcel) is lower and ranges from 1.1-1.6. Additionally, there are no free-faces in the project site. Subsidence can be caused by groundwater withdrawal. Due to the lack of groundwater resources, no large-scale groundwater withdrawal is occurring in the vicinity of the project site and there is no evidence of ground subsidence at the site. Soils that are susceptible to collapse are generally recently deposited, and unstable (White 2018). The soils in the project site were not recently deposited. There is no evidence of soil problems in the vicinity of the project site.

The Tuolumne County General Plan would require, as part of the application review process, a geotechnical engineering report to be prepared for proposed development when a potential hazard exists (Implementation

Program 17.D.c). This report would confirm that development is properly engineered to protect against unstable soil or ground conditions. No geotechnical report has been conducted on-site at the time of this analysis.

Because the potential for unstable soils to occur in the project site is low and the project would adhere to the requirements of the Tuolumne County General Plan, impacts related to soil hazards would be less than significant.

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

Less-than-significant impact. Clay rich soils have the potential to expand and contract when they get wet and when they dry. Expansive soils are clay rich, which makes them prone to large changes in volume. This change in volume can produce enough force and stress on buildings and other structures to damage foundations and walls. As shown in Table 3.7-1, linear extensibility describes the change in volume of a soil when wetted. The soils in the project site where construction is proposed have a low linear extensibility, which indicates a low potential for expansive soils to occur.

CBC requires that a preliminary soil report or geotechnical report be prepared to identify "…the presence of critically expansive soils or other soil problems that, if not corrected, would lead to structural defects" (CBC Chapter 18 Section 1803.1.1.1). Additionally, the Tuolumne County General Plan would require, as part of the application review process, a geotechnical engineering report to be prepared for proposed development when a potential hazard, such as expansive soils, exists (Implementation Program 17.D.c). Due to the low potential for expansive soils to occur on-site and compliance with CBC provisions and the Tuolumne County General Plan, risks to life or property from expansive soil is considered less than significant.

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?

Less-than-significant impact. An on-site septic system is proposed for this project. This system would be utilized by the approximately 20 employees of the site. Chapter 13.08 of the Tuolumne County Ordinance Code describes requirements for septic tanks that would verify that soil conditions at the site would adequately support such facilities. As part of the code requirements, any new disposal systems or modifications to an existing system require a permit from the County's Environmental Health Division, which would review the site and location of such systems and confirm that the installation of such a system at that location is feasible. Thus, no sensitive natural receptors, such as wetlands, would be impacted by the system. For these reasons, this impact would be less than significant.

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

No impact. The University of California Museum of Paleontology records indicate no fossils are known from the project site, mapped as being underlain by Mesozoic ultramafic rocks (plutonic/igneous), which have no potential for preserving identifiable, significant paleontological resources (NIC 2021). Additionally, the site does not contain any unique geologic features (NIC 2021). The project would have no impact on unique paleontological, natural, or geologic resources.

3.8 GREENHOUSE GAS EMISSIONS

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

3.8.1 Environmental Setting

Greenhouse gas (GHG) emission estimates and calculations are available in the *Greenhouse Gas Study* (Ascent Environmental 2022).

GHGs are gases in the earth's atmosphere that trap heat through a phenomenon called the greenhouse effect. Prominent GHGs that contribute to the greenhouse effect are carbon dioxide (CO_2), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The greenhouse effect occurs when solar radiation enters the earth's atmosphere and infrared radiation is absorbed by GHGs rather than being reflected into space. This trapping of infrared radiation results in the warming of the atmosphere and is responsible for maintaining a habitable climate on earth. However, GHG emissions from human activities have greatly increased GHG concentrations in the atmosphere and caused levels of warming far above natural levels, resulting in global climate change. According to the Intergovernmental Panel on Climate Change (IPCC), it is extremely likely that more than half of the observed increase in average global temperature from 1951 to 2010 was caused by anthropogenic (i.e., human-caused) increases in GHG concentrations, along with other anthropogenic forcing. GHG emissions contributing to global climate change are attributable, in large part, to human activities associated with on-road and off-road transportation, industrial/manufacturing activities, electricity generation and consumption, residential and commercial on-site fuel use, and agriculture and forestry.

Climate change is a global issue because GHGs are global pollutants, and even local GHG emissions contribute to global impacts. Many GHGs have long atmospheric lifetimes, from 1 to several thousand years, and persist in the atmosphere for long enough durations to be dispersed around the globe. The quantity of GHGs in the atmosphere that ultimately result in climate change is not precisely known but is enormous; no single project alone would measurably contribute to an incremental change in the global average temperature, or to global, local, or microclimates. From the standpoint of CEQA, GHG impacts relative to global climate change are inherently cumulative.

STATE REGULATIONS

Statewide GHG Emission Targets and the Climate Change Scoping Plan

Reducing GHG emissions in California has been the focus of state government for approximately two decades. GHG emission targets established by the state legislature include reducing statewide GHG emissions to 1990 levels by 2020 (Assembly Bill [AB] 32 of 2006) and reducing them to 40 percent below 1990 levels by 2030 (SB 32 of 2016). The Executive Order (EO) S-3-05 calls for statewide GHG emissions to be reduced to 80 percent below 1990 levels by 2050. EO B-55-18 calls for California to achieve carbon neutrality by 2045 and achieve and maintain net negative GHG emissions thereafter. These targets align with the scientifically established levels needed globally to limit the rise in global temperature to no more than 2 degrees Celsius, the warming threshold at which major climate disruptions,

such as super droughts and rising sea levels, are projected; these targets also pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius (United Nations 2015:3).

The 2017 Climate Change Scoping Plan (2017 Scoping Plan), prepared by CARB, outlines the main strategies California will implement to achieve the legislated GHG emission target for 2030 and "substantially advance toward our 2050 climate goals" (CARB 2017:1, 3, 5, 20, 25–26). It identifies the reductions needed by each GHG emission sector (e.g., transportation, industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste). The state has also passed more detailed legislation addressing GHG emissions associated with industrial sources, transportation, electricity generation, and energy consumption. Additionally, CARB recently released the Draft 2022 Scoping Plan in May 2022 which focuses on achieving carbon neutrality by 2045; however, the 2022 Scoping Plan is still in draft form and has not yet been finalized.

LOCAL REGULATIONS

Tuolumne County Regional Blueprint Greenhouse Gas Study

In 2012, the Tuolumne County Transportation Council (TCTC) conducted a regional blueprint planning effort, which presented the results of a countywide (including incorporated and unincorporated areas) GHG emissions inventory, which evaluated existing (2010) GHG emissions, and projected (2020, 2030, and 2040) emissions for three growth scenarios. It also identified policies and measures Tuolumne County and land use project applicants can implement to reduce GHG emissions consistent with AB 32 and prepare for the potential impacts of climate change. In 2010, Tuolumne County emitted approximately 782,846 metric tons of CO_2 equivalent GHG emissions ($MTCO_2e$) as a result of activities and operations that took place within the transportation, residential (energy consumption), nonresidential (energy consumption), off-road vehicles and equipment, agriculture and forestry, wastewater, and solid waste sectors. This equates to 9.8 $MTCO_2e$ per resident and employee in Tuolumne County's service population (service population is defined as the total County resident population + people employed in the County). Because the project completed a project-specific GHG study, it does not need to rely on the evaluation and mitigations in the Blueprint GHG Study.

Tuolumne County Climate Action Plan

Consistent with the goals and objectives identified in the Tuolumne County 2018 General Plan, the County is currently developing a Climate Action Plan (CAP) that identifies GHG reduction and adaptation measures as the County seeks to mitigate GHG emissions and plan for a resilient future. The CAP is still in draft form and has not been formally adopted by the Board (TCAPCD 2022). The public review period closed on June 15, 2022.

THRESHOLDS OF SIGNIFICANCE

Impacts from the project would be significant if the project would exceed either of the following significance criteria. Because no applicable local or federal criteria have been adopted for GHG emissions for this type of facility, significance criteria are based on Appendix G of the State CEQA Guidelines, which account for the context and intensity of direct, indirect, and cumulative effects:

- generate GHGs, either directly or indirectly, that may have a significant impact on the environment; or
- conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

As of June 2022, Tuolumne County and TCAPCD do not have an adopted GHG threshold for the purposes of determining significance under CEQA or NEPA. CARB's 2017 Scoping Plan states that, for project-level GHG thresholds,

Absent conformity with an adequate geographically-specific GHG reduction plan […], CARB recommends that projects incorporate design features and GHG reduction measures, to the degree feasible, to minimize GHG emissions. Achieving no net additional increase in GHG emissions, resulting in no contribution to GHG impacts, is an appropriate overall objective for new development. (CARB 2017:101).

Additionally, CARB recently released the Draft 2022 Scoping Plan in May 2022, which states a similar recommendation regarding evaluating project-level GHG impacts (CARB 2022: Appendix D, p.12). However, the 2022

Scoping Plan is still in draft form and has not yet been finalized. As such, the project would be considered significant if it results in a net increase in GHG emissions compared to existing conditions. This threshold is specific to the project and may not necessarily apply to other projects in the County.

3.8.2 Discussion

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

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

Less-than-significant impact. To assist with determining whether the proposed project would generate GHG emissions that would be considered significant or result in conflicts with reducing emissions, a GHG study was completed for the project (Ascent Environmental 2022).

The proposed project would result in GHG emissions generated by construction activities, off-road equipment, on-road haul trucks and worker trips, and combustion of biomass at the facility. GHG emissions would also be avoided because the same biomass material delivered to the project site would no longer be piled and burned in the forest. A summary breakdown of the emissions levels associated with these activities is provided in Table 3.8-1 (Ascent Environmental 2022). Offroad equipment emissions are based on equipment lists and operational hours provided by the applicant, whose emissions were quantified in CalEEMod Version 2020.4.0 (CAPCOA 2020). Worker commute emissions were based on average passenger vehicle emissions using EMFAC 2021, assuming 20 workers commuting twice per day, 260 days per year, at a default CalEEMod trip length of 16.8 miles per trip.

Haul trips included biomass hauling, water delivery trucks, and retail delivery. Emissions from biomass hauling were based on 30-ton trucks delivering 20,000 green tons per year, traveling 40 miles per trip (72,800 vehicle miles per year). Emissions from water delivery trips were based on light heavy duty trucks delivering water to the site twice per week, traveling 20 miles per trip (2,080 vehicle miles per year), Emissions from retail delivery trips were based on 30-ton trucks delivering approximately 17,000 tons of wood products per year, traveling 40 miles per trip (45,203 vehicle miles per year). Although idling emission were also accounted for, these comprised less than 0.01 percent of total emissions.

CHP emissions from the combustion of the biomass-generate syngas are based on a calculated emissions factor of 15 kg CO_2 per ton of woody biomass. Emissions from net electricity use was based on net electricity usage information provided by the applicant and Pacific Gas and Electric emission factors estimated for 2024. These and other detailed calculations assumptions are available in Appendix A.

Table 3.8-1 Annual Project Emissions Summary

Emissions Source	GHG Emissions (MT CO_2e/year)
Off-Road Equipment	117
Worker Commute	60
Haul Trips	85
CHP	16
Net Electricity Use	1,168
Amortized Construction Emissions[1]	27
Total Emissions	628
Avoided GHG Emissions from Burning of Biomass Piles	-20,202
Net Change in GHG Emissions	**-18,757**

Note: MT CO_2e = metric tons of carbon dioxide. See the Greenhouse Gas Study for calculation details.

[1] Based on an assumed 30-year project lifespan.

Source: Modeled by Ascent Environmental in 2022.

As shown in Table 3.8-1, implementation of the project would result in a net reduction in GHG emissions of 18,757 MT CO_2e. This is primarily because the open burning of biomass piles generates more emissions than the combustion of biomass at the proposed facility and other site activities. The estimates in Table 3.8-1 do not account for emissions associated with the fate of any biomass fuel sold by the facility. Under existing conditions, the biomass that would be used by the project would be piled and burned at forest locations. As part of the proposed project, it is certain that the biomass would be utilized as an energy source both by the facility as dried biomass and by the end consumers as wood chips, hog fuel, and other wood-products. Thus, the effect of operating the proposed biomass utilization project would result in a net decrease in GHG emissions, because pile burning of this biomass would be avoided. Therefore, the proposed project would not generate significant GHG emissions or result in any conflicts with reducing GHG emissions in line with applicable plan, policy, or regulation. This impact would be less than significant.

3.9 HAZARDS AND HAZARDOUS MATERIALS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. Hazards and Hazardous Materials. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project site?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☒	☐

3.9.1 Environmental Setting

Hazardous substances and wastes that are likely to be generated from the project would include hydraulic fluids and solvents used by vehicles and machinery in the construction and operation of the proposed biomass utilization facility. All hazardous substances and wastes are highly regulated by federal, state, and local regulations regarding the use, storage, transportation, handling, processing, and disposal. All hazardous substances and waste are required to be stored, transported, handled, processed, and disposed of in accordance with these regulations.

Pursuant to Senate Bill (SB) 1082 (1993), the State of California adopted regulations to consolidate all hazardous materials management programs under a single, local agency, known as the Certified Unified Program Agency (CUPA). In addition to conducting annual facility inspections, the Hazardous Materials Program is involved with hazardous materials emergency response, investigation of the illegal disposal of hazardous waste, public complaints, and stormwater illicit discharge inspections. In January 1997, the Tuolumne County Environmental Health Division of

the Community Resources Agency (EHD) was designated as the CUPA by the Secretary of the California Environmental Protection Agency (CalEPA) for Tuolumne County. Accordingly, it is EHD's responsibility to prevent public health hazards in the community and to confirm the safety of water and food. EHD coordinates activities with federal, state, and regional agencies when planning programs that deal with the control of toxic materials, housing conditions, nuisance complaints, protection of food and water supply, public bathing areas, and sewage and solid waste. Businesses in Tuolumne County handling more than specified reportable quantities of any hazardous material are required to disclose certain information to EHD via a hazardous materials business plan. Risk management plans are required to be developed by certain businesses that handle more than a threshold quantity of certain regulated acutely hazardous substances (primarily toxic gasses and pesticides) under the California Accidental Release Prevention (Cal ARP) program. The purpose of the Cal ARP program is to prevent the accidental releases of regulated substances.

State databases that record toxic waste and hazardous substances sites include the State of California Hazardous Waste and Substances List (also known as the "Cortese List"), the EnviroStar database, and the Geotracker database. CalEPA maintains and annually updates the Cortese List pursuant to Government Code Section 65962.5. The California Department of Toxic Substances Control (DTSC) is responsible for providing a portion of the Cortese List information, and other state and local agencies provide additional information. The EnviroStar database, managed by DTSC, lists brownfield sites (a US Environmental Protection Agency [EPA] program for contaminated properties), sites undergoing hazardous materials mitigation, sites with known contamination that may require further investigation, federal superfund sites, state response sites, voluntary cleanup sites, and school cleanup sites. The state's Regional Water Quality Control Boards maintain GeoTracker, which is a data management system for sites that affect, or have the potential to affect, water quality in California, with emphasis on groundwater. GeoTracker contains records for sites that require cleanup, as well as permitted facilities, such as irrigated lands, operating permitted underground storage tanks, and land disposal sites. GeoTracker portals retrieve and compile records from multiple State Water Resources Control Board programs and other agencies. One site was identified within 1 mile of the project site using these tools. The California Correctional Facility (Sierra Conservation Center) is a correctional institution adjacent to the project site where milk is manufactured. The facility formerly had a chemical discharge permit, but the permit had no reported violations and is now terminated.

NEPAssist is a federal tool maintained by EPA that inventories any facility regulated by a federal hazardous waste program. It contains sites regulated by the Resource Conservation and Recovery Act; air pollution data (ICIS-AIR); water dischargers covered by NPDES; Toxics Release Inventory, which contains information on toxic chemical releases and waste management reported by industries under Title II of the Superfund Amendments and Reauthorization Act; and Superfund sites covered by the Comprehensive Environmental Response, Compensation, and Liability Act. NEPAssist was used to conduct a search of facilities in the vicinity of the project area. There are no federal hazardous waste handing or disposal sites within the project area, and only one recorded site—an industrial property operated under the title George Reed Inc.—located 0.8 mile away. This facility operates an asphalt paving mixture and block manufactural facility, maintenance yard, and a lumber and other construction materials wholesaler. They also have no reported violations.

The project site is not near any existing or proposed schools. The nearest school is Copper Cove High School, located 5 miles northwest of the project boundary. There are no schools located within 0.25 mile of the project site.

There are two airports located within Tuolumne County. One is Columbia Airport, located in Columbia; the other is Pine Mountain Lake Airport, located in Groveland. Parcels that are subject to the Tuolumne County Airport Compatibility Plan are designated with the Airport Overlay (-AIR) General Plan land use designation the ":AIR" (Airport Combining) zoning district. The project site is not located within 2 miles of an airport.

Information on emergency response and evacuation planning is contained in the Natural Hazards Element of the 2018 Tuolumne County General Plan and the Tuolumne County Multi-Jurisdiction Hazard Mitigation Plan. Tuolumne County does not have a static emergency plan or evacuation plan due to the dynamic nature of emergencies. In the event of an emergency, the Tuolumne County Sheriff's Office is the responsible entity for declaring and directing evacuations. The Sherriff's Department would inform members of the public via the Everbridge Emergency Notification System, local media, and door-to-door when feasible.

The project site is located within a state responsibility area (SRA) and has a high fire hazard severity zone (FHSZ) rating. This rating is based on factors of slope, vegetation, and annual summer weather patterns. These zones, referred to as FHSZs, provide the basis for application of various mitigation strategies to reduce risks to buildings associated with wildland fires. The zones also relate to the requirements for building codes designed to reduce the ignition potential to buildings in the wildland-urban interface zone.

3.9.2 Discussion

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

Less-than-significant impact. Construction activities would involve the use of hazardous materials such as fuels, lubricants, and solvents typically associated with construction equipment and vehicles. These materials are commonly used during construction and are not acutely hazardous. The federal Occupational Safety and Health Administration (OSHA) is the agency responsible for assuring worker safety in the handling and use of chemicals identified in the Occupational Safety and Health Act of 1970 (Public Law 91-596, 9 USC 651 et seq.). OSHA has adopted numerous regulations pertaining to worker safety, contained in CFR Title 29. These regulations set standards for safe workplaces and work practices, including standards relating to the handling of hazardous materials and those required for construction activities such as excavation and grading. Any materials used during construction activities would be handled in compliance with applicable laws, regulations, and protocols that protect worker, user, and public safety. Operation of the project would involve industrial activities, the operation of which would not involve the use or release of any specialized, specific, listed hazardous wastes or substances. Small amounts of common maintenance products such as fuels, solvents, and cleaners would be regularly used at the project site. These products may contain listed toxic or hazardous substances, but in quantities that would generally be below de minimis amounts, and would be regulated according to hazardous materials and wastes programs. The proposed project would also include an on-site 500-gallon diesel fuel tank, with a concrete containment system, used to fuel on-site equipment. The concrete containment system would be a minimum of two feet tall.

Implementation Program 9.I.d of the 2018 Tuolumne County General Plan calls for EHD and the Tuolumne County Fire Department to review applications for discretionary projects for compliance with the latest adopted regulations for safety and environmental protection, which applies to the proposed project. Compliance with applicable laws, regulations, protocols, and the 2018 General Plan as it relates to the transport, use, or disposal of hazardous materials would result in a less-than-significant impact related to the exposure of people or the environment to hazardous materials associated with construction and operation of the proposed project.

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

Less-than-significant impact. Reasonably foreseeable upset and accident conditions could include spills or leaks associated with the use of construction equipment and vehicles, or from equipment and vehicles used at the site during operation of the facility. Any materials utilized during construction activities would be handled in accordance with applicable laws, regulations, and protocols (see item "a," above), and operation of the project would only result in small amounts of common maintenance products such as fuels, solvents, and cleaners being used at the project site (also described in item "a," above). These products may contain listed toxic or hazardous substances, but in quantities that would generally be below de minimis amounts and would be regulated according to hazardous materials and wastes programs. An on-site fuel storage tank would be used to fuel on-site equipment. Because the project would adhere to applicable laws, regulations, and protocols regarding the release of hazardous substances, operation of the project would not create significant hazards related to upset conditions or accidental release of hazardous substances. Impacts would be less than significant.

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

No impact. The project site is not located within 0.25 mile of an existing or proposed school. The closest school to the project site is Copper Cove High School, located 5 miles northwest of the project boundary.

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?

No impact. The project is not located on a hazardous materials site listed on the Cortese List which has been compiled pursuant to Government Code Section 65962.5. Therefore, there would be no impact.

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

No impact. The project site is not located within an area that is subject to the Tuolumne County Airport Land Use Compatibility Plan. The nearest airport, Columbia Airport, is located approximately 11 miles northeast of the project site. A helipad supporting the Sonora Regional Medical Center Emergency Room is located approximately 10 miles northeast of the project site. The project would be located at a distance far enough from both the airstrip and the helipad that it would not create a unique safety hazard for people working within the project site. Therefore, there would be no impact.

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

Less-than-significant impact. Tuolumne County does not have a static emergency plan or evacuation plan due to the dynamic nature of emergencies. Tuolumne County does not have any designated evacuation routes because fires can happen anywhere and may block specific roads and certain areas may not be safe for travel. The Tuolumne County Sheriff's Office is the responsible entity for declaring and directing evacuations in the case of emergencies. The Sheriff's Department would inform members of the public via the Emergency Notification System, local media, and door-to-door when feasible of where the wildfire is located, which routes are safe to use, and which locations are safe to seek refuge from the fire. Generalized emergency information is also contained within the adopted Multi-Jurisdictional Hazard Mitigation Plan. Tuolumne County maintains the Hazard Mitigation Plan and Emergency Operations Plan. Through the development approvals and coordination processes, the County would limit the potential for hazards associated with wildfire evacuation and emergency access; consequently, impacts related to implementation or interference with an adopted emergency response plan or emergency evacuation plan are less than significant.

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

Less-than-significant impact. The project site is located within an SRA and is an area with a high FHSZ rating. Therefore, the project is subject to Policy 17.E.1 of the Tuolumne County General Plan, to reduce the exposure to risk from wildland fire to an acceptable level by only allowing development in high or very high fire hazard areas if the project can be made safe by planning, construction, or other safety measures. Prior to project approval by the County, the Fire Prevention Division would review the project application and stipulate conditions for the project to implement, which may include requirements for fuel reduction and thinning, building setbacks, road construction standards, driveway construction standards, and fire and life safety requirements. The project would be required to demonstrate consistency with Titles 1, 12, 15 and 16 of the Ordinance Code, the California Building Code, and the California Fire Code to the Fire Prevention District prior to project implementation. Therefore, this impact would be less than significant.

3.10 HYDROLOGY AND WATER QUALITY

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

3.10.1 Environmental Setting

The project site is characterized by hot, dry summers and warm, moist winters. Average precipitation is 24.55 inches per year in western Tuolumne County near the proposed project (WRCC 2022). The wet season extends from October through May. According to the New Melones Dam Coop Station, the coldest month of the year is in January with an average minimum temperature of 32.2 degrees Fahrenheit (°F), and the warmest month is July with an average maximum temperature of 95.4°F (WRCC 2022).

There are two main watersheds in Tuolumne County, which originate at high elevations in the Sierra Nevada, the Upper Stanislaus River and the Upper Tuolumne River watersheds. The project is located in the Upper Stanislaus River watershed, which covers an area of approximately 158,716 acres. The approximately 65-mile-long Stanislaus River originates in Stanislaus National Forest; it flows from the Sierra Nevada into the San Joaquin River in the eastern part

of the Central Valley. It is one of the largest tributaries of the San Joaquin River. Located approximately 2 miles east of the Stanislaus River, the project site is located south of New Melones Lake and east of the Tulloch Reservoir. An unnamed intermittent stream is mapped (Figure 3.4-1) within the project site by the USFWS National Wetlands Inventory that joins Casnau Creek about 0.25 mile southeast of the project site. Casnau Creek and other intermittent streams in the area, including Shotgun and Mountain Pass Creeks, flow west into Tulloch Reservoir. In total, the project site contains approximately 0.3 mile of seasonal streams, which are potentially state or federally protected waters. A focused delineation of aquatic resources was completed on about 1 acre of the project site, the location of the proposed biomass utilization facility, to confirm whether wetlands are present in this area. There is a portion of a potential ephemeral drainage northeast of the project site that was not delineated but would be protected by a fence preventing access to the drainage. The delineation found that the 1-acre area was not dominated by hydrophytic vegetation, did not have any indicators of hydric soil, and did not have any hydrology indicators and thus, is not considered a jurisdictional wetland (Ascent Environmental 2022).

The foothills of the Sierra Nevada consist of primarily impermeable bedrock subsurface material that can result in a low groundwater yield. There are no mapped groundwater basins in Tuolumne County. Groundwater quality throughout the County has generally been found to be good (Tuolumne County 2007). Groundwater quality is mostly affected by naturally occurring constituents such as iron and manganese (Tuolumne County 2007). Other sources of groundwater contamination are improperly placed and maintained septic systems and leaking underground storage tanks (LUSTs).

The Tuolumne County Water Quality Plan was adopted to address stormwater runoff and non-point source pollution impacts on water quality within Tuolumne County's watersheds to improve the quality of the County's water resources. Urban development projects, grading, failing septic systems, marina operations, mine site runoff, certain agricultural and forestry practices, and public works projects all have cumulative effects on water quality in Tuolumne County (Tuolumne County 2007). Conditions or mitigating measures, BMPs, and monitoring programs were developed as part of the Water Quality Plan as a first step in addressing cumulative impacts to water quality. The Water Quality Plan focuses on three primary non-point sources of water pollution contributing to water quality concerns: pathogens and nutrients; urban contaminants (e.g., LUSTs, disposal practices, and pH); and erosion and sedimentation. In the vicinity of the project site, the Tulloch Reservoir is listed as impaired for mercury (SWRCB 2022).

The primary indicator of potential flooding is the presence of a floodplain as defined by the Federal Emergency Management Agency (FEMA). A floodplain is defined by FEMA as the area of land adjacent to a water course that may be submerged by flood water during a 100-year (1 percent annual chance occurrence) storm. There are no mapped FEMA floodplains near the project site (EPA 2022). There are no mapped dam breach inundation zones near the project site (DWR 2022).

3.10.2 Discussion

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

Less-than-significant impact. Implementation of the proposed project would require grading and excavation for the construction of the biomass utilization facility. Construction activities have the potential to affect surface and ground water quality through the disturbance of sediment and potential for spills of oils, lubricants, and fuel used in construction equipment. The state requires that projects disturbing more than 1 acre of land during construction, such as this project, to comply with NPDES California Construction General Permit Order 2009-0009-DWQ as amended by Order 2010-0014-DWQ and 2012-0006-DWQ. Construction activities subject to the General Construction Permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce non-stormwater discharges to stormwater systems and other waters. A SWPPP must be developed and must include BMPs designed to prevent construction pollutants from contacting stormwater and minimize erosion from moving off-site into receiving waters.

Operation of the proposed biomass utilization facility also has the potential to affect surface and groundwater quality. The proposed project would operate under Industrial General Permit Order 2014-0057-DWQ as amended in 2015 and 2018. The Industrial General Permit requires that discharges comply with stringent requirements for the protection of receiving waters, including the elimination of unauthorized non-stormwater discharges, implementation of a SWPPP and BMPs, monitoring and reporting, and executing response actions when discharges exceed results.

Additionally, Tuolumne County Ordinance Code Chapter 12.20, authorizes the Department of Public Works to regulate all grading activities, and requires that such activities be undertaken in such a manner that quantities of sediment or other materials substantially in excess of natural levels are prevented from leaving the site. Section 13.16.120, Protection of Water Supply, of the Tuolumne County Ordinance Code states that no person shall install or maintain a well in any manner that would result in the pollution or contamination of the potable groundwater.

Because the project would comply with the requirements of the Construction General Permit, the Industrial General Permit, and Tuolumne County Ordinance Code, the project would not violate any water quality standards, waste discharge requirements, or otherwise substantially degrade surface or groundwater quality. The impact would be less than significant.

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

Less-than-significant impact. There are no mapped groundwater basins in Tuolumne County in the vicinity of the project site. The subsurface material consists primarily of impervious bedrock that produces a low or unpredictable groundwater yield. In this type of hydrogeologic environment, the presence of groundwater and potential well capacities are dependent on geographic location, geology, and number and size of fractures encountered where a well is drilled; the connectivity of the fractures; and seasonal recharge. Water use on-site would be sourced from a proposed well. Water use is estimated to be 13 gallons per person per day or approximately 65,000 gallons per year. Drinking water would be trucked in and would not come from the well. All wells are permitted by the Tuolumne County Environmental Health Division who is tasked with regulating the citing and installation of drinking water wells. The project would be subject to a standard well permit, as required by Chapter 13.16 of the Tuolumne County Ordinance Code. The County Environmental Health Department requires verification by a qualified professional that the well could meet the project requirements. The proposed project would create approximately 6 acres of impervious area that would prevent the infiltration of stormwater and groundwater recharge; impervious surfaces would include those for access roads, parking, storage and merchandise, and the proposed building. The project proposes to direct stormwater from these impervious areas to an on-site infiltration basin. Therefore, the stormwater would still infiltrate on-site and groundwater recharge would only be minimally affected.

Because the proposed project would not result in a substantial decrease in groundwater supply and stormwater would be infiltrated on-site from any impervious area, the impact would be less than significant.

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 on- or off-site erosion or siltation;

Less-than-significant impact. The proposed project would alter the natural drainage pattern of the site through grading and construction of impervious surfaces. No streams or rivers would be impacted. The seasonal streams within the parcel would be separated from the project site by a perimeter fence. Additionally, the project would be designed to infiltrate stormwater runoff from the impervious surfaces in an on-site infiltration basin via constructed swales. Construction would be performed in compliance with the NPDES California Construction General Permit Order 2009-0009-DWQ as amended by Order 2010-0014-DWQ and 2012-0006-DWQ and described in item "a," above. The County, by ordinance (Tuolumne County Ordinance Code Chapter 12.20), authorizes the Department of Public Works to regulate all grading activities, and requires that such activities be undertaken in such a manner that

quantities of sediment or other materials substantially in excess of natural levels are prevented from leaving the site. Additionally, during operation of the proposed biomass utilization facility, the project would be required to comply with the Industrial General Permit Order 2014-0057-DWQ as amended in 2015 and 2018 and described in item "a," above. Because the project would comply with the Construction General Permit, Tuolumne County Ordinance Code, and the Industrial General Permit, it would not result in substantial on-or off-site erosion or siltation. The impact is less than significant.

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

Less-than-significant impact. The project would be designed to infiltrate the volume of stormwater runoff from the proposed impervious surfaces in an on-site infiltration basin. The project site is not located in the vicinity of a FEMA designated flood zone. Because the project is not located in a flood zone and because stormwater would be infiltrated in an on-site basin, the proposed project would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. The impact is less than significant.

iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

Less-than-significant impact. The project would be designed to infiltrate stormwater runoff from the proposed impervious surfaces in an on-site infiltration basin. The project is not located in an area with a planned stormwater drainage system. There are no indications of cross-lot runoff, swales, or drainage flows on the project site since most of the surrounding area is undeveloped. There is no evidence that there is any stormwater entering the proposed site from the adjacent California Correctional Facility or the surrounding undeveloped area. There are no visual indications of filled ground, active rills, or gullies on site. A Tuolumne County use permit would be required for the proposed project that requires preparation of a drainage plan as a condition of approval. The project would not cause or substantially contribute to off-site pollution by stormwater runoff, leaching of chemicals, or other pollutants because stormwater would be retained on-site. As described in item "a," above, the project would comply with the Construction General Permit, Tuolumne County Ordinance Code, and Industrial General Permit, which would minimize the risk of polluted runoff leaving the project site. Because there is no planned stormwater drainage system in the project vicinity, the project would retain stormwater for on-site infiltration, and would not provide substantial sources of polluted runoff, the impact is less than significant.

iv) Impede or redirect flood flows?

Less-than-significant impact. As described in item "c-ii," above, the project site is not located in the vicinity of a FEMA designated flood zone. The project site is not located in a dam failure inundation zone. There is no indication that the project site experiences flood flows. The addition of approximately 6 acres of impervious area would increase stormwater runoff, but that runoff would be captured and contained in an on-site infiltration basin. The project would not impede or redirect flood flows. The impact is less than significant.

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

Less-than-significant impact. The project site is not located in a FEMA designated flood zone nor is the project located in a dam breach inundation zone. The site is over 100 miles from the coastline such that there is no risk of inundation from tsunami. A seiche wave is a standing wave in an enclosed body of water such as a lake or reservoir caused by a change in air pressure, earthquake, or landslide. The project site is located about 3 miles from the New Melones Reservoir and 1.3 miles from a narrow arm of Tulloch Reservoir. This distance makes risk of inundation by seiche wave very unlikely. For these reasons, the project's impact related to risk of release of pollutants due to project inundation is less than significant.

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

Less-than-significant impact. Tuolumne County's Water Quality Plan contains a comprehensive program that addresses a wide range of water quality and groundwater management concerns within the County. This plan emphasizes surface (e.g., lakes, streams) water quality, factors affecting surface water quality, and mechanisms for maintaining and improving surface water quality. The plan focuses on two primary objectives: (1) responding to existing state and federal regulations and new regulations as they become mandated, and (2) addressing existing and future water quality issues relevant to Tuolumne County waterways. The proposed project would implement BMPs to protect water quality as described in the SWPPP and required by NPDES permits and Tuolumne County Ordinance Code. These measures would minimize impacts to water quality and would support the goals of the Tuolumne County Water Quality Plan. For these reasons, the project would not conflict with or obstruct implementation of Tuolumne County's Water Quality Plan. The impact would be less than significant.

3.11 LAND USE AND PLANNING

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

3.11.1 Environmental Setting

The 17-acre project site would be situated on a single parcel totaling 161.5 acres that is designated for agricultural purposes (Figure 3.11-1). The project site has a zoning designation of AE-37:AP (Exclusive Agricultural, Thirty-Seven Acre Minimum:Agricultural Preserve Combining). The project site is bounded on the south by O'Byrnes Ferry Road, which is the access road to the portion of the property proposed for development; across the street on the southern edge of the project site are parcels zoned for agricultural and heavy industrial uses. The project site is bounded on the west by a California Correctional Facility (Sierra Conservation Center), on the north by private property owned by T-Five Ranches, Inc. and federal land managed by the Bureau of Land Management (BLM), and on the east by private land owned by T-Five Ranches, Inc. Uses to the west, north, and east are zoned and designated for agricultural and public purposes. There is an existing solar farm located on the same parcel and to the east of the project site that would remain in use over the life of the project.

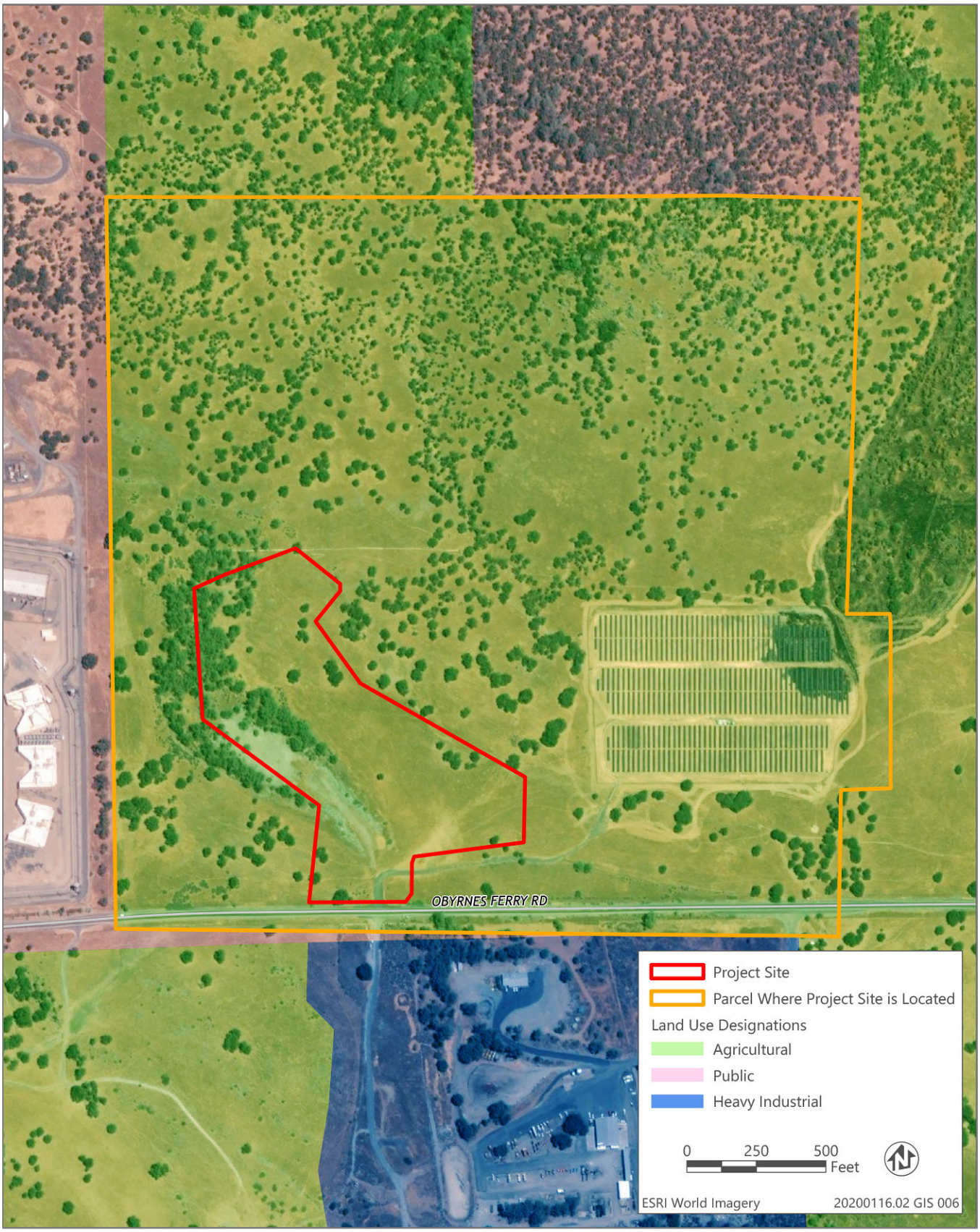
3.11.2 Discussion

a) Physically divide an established community?

No impact. The project site is not located in an area with an established community. Most of the land surrounding the property is used for active grazing. Developed land adjacent to the project site includes the California Correctional Facility (Sierra Conservation Center) to the west of the project site, and the solar array located on the same parcel as the project site. Because the proposed project is not located within an established community, there would be no impact.

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?

No impact. The project would not introduce an incompatible land use to the area. To comply with the 2018 Tuolumne County General Plan, the project would be required to obtain approval from the County that it does not qualify as High-Value Agricultural Land (Policy 8.A.3), it is an approved use under the Williamson Act (Policy 8.4.3), it would not cause a significant loss of oak woodland (Policy 16.B.5), and it would include greenhouse gas reduction measures (Policy 18.A.1). Environmental impacts relating to these topics have been evaluated throughout this IS/MND in each respective resource area (see items "a" and "b" in Section 3.2, "Agriculture and Forest Resources;" item "b" in Section 3.4, "Biological Resources;" and items "a" and "b" in Section 3.8, "Greenhouse Gas Emissions). Furthermore, the project would not require any alterations in land use designations or existing zoning. Because the project would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect, no impact would occur.



Source: Data downloaded from Tuolumne County in 2019.

Figure 3.18-1 Land Use Designations

3.12 MINERAL RESOURCES

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

3.12.1 Environmental Setting

The California Geological Survey produces mineral land classification studies and identify areas with potentially important mineral resources. The California Mineral Land Classification System represents the relationship between knowledge of mineral deposits and their economic characteristics (grade and size). Lands are classified into four main Mineral Resource Zones (MRZs): MRZ-1, areas where geologic information indicates no significant mineral deposits are present; MRZ-2, areas that contain identified mineral resources; MRZ-3, areas of undetermined mineral resource significance; and MRZ-4, areas of unknown mineral resource potential. Tuolumne County has an extensive mining history and resources. The project site is not mapped as a MRZ for aggregate but is mapped as MRZ-1 for carbonate and as MRZ-4 for precious metals (Higgins and County 1997). The closest mapped mine to the project site is the Table Mountain Stone Quarry, approximately 0.75 mile to the northeast (DOC 2022). The project site was formerly used as a gravel pit. Additionally, DOC's, Division of Oil, Gas, and Geothermal Resources maintains records of the location and details of construction and abandonment of all oil and gas wells. Oil wells were not identified within Tuolumne County using the Division of Oil, Gas & Geothermal Resources Well Finder.

3.12.2 Discussion

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?

Less-than-significant impact. Because MRZ-4 are areas of unknown mineral resource potential, there are no known, mapped MRZs at the project site (Higgins and County 1997). The site was previously used as a gravel pit and therefore likely has additional gravel resources. Due to the small size of the project site (17 acres), that it is not located in a mapped MRZ, and the relative abundance of gravel resources in the region and state, the project would not result in the loss of availability of a known mineral resource that would be of value to the region and state. The impact would be less than significant.

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?

Less-than-significant impact. The site is not delineated in the Tuolumne County General Plan or another local general plan, specific plan, or other land use plan as a locally important mineral resource recovery site (Tuolumne County 2018). The project would not result in the loss of locally important mineral resource recovery site. The impact would be less than significant.

3.13 NOISE

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII.Noise. 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 in other applicable local, state, or federal standards?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project site to excessive noise levels?	☐	☐	☒	☐

3.13.1 Environmental Setting

ACOUSTIC FUNDAMENTALS

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. Sound is the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a human ear. Noise is defined as loud, unexpected, annoying, or unwanted sound. As sound travels through the atmosphere from the source to the receiver, noise levels attenuate (i.e., decrease) depending on a variety of factors, including geometric spreading (i.e., spherical or cylindrical spreading), ground absorption (i.e., hard versus soft sites), atmospheric conditions (e.g., wind direction and speed, air temperature, humidity, turbulence), and shielding by natural or human-made features.

The amplitude of pressure waves generated by a sound source determines the loudness of that source, also called the sound pressure level (SPL). SPL is most commonly described by using dB because this logarithmic unit best corresponds to the way the human ear interprets sound pressures. However, the decibel scale does not adequately characterize how humans perceive noise because the human ear is not equally sensitive to loudness at all frequencies (i.e., pitch) in the audible spectrum. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an "A-weighted" sound level (expressed in units of A-weighted decibels or dBA) can be computed based on this information. All sound levels discussed in this section are expressed in A-weighted decibels.

Because decibels are logarithmic units, SPLs expressed in decibels (dB) cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3-dB increase. In typical noisy environments, changes in noise of 1–2 dB are generally not perceptible. However, it is widely accepted that people can begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5-dB increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness (Caltrans 2013:2-10).

Various noise descriptors have been developed to describe time-varying noise levels. The noise descriptors used in this chapter include:

- Equivalent Continuous Sound Level (L_{eq}): L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound level that occurs during the same period (Caltrans 2013:2-48). For instance, the 1-hour equivalent sound level, also referred to as the hourly L_{eq}, is the energy average of sound levels occurring during a 1-hour period; and
- Community Noise Equivalent Level (CNEL): CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to sound levels occurring during the nighttime hours between 10:00 p.m. and 7:00 a.m. and a 5-dB penalty applied to the sound levels occurring during evening hours between 7:00 p.m. and 10:00 p.m. (Caltrans 2013:2-48).

GROUND VIBRATION

Vibration is the periodic oscillation of a medium or object with respect to a given reference point. Groundborne vibration is vibration of and through the ground. Sources of ground-borne of vibration include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) and those introduced by human activity (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, (e.g., operating factory machinery) or transient in nature (e.g., explosions).

Groundborne vibration amplitudes are commonly expressed in peak particle velocity (PPV) or root-mean-square (RMS) vibration velocity. PPV and RMS vibration velocity are normally described in inches per second (in/sec) but can also be expressed in decibel notation, which is used mainly in evaluating human response to vibration.

EXISTING NOISE ENVIRONMENT

The ambient noise environment in Tuolumne County is largely affected by traffic on highways and County roadways, commercial and industrial uses, agricultural uses, railroad operations, and aircraft. The project is located in a relatively undeveloped area of Tuolumne County. The predominant noise sources influencing noise levels on and near the project site include vehicle traffic on O'Byrnes Ferry Road, active mining and rock crushing in the adjacent quarry and asphalt plant, and noise-generating operational activity associated with the California Correctional Facility adjacent to and west of the project site.

NOISE- AND VIBRATION-SENSITIVE LAND USES AND RECEPTORS

Noise- and vibration-sensitive land uses generally include those uses where noise exposure could result in health-related risks to individuals, places where a quiet setting is an essential element of the intended purpose (e.g., schools and libraries), and historic buildings that could sustain structural damage due to vibration.

The western side of the project parcel where the project site is located borders the California Correctional Facility and the nearest receptor is approximately 500 feet west of the project site. The remainder of the project site is surrounded by ranchland and federal land managed by the BLM.

APPLICABLE NOISE AND VIBRATION REGULATIONS

Federal

Federal Transit Administration

To address the human response to ground vibration, the Federal Transit Administration (FTA) has set forth guidelines for maximum-acceptable vibration criteria for different types of land uses. These guidelines are presented in Table 3.13-1.

Table 3.13-1 Ground-Borne Vibration Impact Criteria for General Assessment

Land Use Category	GBV Impact Levels (VdB re 1 microinch/second)		
	Frequent Events[a]	Occasional Events[b]	Infrequent Events[c]
Category 1: Buildings where vibration would interfere with interior operations.	65[d]	65[d]	65[d]
Category 2: Residences and buildings where people normally sleep.	72	75	80
Category 3: Institutional land uses with primarily daytime uses.	75	78	83

Notes: GBV = ground-borne vibration; VdB = vibration decibels referenced to 1 microinch per second and based on the root mean square velocity amplitude.

[a] "Frequent events" is defined as more than 70 vibration events of the same source per day.

[b] "Occasional events" is defined as between 30 and 70 vibration events of the same source per day.

[c] "Infrequent events" is defined as fewer than 30 vibration events of the same source per day.

[d] This criterion is based on levels that are acceptable for most moderately sensitive equipment, such as optical microscopes. Vibration-sensitive manufacturing or research would require detailed evaluation to define acceptable vibration levels.

Source: FTA 2018.

State

California Building Code Sound Transmission Standards

Noise within habitable units that is attributable to external sources is regulated by the California Building Standards codified in CCR, Title 24, Part 2, Section 1207. These standards are enforceable at the time of construction or during occupancy and apply to habitable units with common interior walls, partitions, and ceilings or those adjacent to public areas, such as halls, corridors, stairways, and service areas. Under these standards, the interior noise levels attributable to exterior sources shall not exceed 45 decibels (dB) in any habitable room. The noise metrics used to measure these levels can be day-night average sound level (L_{dn}) or CNEL, consistent with the local general plan. An acoustical analysis documenting compliance with the interior sound level standards shall be prepared for structures containing habitable rooms. Under California Public Resources Code Section 25402.1(g), all cities and counties in the state are required to enforce the adopted California Building Code, including these standards for noise in interior environments.

California Department of Transportation

In 2013, Caltrans published the Transportation and Construction Vibration Manual (Caltrans 2020). The manual provides general guidance on vibration issues associated with construction and operation of projects in relation to human perception and structural damage. Table 3.13-2 presents recommendations for levels of vibration that could result in damage to structures exposed to continuous vibration.

Table 3.13-2 Caltrans Recommendations Regarding Levels of Vibration Exposure

PPV (in/sec)	Effect on Buildings
0.4–0.6	Architectural damage and possible minor structural damage
0.2	Risk of architectural damage to normal dwelling houses
0.1	Virtually no risk of architectural damage to normal buildings
0.08	Recommended upper limit of vibration to which ruins and ancient monuments should be subjected
0.006–0.019	Vibration unlikely to cause damage of any type

Notes: PPV= peak particle velocity; in/sec = inches per second.

Source: Caltrans 2020.

Local

The *Tuolumne County General Plan* (2018) has one goal and numerous policies and programs in place intended to preserve the ambient noise environment and reduce impacts on sensitive land uses. Specific programs that have been adopted by the County include requirements for development projects to conduct acoustical noise analyses to

demonstrate compliance with adopted noise standards and avoid conflicts with existing and new land uses. Tuolumne County has adopted specific noise standards for transportation noise sources (Table 3.13-3), stationary noise sources (Table 3.13-4), and for cumulative increases in noise (Table 3.13-5).

Table 3.13-3 Maximum Allowable Noise Exposure-Transportation Noise Sources Excluding Aviation-Related Noise[1]

Land Use	Outdoor Activity Areas[2] L_{dn}/CNEL, dB	Interior Spaces[3] L_{dn}/CNEL, dB
Urban Residential	60	45
Transient Lodging[4]	60	45
Hospitals, Nursing Homes	60	45
Churches, Meeting Halls, Office Buildings, Mortuaries	—	45
Schools[5], Libraries, Museums	—	45

[1] This table applies to noise exposure levels that result from a transportation noise source other than aircraft; For existing receiving land uses, consideration shall be given to the noise exposure from new transportation noise sources during the design and approval of the new transportation project. In the case of existing transportation noises sources, projects or consideration of land use changes involving noise-sensitive land uses shall address the noise exposure environment and use these standards as thresholds.

[2] An outdoor activity area is a location outside of the immediate structure where formal or informal activities are likely to happen. For example, anywhere on an urban residential property could be an outdoor activity area, while the outdoor activity area for a school would be the playground or sporting fields, and for a hospital would be an exterior patio or exercise area. Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land uses.

[3] For typical construction methods, the reduction in the noise level from the outside of the structure to the inside is approximately 15 dB. In a high noise environment, special construction techniques may be necessary to reduce the interior noise level to the standard.

[4] Transient lodging are overnight accommodations usually intended for occupancy by tourists or other short-term paying customers, examples include hotels, motels, or homeless shelters. Transient lodging, as used in this case, does not include bed and breakfast establishments which are located in rural areas, campgrounds, or guest ranches.

[5] These standards only apply to nursing homes or schools that have more than 6 beds or students, respectively.

Source: Tuolumne County 2018.

Table 3.13-4 Maximum Allowable Noise Exposure-Stationary Noise Sources[1]

	Daytime (7:00 a.m. to 10:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.m.)
Hourly L_{eq}, dB[2]	50	45
Maximum level, dB[3]	70	65

[1] This table applies to noise exposure as a result of stationary noise sources. For a development project or land use change involving a noise-sensitive land use, the noise from nearby noise sources will be considered during design and approval of the project, or in determining whether the land use change is appropriate. For development projects which may produce noise, land use changes and project review will consider the effects of the noise on possible noise-sensitive land uses. When considering modification or expansion at a site that already produces noise levels which exceed these standards at noise-sensitive land uses, the modification or expansion shall be reviewed to consider if the proposed action will further raise the existing noise levels received at the noise-sensitive land use(s).

Noise-sensitive land uses include urban residential land uses, libraries, churches, and hospitals, in addition to nursing homes or schools which have over 6 beds or students, respectively. Transient lodging establishments which are considered noise sensitive land uses include hotels, motels, or homeless shelters, but not bed and breakfast establishments located in rural areas, campgrounds, or guest ranches.

[2] The sound equivalent level as measured or modeled for a 1-hour sample period. The daytime or nighttime value should not be exceeded as determined at the property line of the noise-sensitive land use. When determining the effectiveness of noise mitigation measures, the standards may be applied on the receptor side of noise barriers or other property line noise mitigation measures.

[3] Similar to the hourly L_{eq}, except this level should not be exceeded for any length of time.

Source: Tuolumne County 2018.

Table 3.13-5 Significance of Changes in Cumulative Noise Exposure[1]

Ambient Noise Level Without Project[2] (L_{dn} or CNEL)	Significant Impact if Cumulative Level Increases By:
<60 dB	+5.0 dB or more
60-65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more

[1] These standards shall be applied when considering the noise impacts from projects that could cause a significant increase in the cumulative noise exposure of existing noise-sensitive land uses. If it is likely that existing noise-sensitive land uses could experience these increases in cumulative noise exposure, as measured in CNEL or L_{dn}, then an acoustical analysis that meets the requirements of Figure 5.D [of the 2019 General Plan document] shall be accomplished and the results considered in project design.

[2] Ambient Noise is defined as the composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

Source: Tuolumne County 2018.

3.13.2 Discussion

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 in other applicable local, state, or federal standards?

Less-than-significant impact. The project would result in short-term noise associated with construction activities from the use of heavy equipment, and long-term operational noise associated with new stationary noise sources and on-site equipment use. Impacts are discussed separately, below.

Construction

Construction activities would result in short-term noise. Construction activities would consist of grading and site preparation, paving activities, and building construction, all of which require the use of heavy-duty equipment that generate varying noise levels. Construction activities would be limited to the less noise-sensitive hours (e.g., daytime). Additionally, the County typically conditions projects such that construction is limited to the hours of 7:00 a.m. to 7:00 p.m., Monday through Saturday, with construction prohibited on Sundays and County holidays. Construction-generated noise levels would fluctuate depending on the type, number, and duration of equipment used. The effects of construction noise largely depend on the type of construction activities occurring on any given day, noise levels generated by those activities, distances to noise-sensitive receptors, and the existing ambient noise environment at nearby receptors. Construction equipment would vary by phase, but the entire construction process would include operation of loaders, boom-lifts, cranes, welders, service trucks, bulldozers, and various other large pieces of equipment would be used. This equipment would not be operated outside of daylight hours. Noise generated from these pieces of equipment would be intermittent and short as typical use is characterized by periods of full-power operation followed by extended periods of operation at lower power, idling, or powered-off conditions.

The grading and site preparation phase typically generates the most substantial noise levels because of the on-site equipment associated with grading, compacting, and excavation are the noisiest. Site preparation equipment and activities include graders, dozers, and excavators. Because this is typically the loudest phase, it was assumed that one grader, one dozer, and one excavator could be operating simultaneously, generating the loudest anticipated noise levels for the overall construction activities. Noise emission levels from these types of construction equipment are shown in Table 3.13-6.

Table 3.13-6 Noise Levels Generated by Typical Construction Equipment

Equipment Type	Maximum Noise Level (dB L_{max}) at 50 feet[1]	Typical Noise Level (dB L_{eq}) at 50 feet[1,2]
Grader	85	81
Dozer	85	81
Loader	80	76
Combined Noise Level at 50 feet	88.6	84.7
Attenuated Combined Noise Levels at Existing Nearby Sensitive Receptors		
Existing Sensitive Receptor	**dB L_{max}**	**dB L_{eq}**
Attenuated Noise Level at Nearest California Correctional Facility Building (200 feet)	58.3	62.3

Notes: dB= decibels; L_{max} = maximum sound level; L_{eq} = equivalent continuous sound level

[1] Assumes all equipment is fitted with a properly maintained and operational noise control device, per manufacturer specifications. Noise levels listed are manufacture-specified noise levels for each piece of heavy construction equipment.

[2] Assumes typical usage factors.

Source: Federal Transit Administration 2018; data modeled by Ascent Environmental in 2022.

Based on the reference noise levels listed in Table 3.13-6 and accounting for typical usage factors for each piece of equipment, on-site construction activities could generate a combined average noise level of approximately 85 dB L_{eq} and 89 dB L_{max} at 50 feet from the project site boundary (Ascent Environmental 2022).

The daytime noise exposure level was estimated for the closest noise-sensitive receptor that could be adversely affected by construction noise. The attenuated noise levels at existing noise sensitive receptors (i.e., California Correctional Facility building located 500 feet from the project site), are shown in Table 3.13-6. These estimates are conservative because the modeling assumes that the noise-generating equipment could operate simultaneously in proximity to each other near the boundaries of the project area (Ascent Environmental 2022).

Tuolumne County does not have adopted construction noise standards. However, when evaluating potential noise impacts, temporary short-term noise occurring during the less sensitive times of the day, when people are active, out of their homes, or otherwise not sleeping, are generally considered less of a nuisance and less likely to disrupt sleep, or otherwise result in significant noise exposure. Thus, considering that construction activities would occur during daytime hours, overall construction activities would be temporary, construction noise would fluctuate, and the loudest levels would occur for a shorter duration than the overall construction duration, existing nearby sensitive receptors would not be substantially affected. For these reasons, the project would not result in a temporary 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 in other applicable local, state, or federal standards. Therefore, this impact would be less than significant and no mitigation is required.

Operation

Noise sources associated with operation of the project would include a general increase in ambient noise levels resulting from increased noise from trucks transporting biomass in and out of the project site, as well as operations from the proposed biomass facility. Project operations are expected to occur 5 days a week from 7:30 a.m. to 3:30 p.m., except the CHP system as described below. It is assumed that the activities, mix of equipment, and general noise levels generated by the proposed project would be consistent with that of similar biomass utilization facilities. Therefore, the activities and stationary equipment associated with operation of biomass facilities such as that which is proposed could result in combined noise levels of approximately 82 dB L_{eq} at 50 feet from the acoustical center of the project site (Placer County 2012).

The outdoor operations would occur between the hours of 7:30 a.m. and 3:30 p.m.; and thus, the potential noise generated by the project during the nighttime hours would be limited to the operation of the CHP system, which would be housed within the main warehouse building; and thus, would be completely enclosed. Therefore, nighttime noise generation associated with the project would not be substantial. The nearest potential sensitive receptor to acoustical center of the project site is a California Correctional Facility building located approximately 1,100 feet to the

west (the acoustical center differs from the project site edge which is 500 feet). Based on typical attenuation rates, project-generated noise levels at the closest existing noise-sensitive receptor (e.g., California Correctional Facility building located approximately 1,100 feet to the west of the project site) could reach approximately 48 dB L_{eq}. Therefore, project-generated stationary source noise levels would not exceed the County's applicable threshold of 50 dB L_{eq} for exterior noise levels at the potential sensitive receptors located adjacent to the project site. Additionally, because an average exterior-to-interior noise level reduction of 24 dB typically is typically provided by residential buildings with the windows closed (EPA 1978: 11), the interior noise levels at the potential noise sensitive receptor would be well below 45 dB L_{eq} (48-24=24). Therefore, the interior noise levels attributable to the project would not result in and exceedance of 45 dB in a habitable room of any nearby receptor. For these reasons, the project would not result in a 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 in other applicable local, state, or federal standards. Therefore, this impact would be less than significant and no mitigation is required.

b) Generation of excessive groundborne vibration or groundborne noise levels?

Less-than-significant impact. Operation of the project would not result in any new long-term operational sources of ground vibration. Project construction would not involve the use of ground vibration-intensive activities, such as pile driving and blasting. Pieces of equipment that generate lower levels of ground vibration, such as loaders, boom-lifts, cranes, welders, service trucks, bulldozers and various other large pieces of equipment would be used to construct the project. These types of common construction equipment do not generate substantial levels of ground vibration that could result in structural damage, except at relatively close distances (i.e., within 10 feet of structures). Additionally, construction activities would take place on a 10-hour daytime shift, 5 days each week and equipment would not be operated outside of daylight hours.

Bulldozers, which represent the most intense type of heavy-duty equipment that might be used during project construction, typically generate a ground vibration level of 0.089 in/sec PPV and 87 vibration decibels at 25 feet (FTA 2018:184). Because this type of equipment would not be used within 50 feet of any buildings, project construction would not result in vibration levels that would exceed the Caltrans-recommended criterion of 0.1 in/sec PPV, which is the maximum level at which there is virtually no risk of architectural damage to normal buildings (for reference, levels of 0.4-0.6 in/sec PPV would result in architectural damage and possible minor structural damage). At 50 feet from the boundary of the project site, vibration levels would decrease to 78 VdB, which is below the 80 VdB threshold at which infrequent events like bulldozer use could interfere with residences and buildings where people normally sleep (Table 3.13-6). Additionally, with respect to vibration-caused human annoyance, construction activities would occur during the less sensitive daytime hours.

The receptors nearest to where construction could occur are the California Correctional Facility buildings located approximately 500 feet west of the project site. Based on FTA's recommended method for estimating the propagation of ground vibration from the source, a bulldozer operating at the project site would not expose these receptors to levels of vibration that could cause human annoyance because 500 feet is well beyond the distance at which vibration levels would decrease below the applicable criterion of 80 VdB for infrequent events for Category 2 land uses (Ascent Environmental 2022), which are residences where people normally sleep (Table 3.13-1). For these reasons, project construction would not result in vibration levels at sensitive receptors that would cause structural damage or result in human annoyance, and this impact would be less than significant. No mitigation is required.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. There are no private airstrips or airports within 2 miles of the project site. The nearest airport to the project site is the Columbia Airport, located approximately 11 miles northeast of the project site. The project would not include any new land uses where people would live or work in proximity to an airport. Therefore, the project would not result in the exposure of people to excessive noise levels associated with airport activity. Thus, the project would have no impact. No mitigation is required.

3.14 POPULATION AND HOUSING

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

3.14.1 Environmental Setting

The estimated Tuolumne County population in 2021 was 55,810 (US Census 2022a). Between 2010 and 2018, the County growth rate was less than 1 percent and a general decline in population occurred (Tuolumne County 2019: 3-38).

As shown in Table 3.14-1, unemployment in Tuolumne County fluctuated from a high of 11.6 percent in 2016 to 7.3 percent in 2020. During this same period, overall unemployment in the state was lower with a rate of 6.5 percent in 2016 to a rate of 6.2 percent in 2020 (US Census Bureau 2022b). Tuolumne County had an unemployment rate of 4.00 percent as of April 2022 (California EDD 2022), which is approximately consistent with the statewide unemployment rate of 4.6 percent (USBLS 2022).

Table 3.14-1 Unemployment Rate in Tuolumne County (2016-2020)

Year	Unemployment Rate[1]	Number of Jobs[2]
2016	11.6%	16,171
2017	7.9%	16,284
2018	6.8%	16,489
2019	5.2%	16,446
2020	7.3%	NA

Notes: NA = not available.

[1] The unemployment rate represents the unemployment rate of residents in the town regardless of where their place of work is located.

[2] The number of jobs represent the total number of jobs in the town boundaries.

Source: US Census Bureau 2022c, 2022d.

The proportion of jobs in the County by industry for 2019 is shown in Table 3.14-2. In 2019, the highest proportion of jobs in the County were in educational services, health care, and social assistance.

Table 3.14-2 Percentage of Jobs by Industry in Tuolumne County in 2019

Industry	Percent
Educational services, health care, and social assistance	23.5%
Arts, entertainment, recreation, and accommodation and food services	17.0%
Professional, scientific, management, and administrative and waste management services	10.4%
Retail trade	8.6%
Construction	7.8%
Public administration	7.5%
Other services, except public administration	6.2%
Manufacturing	5.3%
Finance and insurance, and real estate and rental and leasing	4.6%
Transportation and warehousing, and utilities	4.5%
Agriculture, forestry, fishing and hunting, and mining	2.4%
Information	1.7%
Wholesale trade	0.5%

Source: US Census Bureau 2022d.

As shown in Table 3.14-3, over 60 percent of households in the County have incomes that are 80 percent to over 100 percent of the median family income for the County. As shown in Table 3.14-3, over 60 percent of households in the County have incomes that are 80 percent to over 100 percent of the median family income for the County. Over 30 percent of households are characterized as extremely low to low income.

Table 3.14-3 Household Income Distribution in Tuolumne County

Household Income Category	Number of Households
Extremely Low Income (<30% HAMFI)	2,530 (11%)
Very Low Income (30%-50% HAMFI)	2,255 (10%)
Low Income (50%-80% HAMFI)	3,350 (15%)
Median Income (80%-100%HAMFI)	1,905 (8%)
Household Income (>100% HAMFI)	12,385 (55%)
Total	**22,425**

Note: HAMFI = US Department of Housing and Urban Development Area Median Family Income

Source: HUD 2022.

3.14.2 Discussion

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

Less-than-significant impact. The project would provide approximately 20 full-time jobs that would represent an approximately 0.1 percent increase in the total number of jobs in the County in 2019 (Table 3.14-1). The County had an unemployment rate of 7.3 percent in 2020 (Table 3.14-1), which was higher than the statewide unemployment rate of 6.2 percent (US Census Bureau 2022b). Preliminary 2022 unemployment data shows that unemployment rates have decreased but still indicate that there is available local labor force to meet demand of the project. There are existing industries in the county related to the types of work provided by the proposed project (e.g., manufacturing, forestry, wholesale trade, etc.) (Table 3.14-2), which demonstrates the local area could have people that have relevant

work experience but also Mother Lode Job Training would assist with the recruitment and training of employees. For these reasons, this analysis assumes there would be sufficient local and regional workforce to meet the employment demand of the proposed project. At least 51 percent of the new jobs for the facility would meet the definition of targeted income for low-moderate income people per the Community Development Block Grant National Disaster Resiliency program (see the "Workforce" section in Chapter 2, "Project Description"). Aside from the existing solar farm on the project site that would remain with the proposed project, there are no existing uses providing employment on the project site. Additionally, the project would not include construction of homes or extension of roads or other infrastructure outside of the project site. The project would not induce population growth, demographic changes, or displace any existing sources of employment. The impact related to substantial unplanned direct or indirect population growth would be less than significant.

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

No impact. The project site is vacant; thus, the proposed project would not displace people or housing and the construction of replacement housing elsewhere would not be required as a result of the project. Therefore, there would be no impact.

3.15 PUBLIC SERVICES

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

3.15.1 Environmental Setting

Setting information related to parks and recreation facilities is provided in Section 3.16, "Recreation."

FIRE PROTECTION

Fire protection services are provided to unincorporated Tuolumne County by the Tuolumne County Fire Department (TCFD), CAL FIRE, seven fire protection districts, US Forest Service, and the National Park Service. Most of unincorporated Tuolumne County falls outside a fire district boundary and is protected by TCFD (administered by CAL FIRE under a contractual agreement with the County). TCFD has 13 fire stations within the unincorporated area of Tuolumne County. With the exception of the Mono Village, Jamestown, and Groveland stations, the fire stations in the unincorporated communities are staffed by volunteer firefighters (Tuolumne County 2018).

CAL FIRE's Tuolumne/Calaveras Unit is headquartered in San Andreas and Tuolumne County stations are located in Groveland, Twain Harte, Blanchard, Standard, and Green Springs. CAL FIRE also maintains an air attack base and helitack base at Columbia Airport. Additional services are provided by the Twain Harte Community Services District, Mi-Wuk Sugar Pine Fire Protection District (FPD), Tuolumne City FPD, Columbia FPD, Sonora Fire Department, Strawberry FPD, and Tuolumne Rancheria Fire Department (Tuolumne County 2018).

The following are the nearest fire stations to the project site:

- Chinese Camp Station 61 (TCFD) located at 13785 SR 120, Chinese Camp (5.5 miles east of the project site)
- Green Springs (CAL FIRE) located at 11600 La Grange Road, Jamestown (5.8 miles southeast of the project site)
- Jamestown Station 76 located at 18249 4th Avenue, Jamestown (8.6 miles northeast of the project site)

In 2019, the 2016 Tuolumne County Fire Service Providers Automatic Aid Agreement was amended to include all the fire service providers in the County. The purpose for this is to send the right resources in the shortest amount of time while respecting jurisdictional boundaries (CAL FIRE and TCFD n.d.). This is a mutual cooperation agreement to increase fire and other emergency protection by allowing for the closest fire department to be dispatched for emergency calls, even if the emergency is outside of their jurisdictional boundary.

POLICE PROTECTION

Law enforcement services in the unincorporated portion of Tuolumne County is provided by the Tuolumne County Sherriff's Office. The nearest station to the project site is located at 28 Lower Sunset Drive in Sonora. Response times for the entire County averages between 5 and 35 minutes, depending on day of the week, time, and the location of the incident. An average of six deputies patrol the County at any given time (Tuolumne County 2021).

The California Highway Patrol provides additional enforcement along state highways and County roadways. The California Highway Patrol offers other services as needed to support the safety for residents of the County. The nearest California Highway Patrol office to the project site is located at 18437 Fifth Avenue in Jamestown.

SCHOOLS

The project site is within the Jamestown Elementary School District and Sonora Union High School District. Chinese Camp School and Jamestown Elementary School are the closest kindergarten through eighth grade schools and Sonora High School is the nearest high school to the project site.

3.15.2 Discussion

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

Fire protection?

Less-than-significant impact. The proposed project would result in a new developed use on an existing undeveloped site in a rural area with nearby developed uses consisting of a solar farm, California Correctional Facility, and other industrial uses. The project would result in an incremental increase in demand for fire protection and emergency services because of the new industrial uses associated with the proposed project, storage of woody material on-site, and the increase in the number of people on-site during operations (i.e., up to 20 people).

Fire protection services for the proposed project would be provided by TCFD. The nearest stations to the project site include one volunteer station (Chinese Camp Station 61), a CAL FIRE-staffed station (Green Springs), and the full-time staffed Jamestown Station 76. As described above, fire protection through TCFD is provided through automatic/mutual aid agreements to increase fire and other emergency protection by allowing for the closest available fire department to be dispatched for emergency calls even if the emergency is outside of their jurisdictional boundary.

As it relates to fire protection and prevention and as part of the permit approval process for the proposed project, the Tuolumne County Fire Prevention Division would review the project to confirm consistency with Titles 11, 12, 15 and 16 of the Tuolumne County Ordinance Code, the California Building Code, and the California Fire Code. The proposed project would be constructed and operated to meet requirements for fuel reduction and thinning, building setbacks, road construction standards, driveway construction standards, and fire and life safety requirements. The project would construct a water storage tank on top of a large outcropping in the northwesternmost portion of the site to provide gravity-fed water for fire protection purposes in the event of an emergency. As part of the County's

approval, the proposed project would be required to demonstrate compliance with the following requirements to minimize potential impacts on fire protection and emergency services:

- California Fire Code fire flow requirements applicable to the types of buildings proposed by the project.
- The required fire flow shall be on-site, tested, and approved by the Tuolumne County Fire Prevention Division prior to the issuance of any building permits (Tuolumne County Ordinance Chapter 15.20.010).
- Installation of fire hydrants on-site consistent with the standards included in Tuolumne County Ordinance Chapter 15.20.030. Tuolumne County Fire Prevention Division would approve all hydrant plans, locations, and installations.
- California Fire Code requirements for installation of automatic sprinkler systems throughout all buildings on the project site.
- Construction of on-site roads and site access consistent with Tuolumne County Ordinance Chapters 11.12 and 11.16 such that turn around areas are provided, and fire apparatus have access to the buildings on the project site.

Application and enforcement of the above-mentioned code requirements would reduce impacts related to fire hazard and fire protection, which would not require the provision of new or physically altered fire protection facilities. Therefore, there would be a less-than-significant impact on fire protection.

Police protection?

Less-than-significant impact. The proposed project would result in development of a biomass facility on an existing undeveloped site; thus, there would be an increase in activity and people (by up to approximately 20 people) at the project site. However, the increase in people would be minimal and nothing about the nature of the proposed biomass utilization facility would be anticipated to generate an increase in demand for police protection. Thus, the proposed project impact on police protection would be less than significant.

Schools?

Less-than-significant impact. The proposed project would be staffed from the existing local labor pool (see Section 3.14, above) and would therefore not induce population growth that would necessitate additional demand for schools. Therefore, the proposed project would not affect educational facilities, or induce demand for construction of additional educational facilities. This impact would be less than significant.

Parks?

Less-than-significant impact. The proposed project would be staffed from the existing local labor pool (see Section 3.14, above) and would therefore not induce population growth that would necessitate additional demand for parks, recreation opportunities, or open space. Therefore, the project would not affect parks or recreation facilities, or induce demand for construction of additional parks or recreation facilities. Recreation-related impacts are further discussed under Section 3.16, "Recreation." This impact would be less than significant.

Other public facilities?

Less-than-significant impact. Other public facilities include hospitals and government buildings, such as libraries or County offices. The proposed project would be staffed from the existing local labor pool (see Section 3.14, above) and would therefore not induce population growth that would necessitate additional demand for other public facilities. This impact would be less than significant.

3.16 RECREATION

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. Recreation. Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

3.16.1 Environmental Setting

Tuolumne County has a variety of recreational opportunities for the public, including Yosemite National Park, Stanislaus National Forest, state parks, and land managed by other federal and state government agencies such as BLM. Community based recreation and park districts include the Tuolumne County Recreation Department and the City of Sonora Recreation Department. Tuolumne County operates and maintains approximately 340 acres of parks. There are a number of recreational facilities near the project site, such as Tulloch Reservoir, located less than 2 miles to the west where fishing, boating, and swimming are popular.

3.16.2 Discussion

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

Less-than-significant impact. Implementation Program 8.D.b. of the Tuolumne County General Plan requires certain new residential development of five units or more to participate in the provision of recreational facilities for their residents. The proposed project does not include construction of residential units and, therefore, participation in Implementation Program 8.D.b. is not required. Any additional demand for recreational facilities generated by the up to 20 full-time employees would be met by existing recreation sites. The proposed project would not substantially increase the use of existing recreational facilities nor would it cause physical deterioration of any such facilities. Thus, this impact would be less than significant.

b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

No impact. The proposed project does not include the construction of recreational facilities. As described above, any additional demand for recreational facilities generated by the up to 20 full-time employees would be met by existing recreation sites such that the construction or expansion of recreational facilities would not be required and there would be no impact.

3.17 TRANSPORTATION

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

3.17.1 Environmental Setting

EXISTING TRANSPORTATION FACILITIES

The project is located in a relatively undeveloped area of Tuolumne County that is primarily served by SR 108, SR 120, and O'Byrnes Ferry Road. O'Byrnes Ferry Road is a two-lane major collector roadway that runs east-west between SR 108 and Copperopolis in Calaveras County. Major collector roadways function as corridors for through traffic within local areas providing service to towns and other major traffic generators within the County. They also serve to link minor collectors and local access roads with nearby towns and communities or the arterial system.

Public transit is provided by Tuolumne County Transit. Services are available in the mornings, afternoons, and evenings and are available 5 days a week. Tuolumne County also has a "dial-a-ride" program available on demand for the route serving the area. The Tuolumne County 2016 Regional Transportation Plan classifies bikeways as follows:

- Class I Bike Path – Provides a completely separate right of way designated for exclusive use of bicycles and pedestrians with cross-flows by motorists minimized.
- Class II Bike Lanes – Provides a restricted right-of-way through signs and pavement striping designated for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle cross-flows by pedestrians and motorists permitted.

The general project area is largely rural and undeveloped; and thus, there are no transit, bicycle, or pedestrian facilities in the vicinity of the project site.

Goals, policies, and implementation programs regarding Tuolumne County's circulation system, including transit, roadway, bicycle, and pedestrian facilities, are contained within the Transportation Element in Chapter 4 of the County's 2018 General Plan. The Regional Transportation Plan (RTP), adopted by the Tuolumne County Transportation Council (TCTC), acts as the planning document to guide transit investments within Tuolumne County for the next 5 years.

REGULATORY BACKGROUND

Senate Bill 743

SB 743, passed in 2013, required the Governor's Office of Planning and Research (OPR) to develop new State CEQA Guidelines that address traffic metrics under CEQA. As stated in the legislation, upon adoption of the new guidelines, "automobile delay, as described solely by level of service (LOS) or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment pursuant to this division, except in locations specifically identified in the guidelines, if any." State CEQA Guidelines Section 15064.3 was added on December 28, 2018, to assist with determining the significance of transportation-related impacts from a proposed project. The new guideline requires that the analysis is based on vehicle miles traveled (VMT) instead of congestion and delay-based metrics (e.g., LOS). The change in the focus of transportation analysis is the result of legislation (SB 743) and is intended to shift the emphasis from congestion to reducing GHG emissions, promoting a diversity of land uses, and developing multimodal transportation networks. Pursuant to State CEQA Guidelines Section 15064.3(c), this change in analysis is mandated to be used beginning July 1, 2020.

OPR Technical Advisory on Evaluating Transportation Impacts in CEQA

In December of 2018, OPR published the most recent version of the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (Technical Advisory), which provides guidance for VMT analyses. The OPR Technical Advisory states that lead agencies may screen out VMT using project size, maps, transit availability, and provision of affordable housing. Many agencies use these screening thresholds to identify when a project should be expected to cause a less-than-significant impact without conducting a detailed study. These screening thresholds are identified below:

- *Small Project* – Projects that generate or attract fewer than 110 trips per day generally may be assumed to result in a less-than-significant transportation impact.
- *Map-Based Screening for Residential and Office Projects* – Residential and office projects located in areas with low VMT, and that incorporate similar features (i.e., density, mix of uses, transit accessibility), will tend to exhibit similarly low VMT. Maps created with VMT data, for example from a travel survey or a travel demand model, can illustrate areas that are currently below threshold VMT. Because new development in such locations would likely result in a similar level of VMT, such maps can be used to screen out residential and office projects from needing to prepare a detailed VMT analysis.
- *Presumption of Less- Than- Significant Impact Near Transit Stations* – Lead agencies generally should presume that certain projects (including residential, retail, and office projects, as well as projects that are a mix of these uses) proposed within 0.25½ m mile of an existing major transit stop or an existing stop along a high-quality transit corridor will have a less-than-significant impact on VMT.
- *Presumption of Less- Than- Significant Impact for Affordable Residential Development* – Adding affordable housing to infill locations generally improves jobs-housing match in turn shortening commutes and reducing VMT. Further, low-wage workers in particular would be more likely to choose a residential location close to their workplace if one is available. In areas where existing jobs-housing match is closer to optimal, low-income housing nevertheless generates less VMT than market-rate housing. Therefore, a project consisting of a high percentage of affordable housing may be a basis for the lead agency to find a less-than-significant impact on VMT.

Tuolumne County CEQA Transportation Analysis Thresholds of Significance Criteria

On August 4, 2020, the Tuolumne County Board of Supervisors adopted the *CEQA Transportation Analysis Thresholds of Significance Criteria* as required by SB 743. The adopted VMT thresholds of significance adopted by the Board of Supervisors includes the following screening criteria applicable to the project, that if satisfied, would indicate that the project would be presumed to result in a less-than-significant transportation impact:

- Residential, office or industrial employment project located within a low VMT area: low-VMT areas are defined by TCTC VMT maps;
- Small Project: less than 110 trips per day and consistent with County General Plan.

- If the project is not screened out based on the adopted screening criteria, the following threshold of significance would be applicable to the project, and if satisfied would result in a less-than-significant impact:
- Office/Industrial: a project's VMT is less than or equal to the subarea average VMT per employee under baseline conditions, and the project is consistent with the County/City General Plan and the RTP.

3.17.2 Discussion

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

Less-than-significant impact. All proposed project improvements are located within the project site and, thus, would not alter the surrounding roadway network. Additionally, due to the absence of bicycle, pedestrian, and transit facilities in the vicinity of the project site, the project would not modify or interfere with any of such existing services or facilities. Additionally, there are no planned bicycle, pedestrian, or transit facilities in the vicinity of the project site. Finally, due to the nature of the proposed project (sited at a remote location with frequent heavy vehicle traffic entering and exiting the site) and the number employees anticipated to access the project site during operations (approximately 20 employees), there would not be a substantial increase in the demand for additional bicycle or pedestrian facilities.

For the reasons detailed above, the project would not result in a substantial increase in demand for transit, bicycle, or pedestrian facilities; disrupt any such existing or planned service or facilities; or conflict with a program, plan, ordinance, or policy addressing these facilities. Therefore, the project would result in a less-than-significant impact and no mitigation is required.

b) Conflict or be inconsistent with State CEQA Guidelines Section 15064.3(b), which pertains to vehicle miles travelled?

Less-than-significant impact. The stated intent of SB 743, as described above under the header "Regulatory Background" is to promote the reduction of GHG emissions, the development of multimodal transportation networks, and a diversity of land uses. The GHG emissions of trips associated with heavy vehicles serving the project site are addressed in Chapter 3.8, "Greenhouse Gas Emissions." Moreover, through the implementation of statewide regulations such as CARB's Sustainable Freight Strategy, which would transition heavy-duty trucks operating within California to be 100 percent electric by 2045, GHG reductions would continue to be realized into the future. Additionally, heavy vehicle trips associated with the project's industrial uses would occur regardless of the availability of other modes of transportation (e.g., walking, bicycling, public transit) or the mix of land uses in the project vicinity. Further, State CEQA Guidelines Section 15064.3(a) states that VMT refers to the amount and distance of *automobile travel* attributable to a project (emphasis added). The OPR Technical Advisory describes that the term "automobile" as used in Section 15064.3(a), refers to on-road passenger vehicles, specifically cars and light trucks; heavy vehicles are not included in the definition.

Therefore, limiting the VMT analysis to automobile travel would be consistent with the intent of SB 743 and State CEQA Guidelines Section 15064.3(a), and the ability to reduce GHG emissions from land use decisions and the availability of alternatives to automobile travel. As such, for purposes of determining a significant transportation impact under CEQA, heavy vehicle VMT associated with goods and material movement is not a consideration in the impact analysis presented below.

Construction

Construction of the project is expected to begin in spring of 2023 and end in spring 2024 for a total duration of approximately 12 months. The average numbers of construction employees on-site would vary during the different stages of construction.

Project construction activities would not result in long-term increases in vehicular trips because the construction would be temporary and intermittent in nature. Additionally, the VMT of construction workers is not newly generated; instead, it is redistributed throughout the regional roadway network based on the different work sites in which workers travel to each day. Therefore, construction workers are not generating new VMT each day, only redistributing it. This redistribution would be nominal and temporary; and thus, construction traffic is not expected to significantly increase VMT in the region.

Operations

Due to the project being located in a relatively undeveloped area of Tuolumne County with very few nearby commercial land uses and amenities, it is assumed that the project employees would generate 2.5 trips per day attributable to the project. Therefore, assuming all employees travel by single occupancy vehicle and do not carpool, the number of new project-generated trips would equate to a total of 50 daily trips attributed to project employees. As stated in the Tuolumne County *CEQA Transportation Analysis Thresholds of Significance Criteria* (County of Tuolumne 2020), a project that generates or attracts fewer than 110 trips per day and is consistent with the County General Plan, and generally, may be assumed to result in a less-than-significant transportation impact. Therefore, based on the guidance provided in the *CEQA Transportation Analysis Thresholds of Significance Criteria* the proposed project would be considered a small project due to the number of employee trips generated (i.e., 50 daily trips) and the fact that it is consistent with the County General Plan.

However, as detailed in the Draft Tuolumne County SB 743 VMT Thresholds memo (Wood Rodgers 2020), which includes low-VMT areas and VMT maps, the project site is located in an area where VMT per employee is above the County average. Thus, the screening criteria detailed in the County *CEQA Transportation Analysis Thresholds of Significance Criteria* is not applicable to this project.

As detailed in Chapter 2, "Project Description," one of the objectives of the proposed project includes the creation of employment opportunities for residents and supplementing existing businesses in Tuolumne County. The proposed project and other BUF projects would set aside half of the newly created jobs for low-income workers and RCAC is partnering with Mother Lode Job Training agency to assist with maximizing job benefits for local residents and low-income persons. Therefore, for the purposes of this analysis it is assumed that the employees for the proposed project would primarily be local residents.

The nearest population centers to the project site include Jamestown (8.5-mile drive, approximately), Copperopolis (11-mile drive, approximately), and Sonora (12-mile drive, approximately). Additionally, as detailed in Chapter 2, "Project Description," the proposed project would create approximately 20 full-time hourly jobs.

Conservatively assuming that all employee trips were traveling from the most distant population center of the three listed above (i.e., Sonora), each employee would generate approximately 30 daily VMT. As detailed in the Draft Tuolumne County SB 743 VMT Thresholds memo (Wood Rodgers 2020), the average VMT per employee in the Jamestown subarea (i.e., subarea in which the project site is located) is 41.7. Therefore, the project would result in VMT less than the subarea average (i.e., 30 VMT per employee), and VMT per employee under baseline conditions (i.e., 41.7 VMT per employee). Additionally, the proposed project is consistent with the County's General Plan and would result in less than 110 trips per day.

Summary

For the reasons detailed above, the project would not conflict or be inconsistent with State CEQA Guidelines Section 15064.3(b); and thus, would result in a less-than-significant impact to VMT and no mitigation is required.

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

Less-than-significant impact. The project would not require the construction, re-design, or alteration of any public roadways. Vehicles would access the project site from O'Byrnes Ferry Road. As part of the proposed project, the existing paved driveway would be relocated approximately 350 west along the same road. An encroachment permit would be required prior to work within the County road right-of-way.

All on-site roadway improvements associated with the project, such as the relocated driveway, would be constructed in accordance with County roadway design and safety standards. Additionally, the project is subject to the County's review process, which would involve confirming that that the project design would comply with all applicable industry roadway/driveway design standards. Additionally, in accordance with County and industry-wide standards, the project would provide adequate sight distance at all access points. Therefore, the project would not substantially increase transportation-related hazards; and thus, would result in a less-than-significant impact and no mitigation is required.

d) Result in inadequate emergency access?

Less-than-significant impact. The project would not require the construction, re-design, or alteration of any public roadways. Emergency access would be subject to review by Tuolumne County and the responsible emergency service agencies during the design review process; thus, ensuring internal and external project access would be designed to meet all Tuolumne County emergency access and design standards. Therefore, adequate emergency access would be provided. This impact would be less than significant, and no mitigation is required.

3.18 TRIBAL CULTURAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. Tribal Cultural Resources.				
Has a California Native American Tribe requested consultation in accordance with Public Resources Code Section 21080.3.1(b)?				
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:		☒ Yes	☐ No	
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?	☐	☐	☐	☒
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	☐	☒	☐	☐

3.18.1 Environmental Setting

The Central Sierra Mi-wuk (also spelled Miwok) historically occupied the project site. They are one of four other Mi-wuk groups (Bay, Plains, Northern Sierra, and Southern Sierra) whose Eastern Miwok language is a subfamily of the Miwokan branch of the Utian language family, which is regarded as a subgroup of Penutian stock. Prior to Euro-American contact, Central Sierra Mi-wuk occupied the foothills and mountains of the Stanislaus and Tuolumne River drainages. Neighboring groups included the Washoe to the east, Southern Sierra Mi-wuk to the southeast, Plains Mi-wuk to the west, and Northern Sierra Mi-wuk to the north (NIC 2021:10).

Under Public Resources Code Sections 21080.3.1 and 21082.3, Tuolumne County must consult with tribes traditionally and culturally affiliated with the project site that have requested formal notification and responded with a request for consultation. The parties must consult in good faith. Consultation is deemed concluded when the parties agree to measures to mitigate or avoid a significant effect on a tribal cultural resource when one is present or when a party concludes that mutual agreement cannot be reached. Mitigation measures agreed on during the consultation process must be recommended for inclusion in the environmental document.

On June 3, 2022, Tuolumne County sent notification letters that the project was being addressed under CEQA, as required by Public Resources Code Section 21080.3.1, to the two Native American tribes that had previously requested such notifications, Tuolumne Band of Me-Wuk Indians and Chicken Ranch Rancheria. As of the date of publication of this document, no tribes responded requesting consultation. Therefore, no tribal cultural resources as defined in Public Resources Code Section 21074 have been identified within the project site.

A record search of NAHC SLF was completed on April 15, 2021. The NAHC search indicated that the SLF was negative for the presence of Native American resources within the project site (NIC 2021).

3.18.2 Discussion

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

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

No impact. The CCIC records search identified no tribal cultural resources that are listed or eligible for listing in the CRHR, or in a local register of historical resources. Therefore, there would be no impact.

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

Less than significant with mitigation incorporated. Although the NAHC SLF was negative, no tribes identified tribal cultural resources on the project site, and no pre-contact archaeological sites or ethnographic sites were identified during the survey (as described above in Section 3.5, "Cultural Resources"), it is possible that yet-undiscovered tribal cultural resources could be encountered or damaged during ground-disturbing construction activities. A letter received by the Tuolumne Me-Wuk Tribal Council on August 31, 2022 requested a tribal monitor be on site before and during excavation. This impact would be potentially significant.

Mitigation Measure 3.18-1: On-Site Tribal Monitoring

The applicant shall be required to retain and compensate for the services of a Tribal monitor/consultant who is approved by the Tuolumne Band of Me-Wuk Tribe. The monitor/consultant will only be present on-site during the construction phases that involve ground-disturbing activities. Ground-disturbing activities are defined as activities that may include pavement removal, pot-holing or auguring, removals, boring, grading, excavation, drilling, or trenching, within the project site. The Tribal Monitor/consultant will complete daily monitoring logs that will provide descriptions of the day's activities, including construction activities, locations, soil, and any cultural materials identified. The on-site monitoring shall end when the project site grading and excavation activities are completed, or when the Tribal Representatives and monitor/consultant have indicated that the site has a low potential for impacting Tribal Cultural Resources.

Mitigation Measure 3.18-2: Unanticipated Discoveries of Potential Tribal Cultural Resources

If any suspected tribal cultural resources are discovered during ground disturbing construction activities by a Tribal Monitor, including midden soil, artifacts, chipped stone, exotic rock (nonnative), or unusual amounts of baked clay, shell, or bone, all work shall cease within 100 feet of the find. Geographically and culturally affiliated tribal representative(s) shall be immediately notified and shall determine if the find is a tribal cultural resource (pursuant to Public Resources Code Section 21074). The tribal representative will make recommendations for further evaluation and treatment, as necessary.

Preservation in place is the preferred alternative under CEQA and the tribes' protocols, and every effort must be made to preserve the resources in place, including through project redesign. Culturally appropriate treatment may

be, but is not limited to, processing materials for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, returning objects to a location within the project vicinity where they would not be subject to future impacts. The Tribe does not consider curation of tribal cultural resources to be appropriate or respectful and request that materials not be permanently curated, unless approved by the Tribe. Treatment that preserves or restores the cultural character and integrity of a tribal cultural resource may include tribal monitoring, culturally appropriate recovery of cultural objects, and reburial of cultural objects or cultural soil.

Significance after Mitigation

Implementation of Mitigation Measures 3.18-1 and 3.18-2 would reduce impacts to tribal cultural resources to a less-than-significant level by requiring an on-site Tribal Monitor and appropriate treatment and proper care of significant tribal cultural resources, in the case of a discovery.

3.19 UTILITIES AND SERVICE SYSTEMS

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

3.19.1 Environmental Setting

WATER

Groundwater is the only water supply source for many of the small water systems in Tuolumne County, particularly for rural residential development in outlying areas (T-Stan IRWMA 2017). The majority of small water systems that are regulated by the State Water Resources Control Board rely exclusively on individual small capacity wells. Rather than large groundwater basins, most of the areas served by private wells are underlain by fractured rock. Fractured rock provides inconsistent groundwater conditions; some parcels are underlain by small pools of groundwater that are reliable, and others tap into less reliable subsurface rills and streamlets. Because of weather fluctuations and the nature of fractured rock, wells can prove unreliable during drought periods and difficult to establish in some parts of the County. The Tuolumne-Stanislaus Integrated Regional Water Management Plan determined that existing data are insufficient to quantify the total available sustainable groundwater supply in the County (T-Stan IRWMA 2017).

WASTEWATER

The project site is not located in an area that is served by a wastewater service provider. Developed uses near the project site are served by individual, on-site septic systems (T-Stan IRWMA 2017).

STORMWATER DRAINAGE

The project site and surrounding area is not served by any stormwater drainage system.

ELECTRICITY AND NATURAL GAS

Electric service in the County is provided by Pacific Gas and Electric Company (PG&E). There is no natural gas consumption in Tuolumne County; however, there is propane consumption.

TELECOMMUNICATIONS

Internet providers in the County include Xfinity, AT&T, Conifer Communications, Hughes Net and Cal.net. Cellular providers include Verizon and AT&T.

SOLID WASTE

Cal Sierra Disposal, Inc., owned by Waste Management, serves unincorporated Tuolumne County along the SR 108 corridor from the western county line to Pinecrest, including the communities of East Sonora, Jamestown, Columbia, Twain Harte, and the City of Sonora. Collected solid waste is processed at a transfer station and disposed of at the Highway 59 Disposal Site landfill, which is operated by the Merced County Regional Waste Management Authority. The design capacity of the landfill is 30,012,352 cubic yards and estimated closure year is 2055 (CalRecycle 2019). The permitted daily disposal rates are identified in Table 3.19-1 and increase over time between 2019 and 2035. The total amount of solid waste disposed of at the Highway 59 Landfill through 2055 is estimated to range from 18,750 to 21,850 cubic yards (see Table 3.19-1).

Table 3.19-1 Projected Solid Waste Disposal at Highway 59 Landfill

Time Period	Permitted Daily Disposal Rate (tons per day)	Annual Estimate of Solid Waste Disposed (tons)	Annual Estimate of Solid Waste Disposed[1] (cubic yards)
2019	2,000	730,000	365-430
2020-2024	2,200	4,015,000	2000-2370
2025-2029	2,450	4,471,250	2230-2630
2030-2034	2,700	4,927,500	2460-2900
2035-2055	3,000	22,995,000	11490-13526
Total	**NA**	**37,138,750**	**18,570-21,850**

[1] Weight to volume conversion factor used here is based on the estimated averages of compacted mixed municipal solid waste that includes residential, institutional, and commercial waste.

Source: CalRecycle 2019; USEPA 2016; compiled by Ascent Environmental in 2022.

3.19.2 Discussion

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

Less-than-significant impact. Implementation of the proposed project would result in the construction of on-site water supply, wastewater collection, stormwater drainage, electrical, and telecommunication infrastructure to serve the proposed project. The environmental effects of constructing these facilities and infrastructure are considered in the analysis included in Sections 3.1 through 3.21 of this Initial Study. This impact would be less than significant.

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

Less-than-significant impact. See item "b" in Section 3.10, "Hydrology and Water Quality," for a discussion of groundwater supply for the proposed project. Water use on site would be sourced from a proposed well. Water use is estimated to be 13 gallons per person per day or approximately 65,000 gallons per year at full build out. Drinking water would be trucked in and would not come from the well.

The project would be subject to a standard well permit, as required by Chapter 13.16 of the Tuolumne County Ordinance Code. The County Environmental Health Department requires verification by a qualified professional that the well would meet the project requirements.

Because the project would not be constructed if the well would not meet the project requirements and use of the well by the proposed project would not result in a substantial decrease in groundwater supply and because stormwater would be infiltrated on site from any impervious area, the impact would be less than significant.

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

Less-than-significant impact. The proposed project would utilize an on-site septic system for wastewater disposal and would not connect to a wastewater collection or treatment system. Thus, the project would not affect the treatment capacity of any nearby wastewater treatment providers. This impact would be less than significant.

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

Less-than-significant impact. The biomass components of operating the proposed project would not result in generating any wood waste, but the proposed project is estimated to generate 6 cubic yards of solid waste per month from employee operations. The proposed project would contract with Cal Sierra Disposal (Waste Management) for dumpster rental and service. Beginning in 2024 when the project is fully operational, the annual disposal of 72 cubic yards of solid waste in the Highway 59 landfill would well below 1 percent of total solid waste disposal at the landfill. Thus, the project would not result in the exceedance of the capacity of the landfill.

Consistent with Tuolumne County General Plan Implementation Program 3.F.d (Tuolumne County 2018), franchised waste haulers are required to offer a commingled recycling system to their customers. Thus, through the use of Cal Sierra Disposal, the proposed project would help achieve County solid waste reduction goals. Additionally, as a business that would recycle wood waste into commercial products and would be used to generate energy for the project site, the proposed project implements the General Plan Implementation Program 3.F.f that encourages the development of businesses that recycle waste materials and convert waste products into energy. For these reasons, impacts related to solid waste would be less than significant.

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

No impact. Implementation of the project would comply with applicable state and local requirements including those pertaining to solid waste, construction waste diversion, and recycling. As described under Section 2.4, "Project Objectives," the proposed project objectives include providing for managing wood waste and unmarketable material generated by forest treatments by turning materials that would be burned or disposed of in landfills into products or for energy generation purposes. There would be no impact related to compliance with federal, state, and local management and reduction statutes and regulations for solid waste.

3.20 WILDFIRE

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

3.20.1 Environmental Setting

REGIONAL SETTING

The project is in Tuolumne County, within the SRA (CAL FIRE 2022a). The Tuolumne County Multi-Jurisdiction Hazard Mitigation Plan identifies Tuolumne County as a high fire risk area due to the past history of fires and a combination of factors including existing fuel, weather, topography, and the high risk of injury, loss of life, loss of structures, and personal property damage. Severe fire weather occurs on an average of 35 percent of the days during the fire season in the County (Tuolumne County 2018). The County has a history of wildfire from a variety of causes, and the Hazard Mitigation Plan highlights 15 major wildfires, each causing 750 acres or more of damage, from 1987 to 2016 (Tuolumne County 2018). The nearest fire occurred in the 1990s and came within 1 mile of the project site on the west, north, and east sides (CAL FIRE 2022b). CAL FIRE's 2020 Wildfire Activity Statistics identify a total of $278,541,759 in damage caused by wildfire in Tuolumne and neighboring Calaveras County (CAL FIRE 2020). Wildfire risk reduction and prevention activities throughout Tuolumne County typically produce large quantities of woody material, but no existing biomass utilization facility is operating in Tuolumne County; the proposed project would help fill this niche.

FIRE HAZARD SEVERITY ZONE

CAL FIRE has mapped FHSZs for the entire state, including the project site. FHSZ delineations are based on an evaluation of fuels, fire history, terrain, housing density, and occurrence of severe fire weather. They are intended to identify areas where urban fires could result in catastrophic losses. FHSZs are categorized as: moderate, high, and

very high. The purpose of classifying areas as very high FHSZs is to allow local officials to require mitigation measures that reduce the rate of spread and potential intensity of uncontrolled fires that threaten to destroy resources, life, and/or property at the urban edge of their jurisdiction. The project area is within a "high" FHSZ and adjacent to "very high" FHSZ to the north.

EMERGENCY RESPONSE PLANS

The project site is within unincorporated Tuolumne County, and emergency response is coordinated in this area through an existing mutual cooperation agreement between TCFD Chinese Camp Station 61, CAL FIRE, US Forest Service, the National Park Service, and other agencies (Tuolumne County 2018).

The Multi-Jurisdictional Hazard Mitigation Plan for Tuolumne County (County of Tuolumne, 2018) outlines the extensive history of wildfires in Tuolumne County and identifies the communities surrounding SR 120 as being at a particularly high risk to wildfire due to the history of catastrophic wildfire in the area. SR 120 is located approximately 1 mile east of the project site. A collaborative partnership, the Southwest Interface Team, is a partnership of fire departments, land management agencies, and Fire Safe Councils working to reduce wildfire risk and improve human safety in this high-risk area. The plan identifies specific wildland fire objectives, including vegetation management, code enforcement, GIS mapping, and compliance with the planning process.

In 2004, the Tuolumne County Community Wildfire Protection Plan (CWPP) was prepared, which includes emergency response plans (Tuolumne Fire Safe Council 2004). The project falls into the "Highway 120 Wildfire Community Protection Area" identified in the CWPP, which is identified as comprising a fluctuating residential population, with a substantial percentage (60 percent) identified as senior citizens. The CWPP identifies requirements for defensible space, fire prevention strategies, construction material, and road and driveway construction that would support ingress/egress capabilities of emergency responders and facilitate rapid evacuation of residents during fire response and suppression activities (CWPP 2004).

3.20.2 Discussion

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

Less-than-significant impact. Tuolumne County does not have a static emergency plan or evacuation plan due to the dynamic nature of emergencies. The Tuolumne County Sheriff's Office is the responsible entity for declaring and directing evacuations in the case of emergencies, and the Sheriff's department would inform members of the public of an emergency, as described in the Multi-Jurisdictional Hazard Mitigation Plan. No specific evacuation routes have been identified in the Hazard Mitigation Plan or CWPP, however, in the case of an emergency, O'Byrnes Ferry Road may be utilized as an emergency evacuation route depending on the location and behavior of the wildfire.

Construction activities may introduce workers and ignition sources to the project site, which could potentially impair implementation of the CWPP by increasing the likelihood of a human-caused fire. However, project activities would be conducted following best practices to prevent the ignition of wildfire, and all construction activities would be in compliance with the CWPP, including restrictions on flammable materials and collaboration with fire protection agencies in planning decisions. Development of the site would be implemented consistent with state and County regulations and policies regarding fire protection, and road and driveway improvement plans would be reviewed by the Tuolumne County Fire Prevention Division and Engineering Division of the Department of Public Works. Defensible space setbacks would be compliant with state and County guidelines, and new development would include adequate fire protection, design, and maintenance features. All activities would comply with local plans and ordinances as well as the National Fire Code, California Fire Code, California Building Code, the Tuolumne General Plan, and Tuolumne County Ordinance Code. Additionally, installation of a biomass utilization facility may improve the local fire prevention efforts' ability to reach biomass disposal goals as outlined in the CWPP, and potentially could decrease the risk of wildfire as compared to alternative biomass disposal methods such as chipping or pile-burning of

biomass material. For these reasons, the project would not substantially impair an emergency response or emergency evacuation plan and the impact would be less than significant.

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?

Less-than-significant impact. The project would not result in any alterations to slope, wind, or other factors that could exacerbate wildfire risks. Large uncontrolled wildfires release large quantities of greenhouse gases and other pollutants into the atmosphere, and projects that are designed to support forest thinning and biomass processing aim to reduce the potential for these uncontrolled wildfires (Evans and Finkral 2009). The site has a moderate northeastern slope in the northern portion of the project site, with the former gravel pit representing a high point, gradually grading down toward the creek near the existing solar facility. During construction activities, this slope would be graded to accommodate log storage and equipment egress. Existing industrial structures are present in the project vicinity and adjacent to project features. Storage of combustible material (biomass) on the project site would be conducted following standard ignition prevention best management practices. A water storage tank would be located on top of a large outcropping in the northwesternmost portion of the site to provide gravity-fed fire protection in the event of an emergency. Proposed construction would not have the potential to substantially exacerbate wildfire risk. Operation of the project may improve nearby vegetation reduction projects' effectiveness in preventing wildfire by providing an alternative to pile-burning and mulching, which pose a greater risk of uncontrolled wildfire than biomass processing. While any industrial activity poses some risk of malfunction and potential fire, compliance with applicable regulations and regular inspection of project facilities would reduce wildfire risks and exposure of project occupants to pollutant concentrations from a wildfire or uncontrolled spread of wildfire. This impact would be less than significant.

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

Less-than-significant impact. The proposed project would alter the existing roadway system (i.e., relocate the site entrance driveway and establish on-site access roads) to provide access to the site. Access roads would be constructed consistent with the requirements of the County ordinances and CWPP to minimize the risk of wildfire associated with road construction. The project would connect utilities to the proposed new structures for operational requirements associated with these buildings and structures. However, connecting utilities on-site would have little to no potential to exacerbate fire risk as such connections would be conducted by trained technicians (including electricians) and workers. Additionally, there would be a water tank constructed at the high point of the project site which would provide water for fire suppression, if needed. This impact would be less than significant.

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?

Less-than-significant impact. The proposed project would not result in an increase in population, nor would the project include the construction of residential or commercial structures. The project site is relatively flat and is not at risk for landslides. Installation of the proposed biomass utilization facility would result in an incremental increase in visitation to the project site as workers would be needed to operate and maintain the biomass facility. The project would not result in a substantial change in runoff, post-fire slope instability, or drainage changes that would expose people or structures to significant risks. This impact would be less than significant.

See also the discussion under item "a" in Section 3.9, Geology and Soils," and item "c" in Section 3.10, "Hydrology and Water Quality."

3.21 MANDATORY FINDINGS OF SIGNIFICANCE

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. Mandatory Findings of Significance.				
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 an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☒	☐	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

3.21.1 Discussion

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 an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?

Less than significant with mitigation incorporated. As discussed in Section 3.4, "Biological Resources," the project has the potential to impact wildlife and plant species. As described in Section 3.4.2, item "a," the project has the potential to adversely affect common and special-status nesting bird and raptor species. Mitigation Measure 3.4-1 has been included that requires preconstruction surveys to identify the presence of these species, avoid or remove them from the construction area (if they are present), and establish disturbance buffers to minimize disturbance during construction. Also described in Section 3.4.2, item "a," is Mitigation Measure 3.4-2, which requires preconstruction surveys for burrowing owls, establishing non-disturbance buffers, and compensation for loss of any occupied burrows. Section 3.4.2, item "a," also includes Mitigation Measures 3.4-3 through 3.4-6, which require protections for coast horned lizard, American badger, ringtail, and bats including preconstruction surveys, avoidance measures, and relocation. Additionally, in Section 3.4.2, item "a," Mitigation Measure 3.4-7 is required to protect special-status plants and requires surveys, avoidance measures, and achievement of no net loss of occupied habitat or individuals. With the incorporation of these mitigation measures, the project would not have the potential to degrade the quality of the environment, substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop

below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal.

As discussed in Section 3.5, "Cultural Resources," there is the potential for discovery of previously unknown archeological resources during project construction. In the event of an inadvertent discovery, Mitigation Measure 3.5-1 requires contractors to halt construction activities until a qualified archeologist can investigate its significance. As discussed in Section 3.18, "Tribal Cultural Resources," there is the potential to discover unmarked, previously unknown Native American or other graves during construction activities. Mitigation Measures 3.18-1 and 3.18-2 have been included that outline the requirements for an on-site Tribal monitor and procedures that would be taken in the event of the discovery of previously unknown human remains or tribal cultural resources. For these reasons, the project would have a less-than-significant impact with mitigation incorporated on important examples of major periods of California history or prehistory.

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

Less than significant with mitigation incorporated. Project impacts would be individually limited and not cumulatively considerable due to the site-specific nature of the potential impacts. The potentially significant impacts that can be reduced to a less-than-significant level with implementation of recommended mitigation measures include the following resource areas: aesthetics, biological resources, cultural resources, and tribal cultural resources. Besides aesthetics, these impacts would primarily be related to construction activities, would be temporary in nature, and would not substantially contribute to any potential cumulative impacts associated with these topics. The potentially significant aesthetic impact would be reduced to a less-than-significant level with the implementation of Mitigation Measure 3.1-1, which would reduce the impact of light and glare on nighttime views. Potentially significant biological resources impacts would be reduced to a less-than-significant level with implementation of Mitigation Measures 3.4-1 through 3.4-7. Potentially significant cultural resources impacts would be reduced to less-than-significant levels with implementation of Mitigation Measure 3.5-1 and potentially significant tribal cultural resources impacts would be reduced to less-than-significant levels with implementation of Mitigation Measures 3.18-1 and 3.18-2. The project would have no impact or less-than-significant impacts related to the following environmental areas: agriculture and forestry resources, air quality, energy, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation, utilities and service systems, and wildfire. Therefore, the project would not substantially contribute to any potential cumulative impacts for these topics. All environmental impacts that could occur as a result of the proposed project would be reduced to a less-than-significant level through the implementation of the mitigation measures recommended in this document. Implementation of these measures would ensure that the impacts of the project would be below established thresholds of significance and that these impacts would not combine with the impacts of other cumulative projects to result in a cumulatively considerable impact on the environment as a result of project implementation. Therefore, this impact would be less than significant.

c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

Less-than-significant impact. As discussed above in Section 3.9, "Hazards and Hazardous Materials," project construction and operation activities would require the use of hazardous materials such as fuels, lubricants, and solvents. However, all construction and operation activities would be required to comply with existing regulations that would limit exposure of nearby sensitive receptors and workers to hazardous materials. Therefore, this impact would be less than significant. The proposed project would have a potentially significant impacts related to the following areas: aesthetics, biological resources, cultural resources, and tribal cultural resources. However, all of these impacts would be reduced to less-than-significant levels with incorporation of the mitigation measures included in the respective section discussions. No other direct or indirect impacts on human beings were identified in this IS/MND.

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Alta Cunningham ..... Cultural Resources, Tribal Cultural Resources

Matthew Brehmer ..... Air Quality, Energy, Green House Gas Emissions

Brenda Hom (Senior Review) ..... Air Quality, Energy, Green House Gas Emissions

Grace Mannell ..... Biological Resources, Wildfire

Lara Rachowicz ..... Senior Biological Resources Review

Jessica Mitchell, AICP ..... Population and Housing, Public Services, Utilities and Service Systems

Eric Cohen ..... Aesthetics, Recreation

Zachary Miller, AICP ..... Noise, Transportation

Gayiety Lane ..... Publishing

Michele Mattei ..... Publishing

Lisa Merry ..... GIS Analysis and Mapping

Corey Alling ..... Graphics

County of Tuolumne Reviewers

Quincy Yaley, Director, Community Development Department

Natalie Rizzi, Senior Planner, Community Development Department

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Appendix A

Air Quality, Greenhouse Gas Emissions, and Energy Calculations

Tuolumne Biomass Project - Construction Only - Tuolumne County, Annual

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

Tuolumne Biomass Project - Construction Only

Tuolumne County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1.80	1000sqft	0.04	1,800.00	0
Manufacturing	3.20	1000sqft	0.07	3,200.00	0
Unrefrigerated Warehouse-No Rail	30.00	1000sqft	0.69	30,000.00	0
Other Asphalt Surfaces	3.50	Acre	3.50	152,460.00	0
Other Asphalt Surfaces	32.20	1000sqft	0.74	32,200.00	0
Other Asphalt Surfaces	42.00	1000sqft	0.96	42,000.00	0
Other Non-Asphalt Surfaces	2.50	Acre	2.50	108,900.00	0
Other Non-Asphalt Surfaces	10.80	1000sqft	0.25	10,800.00	0
Parking Lot	31.00	Space	0.28	12,400.00	0
City Park	0.12	Acre	0.12	5,227.20	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	66
Climate Zone	1			**Operational Year**	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	0	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction only run

Land Use - landscaping=city park. unrefigerated WH #2 = shop. Merch line paving sf conservativley est. at 42,000. Gravel surfaces modeled as non-asphalt.

Construction Phase - demolition phase removed - no demolition planned in PD. Site prep start date changed to construction start date from PD "spring 2023"

Tuolumne Biomass Project - Construction Only - Tuolumne County, Annual

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

Off-road Equipment - PD states construction is 10hr/day

Off-road Equipment - PD states construction is 10hr/day

Off-road Equipment - extra excavator added to CalEEMod default of 3 for retention pond shown in PD. Cosntruction hours based on statement in PD

Off-road Equipment - PD states construction is 10hr/day. additional excavator added to account for proposed retention pond

Off-road Equipment - PD states construction is 10hr/day

Off-road Equipment - PD states construction is 10hr/day

Trips and VMT - building construction hauling trips: client estimated 25/30 total truck deliveries, left as CalEEMod default as conservative est.

Grading - PD states site is 17 acres, with 2 acres having been graded previously for previous land use

Architectural Coating - adjusted to parking area size

Vehicle Trips - Construction only run - Operational trips calculated separately

Vehicle Emission Factors - EMFAC 2021 Vehicle Emissions Data

Vehicle Emission Factors - EMFAC 2021 Vehicle Emissions Data

Vehicle Emission Factors - EMFAC 2021 Vehicle Emisisons data

Energy Use - Construction run only - energy use calculated separately

Water And Wastewater - Construction run only

Solid Waste - Construction Run only

Operational Off-Road Equipment -

Stationary Sources - Emergency Generators and Fire Pumps -

Stationary Sources - User Defined -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	21,526.00	12,400.00
tblEnergyUse	LightingElect	3.45	0.00
tblEnergyUse	LightingElect	1.81	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	NT24E	3.98	0.00
tblEnergyUse	NT24E	1.85	0.00
tblEnergyUse	NT24NG	0.31	0.00
tblEnergyUse	T24E	3.25	0.00

Tuolumne Biomass Project - Construction Only - Tuolumne County, Annual

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

tblEnergyUse	T24E	0.56	0.00
tblEnergyUse	T24NG	19.34	0.00
tblEnergyUse	T24NG	3.17	0.00
tblGrading	AcresOfGrading	25.00	15.00
tblOffRoadEquipment	UsageHours	6.00	10.00
tblOffRoadEquipment	UsageHours	7.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	7.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	203.98	0
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	0.01	0.00
tblSolidWaste	SolidWasteGenerationRate	1.67	0.00
tblSolidWaste	SolidWasteGenerationRate	3.97	0.00
tblSolidWaste	SolidWasteGenerationRate	28.20	0.00
tblVehicleEF	HHD	919.08	919.08
tblVehicleEF	LDA	0.73	0.73

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

tblVehicleEF	LDA	2.47	2.48
tblVehicleEF	LDA	255.49	260.73
tblVehicleEF	LDA	53.00	54.10
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.21	0.21
tblVehicleEF	LDA	1.6990e-003	1.7070e-003
tblVehicleEF	LDA	1.9760e-003	1.9860e-003
tblVehicleEF	LDA	1.5670e-003	1.5740e-003
tblVehicleEF	LDA	1.8170e-003	1.8260e-003
tblVehicleEF	LDA	0.06	0.06
tblVehicleEF	LDA	0.16	0.16
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.29	0.29
tblVehicleEF	LDA	0.06	0.06
tblVehicleEF	LDA	0.16	0.16
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.32	0.32
tblVehicleEF	LDA	0.85	0.86
tblVehicleEF	LDA	1.76	1.77
tblVehicleEF	LDA	275.54	281.19
tblVehicleEF	LDA	51.65	52.71
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.18	0.18
tblVehicleEF	LDA	1.6990e-003	1.7070e-003
tblVehicleEF	LDA	1.9760e-003	1.9860e-003

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

tblVehicleEF	LDA	1.5670e-003	1.5740e-003
tblVehicleEF	LDA	1.8170e-003	1.8260e-003
tblVehicleEF	LDA	0.15	0.15
tblVehicleEF	LDA	0.19	0.19
tblVehicleEF	LDA	0.15	0.15
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.23	0.23
tblVehicleEF	LDA	0.15	0.15
tblVehicleEF	LDA	0.19	0.19
tblVehicleEF	LDA	0.15	0.15
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.25	0.25
tblVehicleEF	LDA	0.71	0.71
tblVehicleEF	LDA	2.94	2.95
tblVehicleEF	LDA	251.14	256.29
tblVehicleEF	LDA	53.90	55.02
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.23	0.23
tblVehicleEF	LDA	1.6990e-003	1.7070e-003
tblVehicleEF	LDA	1.9760e-003	1.9860e-003
tblVehicleEF	LDA	1.5670e-003	1.5740e-003
tblVehicleEF	LDA	1.8170e-003	1.8260e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.17	0.17
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.04

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

tblVehicleEF	LDA	0.34	0.34
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.17	0.17
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.37	0.37
tblVehicleEF	LDT1	2.08	2.09
tblVehicleEF	LDT1	3.12	3.14
tblVehicleEF	LDT1	325.34	332.07
tblVehicleEF	LDT1	70.80	72.27
tblVehicleEF	LDT1	0.21	0.21
tblVehicleEF	LDT1	0.45	0.45
tblVehicleEF	LDT1	2.9960e-003	3.0110e-003
tblVehicleEF	LDT1	3.8360e-003	3.8560e-003
tblVehicleEF	LDT1	2.7570e-003	2.7710e-003
tblVehicleEF	LDT1	3.5270e-003	3.5450e-003
tblVehicleEF	LDT1	0.23	0.23
tblVehicleEF	LDT1	0.54	0.54
tblVehicleEF	LDT1	0.18	0.18
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.29	0.29
tblVehicleEF	LDT1	0.76	0.76
tblVehicleEF	LDT1	0.23	0.23
tblVehicleEF	LDT1	0.54	0.54
tblVehicleEF	LDT1	0.18	0.18
tblVehicleEF	LDT1	0.08	0.08
tblVehicleEF	LDT1	0.29	0.29
tblVehicleEF	LDT1	0.83	0.83

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

tblVehicleEF	LDT1	2.39	2.40
tblVehicleEF	LDT1	2.18	2.19
tblVehicleEF	LDT1	347.43	354.61
tblVehicleEF	LDT1	68.68	70.10
tblVehicleEF	LDT1	0.17	0.17
tblVehicleEF	LDT1	0.39	0.39
tblVehicleEF	LDT1	2.9960e-003	3.0110e-003
tblVehicleEF	LDT1	3.8360e-003	3.8560e-003
tblVehicleEF	LDT1	2.7570e-003	2.7710e-003
tblVehicleEF	LDT1	3.5270e-003	3.5450e-003
tblVehicleEF	LDT1	0.63	0.63
tblVehicleEF	LDT1	0.64	0.65
tblVehicleEF	LDT1	0.53	0.53
tblVehicleEF	LDT1	0.06	0.06
tblVehicleEF	LDT1	0.27	0.27
tblVehicleEF	LDT1	0.57	0.57
tblVehicleEF	LDT1	0.63	0.63
tblVehicleEF	LDT1	0.64	0.65
tblVehicleEF	LDT1	0.53	0.53
tblVehicleEF	LDT1	0.09	0.09
tblVehicleEF	LDT1	0.27	0.27
tblVehicleEF	LDT1	0.62	0.63
tblVehicleEF	LDT1	2.04	2.05
tblVehicleEF	LDT1	3.75	3.77
tblVehicleEF	LDT1	320.57	327.21
tblVehicleEF	LDT1	72.22	73.71
tblVehicleEF	LDT1	0.23	0.23
tblVehicleEF	LDT1	0.50	0.50
tblVehicleEF	LDT1	2.9960e-003	3.0110e-003

Tuolumne Biomass Project - Construction Only - Tuolumne County, Annual

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

tblVehicleEF	LDT1	3.8360e-003	3.8560e-003
tblVehicleEF	LDT1	2.7570e-003	2.7710e-003
tblVehicleEF	LDT1	3.5270e-003	3.5450e-003
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.57	0.57
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.35	0.35
tblVehicleEF	LDT1	0.89	0.89
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.57	0.57
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.08	0.08
tblVehicleEF	LDT1	0.35	0.35
tblVehicleEF	LDT1	0.97	0.97
tblVehicleEF	LDT2	1.34	1.34
tblVehicleEF	LDT2	3.38	3.40
tblVehicleEF	LDT2	346.81	353.95
tblVehicleEF	LDT2	75.15	76.70
tblVehicleEF	LDT2	0.15	0.15
tblVehicleEF	LDT2	0.45	0.45
tblVehicleEF	LDT2	1.9100e-003	1.9200e-003
tblVehicleEF	LDT2	2.2850e-003	2.2970e-003
tblVehicleEF	LDT2	1.7580e-003	1.7670e-003
tblVehicleEF	LDT2	2.1010e-003	2.1120e-003
tblVehicleEF	LDT2	0.12	0.12
tblVehicleEF	LDT2	0.31	0.31
tblVehicleEF	LDT2	0.11	0.11
tblVehicleEF	LDT2	0.03	0.03

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

tblVehicleEF	LDT2	0.15	0.15
tblVehicleEF	LDT2	0.56	0.56
tblVehicleEF	LDT2	0.12	0.12
tblVehicleEF	LDT2	0.31	0.31
tblVehicleEF	LDT2	0.11	0.11
tblVehicleEF	LDT2	0.04	0.05
tblVehicleEF	LDT2	0.15	0.15
tblVehicleEF	LDT2	0.61	0.61
tblVehicleEF	LDT2	1.55	1.56
tblVehicleEF	LDT2	2.40	2.41
tblVehicleEF	LDT2	368.56	376.15
tblVehicleEF	LDT2	73.14	74.66
tblVehicleEF	LDT2	0.13	0.13
tblVehicleEF	LDT2	0.39	0.39
tblVehicleEF	LDT2	1.9100e-003	1.9200e-003
tblVehicleEF	LDT2	2.2850e-003	2.2970e-003
tblVehicleEF	LDT2	1.7580e-003	1.7670e-003
tblVehicleEF	LDT2	2.1010e-003	2.1120e-003
tblVehicleEF	LDT2	0.32	0.32
tblVehicleEF	LDT2	0.35	0.35
tblVehicleEF	LDT2	0.31	0.31
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.14	0.14
tblVehicleEF	LDT2	0.43	0.43
tblVehicleEF	LDT2	0.32	0.32
tblVehicleEF	LDT2	0.35	0.35
tblVehicleEF	LDT2	0.31	0.31
tblVehicleEF	LDT2	0.05	0.05
tblVehicleEF	LDT2	0.14	0.14

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

tblVehicleEF	LDT2	0.47	0.47
tblVehicleEF	LDT2	1.31	1.31
tblVehicleEF	LDT2	4.04	4.06
tblVehicleEF	LDT2	342.10	349.15
tblVehicleEF	LDT2	76.49	78.07
tblVehicleEF	LDT2	0.17	0.17
tblVehicleEF	LDT2	0.50	0.50
tblVehicleEF	LDT2	1.9100e-003	1.9200e-003
tblVehicleEF	LDT2	2.2850e-003	2.2970e-003
tblVehicleEF	LDT2	1.7580e-003	1.7670e-003
tblVehicleEF	LDT2	2.1010e-003	2.1120e-003
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.32	0.32
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.18	0.18
tblVehicleEF	LDT2	0.65	0.65
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.32	0.32
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.18	0.18
tblVehicleEF	LDT2	0.71	0.71
tblVehicleEF	LHD2	739.26	739.26
tblVehicleEF	MDV	1.56	1.56
tblVehicleEF	MDV	4.19	4.21
tblVehicleEF	MDV	426.55	435.14
tblVehicleEF	MDV	91.00	92.88
tblVehicleEF	MDV	0.19	0.19

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

tblVehicleEF	MDV	0.53	0.53
tblVehicleEF	MDV	2.2300e-003	2.2400e-003
tblVehicleEF	MDV	2.6450e-003	2.6580e-003
tblVehicleEF	MDV	2.0610e-003	2.0700e-003
tblVehicleEF	MDV	2.4320e-003	2.4440e-003
tblVehicleEF	MDV	0.14	0.14
tblVehicleEF	MDV	0.36	0.36
tblVehicleEF	MDV	0.13	0.13
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.18	0.18
tblVehicleEF	MDV	0.71	0.71
tblVehicleEF	MDV	0.14	0.14
tblVehicleEF	MDV	0.36	0.36
tblVehicleEF	MDV	0.13	0.13
tblVehicleEF	MDV	0.06	0.06
tblVehicleEF	MDV	0.18	0.18
tblVehicleEF	MDV	0.78	0.78
tblVehicleEF	MDV	1.79	1.80
tblVehicleEF	MDV	2.95	2.96
tblVehicleEF	MDV	449.44	458.51
tblVehicleEF	MDV	88.45	90.28
tblVehicleEF	MDV	0.16	0.16
tblVehicleEF	MDV	0.45	0.45
tblVehicleEF	MDV	2.2300e-003	2.2400e-003
tblVehicleEF	MDV	2.6450e-003	2.6580e-003
tblVehicleEF	MDV	2.0610e-003	2.0700e-003
tblVehicleEF	MDV	2.4320e-003	2.4440e-003
tblVehicleEF	MDV	0.37	0.37
tblVehicleEF	MDV	0.41	0.41

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

tblVehicleEF	MDV	0.37	0.37
tblVehicleEF	MDV	0.05	0.05
tblVehicleEF	MDV	0.16	0.16
tblVehicleEF	MDV	0.54	0.54
tblVehicleEF	MDV	0.37	0.37
tblVehicleEF	MDV	0.41	0.41
tblVehicleEF	MDV	0.37	0.37
tblVehicleEF	MDV	0.07	0.07
tblVehicleEF	MDV	0.16	0.16
tblVehicleEF	MDV	0.59	0.59
tblVehicleEF	MDV	1.53	1.54
tblVehicleEF	MDV	5.03	5.05
tblVehicleEF	MDV	421.60	430.10
tblVehicleEF	MDV	92.71	94.63
tblVehicleEF	MDV	0.21	0.21
tblVehicleEF	MDV	0.58	0.58
tblVehicleEF	MDV	2.2300e-003	2.2400e-003
tblVehicleEF	MDV	2.6450e-003	2.6580e-003
tblVehicleEF	MDV	2.0610e-003	2.0700e-003
tblVehicleEF	MDV	2.4320e-003	2.4440e-003
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.37	0.37
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.22	0.22
tblVehicleEF	MDV	0.83	0.83
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.37	0.37
tblVehicleEF	MDV	0.03	0.03

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

tblVehicleEF	MDV	0.06	0.06
tblVehicleEF	MDV	0.22	0.22
tblVehicleEF	MDV	0.90	0.90
tblVehicleEF	SBUS	3.1000e-003	3.0990e-003
tblVehicleEF	SBUS	339.91	339.91
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	2.21	0.00
tblVehicleTrips	ST_TR	6.42	0.00
tblVehicleTrips	ST_TR	1.74	0.00
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	0.70	0.00
tblVehicleTrips	SU_TR	5.09	0.00
tblVehicleTrips	SU_TR	1.74	0.00
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	9.74	0.00
tblVehicleTrips	WD_TR	3.93	0.00
tblVehicleTrips	WD_TR	1.74	0.00
tblWater	IndoorWaterUseRate	319,920.75	0.00
tblWater	IndoorWaterUseRate	740,000.00	0.00
tblWater	IndoorWaterUseRate	6,937,500.00	0.00
tblWater	OutdoorWaterUseRate	142,977.76	0.00
tblWater	OutdoorWaterUseRate	196,080.46	0.00

2.0 Emissions Summary

Tuolumne Biomass Project - Construction Only - Tuolumne County, Annual

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

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.3571	2.5711	3.1145	6.6500e-003	0.4219	0.1032	0.5250	0.1635	0.0966	0.2601	0.0000	594.9510	594.9510	0.0903	0.0227	603.9720
2024	0.5971	0.7817	1.0907	2.2600e-003	0.0728	0.0306	0.1034	0.0196	0.0287	0.0483	0.0000	201.5292	201.5292	0.0311	7.0200e-003	204.3990
Maximum	**0.5971**	**2.5711**	**3.1145**	**6.6500e-003**	**0.4219**	**0.1032**	**0.5250**	**0.1635**	**0.0966**	**0.2601**	**0.0000**	**594.9510**	**594.9510**	**0.0903**	**0.0227**	**603.9720**

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					
2023	0.3571	2.5711	3.1145	6.6500e-003	0.4219	0.1032	0.5250	0.1635	0.0966	0.2601	0.0000	594.9506	594.9506	0.0903	0.0227	603.9716
2024	0.5971	0.7817	1.0907	2.2600e-003	0.0728	0.0306	0.1034	0.0196	0.0287	0.0483	0.0000	201.5291	201.5291	0.0311	7.0200e-003	204.3988
Maximum	**0.5971**	**2.5711**	**3.1145**	**6.6500e-003**	**0.4219**	**0.1032**	**0.5250**	**0.1635**	**0.0966**	**0.2601**	**0.0000**	**594.9506**	**594.9506**	**0.0903**	**0.0227**	**603.9716**

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

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**3-20-2023**	**6-19-2023**	0.9341	0.9341
2	**6-20-2023**	**9-19-2023**	0.9262	0.9262
3	**9-20-2023**	**12-19-2023**	0.9326	0.9326
4	**12-20-2023**	**3-19-2024**	0.8652	0.8652
5	**3-20-2024**	**6-19-2024**	0.6254	0.6254
		Highest	0.9341	0.9341

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2131	1.0000e-005	1.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8100e-003	2.8100e-003	1.0000e-005	0.0000	2.9900e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.2131**	**1.0000e-005**	**1.4400e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**2.8100e-003**	**2.8100e-003**	**1.0000e-005**	**0.0000**	**2.9900e-003**

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

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2131	1.0000e-005	1.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8100e-003	2.8100e-003	1.0000e-005	0.0000	2.9900e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.2131**	**1.0000e-005**	**1.4400e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**2.8100e-003**	**2.8100e-003**	**1.0000e-005**	**0.0000**	**2.9900e-003**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/20/2023	3/31/2023	5	10	
2	Grading	Grading	4/1/2023	4/28/2023	5	20	

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

3	Building Construction	Building Construction	4/29/2023	3/15/2024	5	230	
4	Paving	Paving	3/16/2024	4/12/2024	5	20	
5	Architectural Coating	Architectural Coating	4/13/2024	5/10/2024	5	20	

Acres of Grading (Site Preparation Phase): 18.75

Acres of Grading (Grading Phase): 15

Acres of Paving: 8.23

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 52,500; Non-Residential Outdoor: 17,500; Striped Parking Area: 12,400 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	10.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	10.00	97	0.37
Grading	Excavators	1	10.00	158	0.38
Grading	Graders	1	10.00	187	0.41
Grading	Rubber Tired Dozers	1	10.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	10.00	97	0.37
Building Construction	Cranes	1	10.00	231	0.29
Building Construction	Forklifts	3	10.00	89	0.20
Building Construction	Generator Sets	1	10.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	10.00	97	0.37
Building Construction	Welders	1	10.00	46	0.45
Paving	Pavers	2	10.00	130	0.42
Paving	Paving Equipment	2	10.00	132	0.36
Paving	Rollers	2	10.00	80	0.38
Architectural Coating	Air Compressors	1	10.00	78	0.48

Trips and VMT

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

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	167.00	65.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	33.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 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					0.1229	0.0000	0.1229	0.0631	0.0000	0.0631	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0166	0.1720	0.1140	2.4000e-004		7.9100e-003	7.9100e-003		7.2800e-003	7.2800e-003	0.0000	20.9067	20.9067	6.7600e-003	0.0000	21.0757
Total	**0.0166**	**0.1720**	**0.1140**	**2.4000e-004**	**0.1229**	**7.9100e-003**	**0.1308**	**0.0631**	**7.2800e-003**	**0.0704**	**0.0000**	**20.9067**	**20.9067**	**6.7600e-003**	**0.0000**	**21.0757**

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

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.6000e-004	5.1000e-004	5.1200e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.9401	0.9401	4.0000e-005	4.0000e-005	0.9516
Total	**7.6000e-004**	**5.1000e-004**	**5.1200e-003**	**1.0000e-005**	**1.1000e-003**	**1.0000e-005**	**1.1100e-003**	**2.9000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**0.9401**	**0.9401**	**4.0000e-005**	**4.0000e-005**	**0.9516**

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					0.1229	0.0000	0.1229	0.0631	0.0000	0.0631	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0166	0.1720	0.1140	2.4000e-004		7.9100e-003	7.9100e-003		7.2800e-003	7.2800e-003	0.0000	20.9067	20.9067	6.7600e-003	0.0000	21.0757
Total	**0.0166**	**0.1720**	**0.1140**	**2.4000e-004**	**0.1229**	**7.9100e-003**	**0.1308**	**0.0631**	**7.2800e-003**	**0.0704**	**0.0000**	**20.9067**	**20.9067**	**6.7600e-003**	**0.0000**	**21.0757**

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

3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.6000e-004	5.1000e-004	5.1200e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.9401	0.9401	4.0000e-005	4.0000e-005	0.9516
Total	**7.6000e-004**	**5.1000e-004**	**5.1200e-003**	**1.0000e-005**	**1.1000e-003**	**1.0000e-005**	**1.1100e-003**	**2.9000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**0.9401**	**0.9401**	**4.0000e-005**	**4.0000e-005**	**0.9516**

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					0.0832	0.0000	0.0832	0.0422	0.0000	0.0422	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0214	0.2242	0.1844	3.7000e-004		9.6900e-003	9.6900e-003		8.9100e-003	8.9100e-003	0.0000	32.5758	32.5758	0.0105	0.0000	32.8392
Total	**0.0214**	**0.2242**	**0.1844**	**3.7000e-004**	**0.0832**	**9.6900e-003**	**0.0929**	**0.0422**	**8.9100e-003**	**0.0512**	**0.0000**	**32.5758**	**32.5758**	**0.0105**	**0.0000**	**32.8392**

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

3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2600e-003	8.5000e-004	8.5400e-003	2.0000e-005	1.8400e-003	1.0000e-005	1.8500e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.5668	1.5668	6.0000e-005	6.0000e-005	1.5860
Total	**1.2600e-003**	**8.5000e-004**	**8.5400e-003**	**2.0000e-005**	**1.8400e-003**	**1.0000e-005**	**1.8500e-003**	**4.9000e-004**	**1.0000e-005**	**5.0000e-004**	**0.0000**	**1.5668**	**1.5668**	**6.0000e-005**	**6.0000e-005**	**1.5860**

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					0.0832	0.0000	0.0832	0.0422	0.0000	0.0422	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0214	0.2242	0.1844	3.7000e-004		9.6900e-003	9.6900e-003		8.9100e-003	8.9100e-003	0.0000	32.5757	32.5757	0.0105	0.0000	32.8391
Total	**0.0214**	**0.2242**	**0.1844**	**3.7000e-004**	**0.0832**	**9.6900e-003**	**0.0929**	**0.0422**	**8.9100e-003**	**0.0512**	**0.0000**	**32.5757**	**32.5757**	**0.0105**	**0.0000**	**32.8391**

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

3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2600e-003	8.5000e-004	8.5400e-003	2.0000e-005	1.8400e-003	1.0000e-005	1.8500e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.5668	1.5668	6.0000e-005	6.0000e-005	1.5860
Total	**1.2600e-003**	**8.5000e-004**	**8.5400e-003**	**2.0000e-005**	**1.8400e-003**	**1.0000e-005**	**1.8500e-003**	**4.9000e-004**	**1.0000e-005**	**5.0000e-004**	**0.0000**	**1.5668**	**1.5668**	**6.0000e-005**	**6.0000e-005**	**1.5860**

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	0.1830	1.6885	1.8933	3.1500e-003		0.0818	0.0818		0.0769	0.0769	0.0000	271.6887	271.6887	0.0662	0.0000	273.3433
Total	**0.1830**	**1.6885**	**1.8933**	**3.1500e-003**		**0.0818**	**0.0818**		**0.0769**	**0.0769**	**0.0000**	**271.6887**	**271.6887**	**0.0662**	**0.0000**	**273.3433**

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

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0109	0.4024	0.0775	1.2000e-003	0.0335	2.4100e-003	0.0359	9.6800e-003	2.3100e-003	0.0120	0.0000	114.6417	114.6417	4.7000e-004	0.0168	119.6728
Worker	0.1232	0.0826	0.8317	1.6600e-003	0.1793	1.3000e-003	0.1806	0.0477	1.2000e-003	0.0489	0.0000	152.6313	152.6313	6.2900e-003	5.7500e-003	154.5034
Total	**0.1341**	**0.4850**	**0.9091**	**2.8600e-003**	**0.2128**	**3.7100e-003**	**0.2165**	**0.0574**	**3.5100e-003**	**0.0609**	**0.0000**	**267.2729**	**267.2729**	**6.7600e-003**	**0.0226**	**274.1762**

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	0.1830	1.6885	1.8933	3.1500e-003		0.0818	0.0818		0.0769	0.0769	0.0000	271.6884	271.6884	0.0662	0.0000	273.3430
Total	**0.1830**	**1.6885**	**1.8933**	**3.1500e-003**		**0.0818**	**0.0818**		**0.0769**	**0.0769**	**0.0000**	**271.6884**	**271.6884**	**0.0662**	**0.0000**	**273.3430**

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

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0109	0.4024	0.0775	1.2000e-003	0.0335	2.4100e-003	0.0359	9.6800e-003	2.3100e-003	0.0120	0.0000	114.6417	114.6417	4.7000e-004	0.0168	119.6728
Worker	0.1232	0.0826	0.8317	1.6600e-003	0.1793	1.3000e-003	0.1806	0.0477	1.2000e-003	0.0489	0.0000	152.6313	152.6313	6.2900e-003	5.7500e-003	154.5034
Total	**0.1341**	**0.4850**	**0.9091**	**2.8600e-003**	**0.2128**	**3.7100e-003**	**0.2165**	**0.0574**	**3.5100e-003**	**0.0609**	**0.0000**	**267.2729**	**267.2729**	**6.7600e-003**	**0.0226**	**274.1762**

3.4 Building Construction - 2024

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	0.0539	0.4959	0.5922	9.9000e-004		0.0226	0.0226		0.0212	0.0212	0.0000	85.4053	85.4053	0.0207	0.0000	85.9226
Total	**0.0539**	**0.4959**	**0.5922**	**9.9000e-004**		**0.0226**	**0.0226**		**0.0212**	**0.0212**	**0.0000**	**85.4053**	**85.4053**	**0.0207**	**0.0000**	**85.9226**

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

3.4 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2100e-003	0.1210	0.0234	3.7000e-004	0.0105	7.2000e-004	0.0113	3.0400e-003	6.9000e-004	3.7300e-003	0.0000	35.4844	35.4844	1.4000e-004	5.1900e-003	37.0336
Worker	0.0363	0.0230	0.2373	5.1000e-004	0.0564	3.8000e-004	0.0567	0.0150	3.5000e-004	0.0153	0.0000	46.4917	46.4917	1.7800e-003	1.6600e-003	47.0303
Total	**0.0395**	**0.1440**	**0.2607**	**8.8000e-004**	**0.0669**	**1.1000e-003**	**0.0680**	**0.0180**	**1.0400e-003**	**0.0191**	**0.0000**	**81.9761**	**81.9761**	**1.9200e-003**	**6.8500e-003**	**84.0639**

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	0.0539	0.4959	0.5922	9.9000e-004		0.0226	0.0226		0.0212	0.0212	0.0000	85.4052	85.4052	0.0207	0.0000	85.9225
Total	**0.0539**	**0.4959**	**0.5922**	**9.9000e-004**		**0.0226**	**0.0226**		**0.0212**	**0.0212**	**0.0000**	**85.4052**	**85.4052**	**0.0207**	**0.0000**	**85.9225**

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

3.4 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2100e-003	0.1210	0.0234	3.7000e-004	0.0105	7.2000e-004	0.0113	3.0400e-003	6.9000e-004	3.7300e-003	0.0000	35.4844	35.4844	1.4000e-004	5.1900e-003	37.0336
Worker	0.0363	0.0230	0.2373	5.1000e-004	0.0564	3.8000e-004	0.0567	0.0150	3.5000e-004	0.0153	0.0000	46.4917	46.4917	1.7800e-003	1.6600e-003	47.0303
Total	**0.0395**	**0.1440**	**0.2607**	**8.8000e-004**	**0.0669**	**1.1000e-003**	**0.0680**	**0.0180**	**1.0400e-003**	**0.0191**	**0.0000**	**81.9761**	**81.9761**	**1.9200e-003**	**6.8500e-003**	**84.0639**

3.5 Paving - 2024

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	0.0124	0.1191	0.1828	2.9000e-004		5.8600e-003	5.8600e-003		5.3900e-003	5.3900e-003	0.0000	25.0332	25.0332	8.1000e-003	0.0000	25.2356
Paving	7.1800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0195**	**0.1191**	**0.1828**	**2.9000e-004**		**5.8600e-003**	**5.8600e-003**		**5.3900e-003**	**5.3900e-003**	**0.0000**	**25.0332**	**25.0332**	**8.1000e-003**	**0.0000**	**25.2356**

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

3.5 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1900e-003	7.5000e-004	7.7500e-003	2.0000e-005	1.8400e-003	1.0000e-005	1.8500e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.5185	1.5185	6.0000e-005	5.0000e-005	1.5361
Total	**1.1900e-003**	**7.5000e-004**	**7.7500e-003**	**2.0000e-005**	**1.8400e-003**	**1.0000e-005**	**1.8500e-003**	**4.9000e-004**	**1.0000e-005**	**5.0000e-004**	**0.0000**	**1.5185**	**1.5185**	**6.0000e-005**	**5.0000e-005**	**1.5361**

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	0.0124	0.1191	0.1828	2.9000e-004		5.8600e-003	5.8600e-003		5.3900e-003	5.3900e-003	0.0000	25.0331	25.0331	8.1000e-003	0.0000	25.2355
Paving	7.1800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0195**	**0.1191**	**0.1828**	**2.9000e-004**		**5.8600e-003**	**5.8600e-003**		**5.3900e-003**	**5.3900e-003**	**0.0000**	**25.0331**	**25.0331**	**8.1000e-003**	**0.0000**	**25.2355**

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

3.5 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1900e-003	7.5000e-004	7.7500e-003	2.0000e-005	1.8400e-003	1.0000e-005	1.8500e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.5185	1.5185	6.0000e-005	5.0000e-005	1.5361
Total	**1.1900e-003**	**7.5000e-004**	**7.7500e-003**	**2.0000e-005**	**1.8400e-003**	**1.0000e-005**	**1.8500e-003**	**4.9000e-004**	**1.0000e-005**	**5.0000e-004**	**0.0000**	**1.5185**	**1.5185**	**6.0000e-005**	**5.0000e-005**	**1.5361**

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4774					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0100e-003	0.0203	0.0302	5.0000e-005		1.0200e-003	1.0200e-003		1.0200e-003	1.0200e-003	0.0000	4.2554	4.2554	2.4000e-004	0.0000	4.2614
Total	**0.4804**	**0.0203**	**0.0302**	**5.0000e-005**		**1.0200e-003**	**1.0200e-003**		**1.0200e-003**	**1.0200e-003**	**0.0000**	**4.2554**	**4.2554**	**2.4000e-004**	**0.0000**	**4.2614**

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

3.6 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6100e-003	1.6500e-003	0.0171	4.0000e-005	4.0500e-003	3.0000e-005	4.0800e-003	1.0800e-003	3.0000e-005	1.1000e-003	0.0000	3.3407	3.3407	1.3000e-004	1.2000e-004	3.3794
Total	**2.6100e-003**	**1.6500e-003**	**0.0171**	**4.0000e-005**	**4.0500e-003**	**3.0000e-005**	**4.0800e-003**	**1.0800e-003**	**3.0000e-005**	**1.1000e-003**	**0.0000**	**3.3407**	**3.3407**	**1.3000e-004**	**1.2000e-004**	**3.3794**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4774					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0100e-003	0.0203	0.0302	5.0000e-005		1.0200e-003	1.0200e-003		1.0200e-003	1.0200e-003	0.0000	4.2554	4.2554	2.4000e-004	0.0000	4.2614
Total	**0.4804**	**0.0203**	**0.0302**	**5.0000e-005**		**1.0200e-003**	**1.0200e-003**		**1.0200e-003**	**1.0200e-003**	**0.0000**	**4.2554**	**4.2554**	**2.4000e-004**	**0.0000**	**4.2614**

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

3.6 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6100e-003	1.6500e-003	0.0171	4.0000e-005	4.0500e-003	3.0000e-005	4.0800e-003	1.0800e-003	3.0000e-005	1.1000e-003	0.0000	3.3407	3.3407	1.3000e-004	1.2000e-004	3.3794
Total	**2.6100e-003**	**1.6500e-003**	**0.0171**	**4.0000e-005**	**4.0500e-003**	**3.0000e-005**	**4.0800e-003**	**1.0800e-003**	**3.0000e-005**	**1.1000e-003**	**0.0000**	**3.3407**	**3.3407**	**1.3000e-004**	**1.2000e-004**	**3.3794**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
General Office Building	0.00	0.00	0.00		
Manufacturing	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

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

	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
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6
General Office Building	14.70	6.60	6.60	33.00	48.00	19.00	77	19	4
Manufacturing	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Parking Lot	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	14.70	6.60	6.60	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462
General Office Building	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462
Manufacturing	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462
Other Asphalt Surfaces	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462
Other Non-Asphalt Surfaces	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462
Parking Lot	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462
Unrefrigerated Warehouse-No Rail	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Tuolumne Biomass Project - Construction Only - Tuolumne County, Annual

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Tuolumne Biomass Project - Construction Only - Tuolumne County, Annual

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

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	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

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2131	1.0000e-005	1.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8100e-003	2.8100e-003	1.0000e-005	0.0000	2.9900e-003
Unmitigated	0.2131	1.0000e-005	1.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8100e-003	2.8100e-003	1.0000e-005	0.0000	2.9900e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0530					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1599					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.3000e-004	1.0000e-005	1.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8100e-003	2.8100e-003	1.0000e-005	0.0000	2.9900e-003
Total	**0.2131**	**1.0000e-005**	**1.4400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**2.8100e-003**	**2.8100e-003**	**1.0000e-005**	**0.0000**	**2.9900e-003**

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0530					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1599					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.3000e-004	1.0000e-005	1.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8100e-003	2.8100e-003	1.0000e-005	0.0000	2.9900e-003
Total	**0.2131**	**1.0000e-005**	**1.4400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**2.8100e-003**	**2.8100e-003**	**1.0000e-005**	**0.0000**	**2.9900e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

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

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

Tuolumne Biomass Project - Construction Only - Tuolumne County, Annual

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

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

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

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

Tuolumne Biomass Project - Construction Only - Tuolumne County, Annual

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

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Aerial Lifts	0	8.00	260	63	0.31	Diesel
Forklifts	0	8.00	260	89	0.20	Diesel
Off-Highway Trucks	0	8.00	260	402	0.38	Diesel
Other Material Handling Equipment	0	8.00	260	168	0.40	Diesel
Other Material Handling Equipment	0	8.00	260	168	0.40	Diesel

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

Rubber Tired Loaders	0	8.00	260	203	0.36	Diesel
Skid Steer Loaders	0	8.00	260	65	0.37	Diesel
Tractors/Loaders/Backhoes	0	8.00	260	97	0.37	Diesel
Tractors/Loaders/Backhoes	0	8.00	260	97	0.37	Diesel

UnMitigated/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
Equipment Type	tons/yr										MT/yr					
Aerial Lifts	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Forklifts	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Highway Trucks	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Material Handling Equipment	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Rubber Tired Loaders	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Skid Steer Loaders	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tractors/Loaders/Backhoes	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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

Tuolumne Biomass Project - Construction Only

Tuolumne County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1.80	1000sqft	0.04	1,800.00	0
Manufacturing	3.20	1000sqft	0.07	3,200.00	0
Unrefrigerated Warehouse-No Rail	30.00	1000sqft	0.69	30,000.00	0
Other Asphalt Surfaces	3.50	Acre	3.50	152,460.00	0
Other Asphalt Surfaces	32.20	1000sqft	0.74	32,200.00	0
Other Asphalt Surfaces	42.00	1000sqft	0.96	42,000.00	0
Other Non-Asphalt Surfaces	2.50	Acre	2.50	108,900.00	0
Other Non-Asphalt Surfaces	10.80	1000sqft	0.25	10,800.00	0
Parking Lot	31.00	Space	0.28	12,400.00	0
City Park	0.12	Acre	0.12	5,227.20	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	66
Climate Zone	1			**Operational Year**	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	0	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction only run

Land Use - landscaping=city park. unrefigerated WH #2 = shop. Merch line paving sf conservativley est. at 42,000. Gravel surfaces modeled as non-asphalt.

Construction Phase - demolition phase removed - no demolition planned in PD. Site prep start date changed to construction start date from PD "spring 2023"

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

Off-road Equipment - PD states construction is 10hr/day

Off-road Equipment - PD states construction is 10hr/day

Off-road Equipment - extra excavator added to CalEEMod default of 3 for retention pond shown in PD. Cosntruction hours based on statement in PD

Off-road Equipment - PD states construction is 10hr/day. additional excavator added to account for proposed retention pond

Off-road Equipment - PD states construction is 10hr/day

Off-road Equipment - PD states construction is 10hr/day

Trips and VMT - building construction hauling trips: client estimated 25/30 total truck deliveries, left as CalEEMod default as conservative est.

Grading - PD states site is 17 acres, with 2 acres having been graded previously for previous land use

Architectural Coating - adjusted to parking area size

Vehicle Trips - Construction only run - Operational trips calculated separately

Vehicle Emission Factors - EMFAC 2021 Vehicle Emissions Data

Vehicle Emission Factors - EMFAC 2021 Vehicle Emissions Data

Vehicle Emission Factors - EMFAC 2021 Vehicle Emisisons data

Energy Use - Construction run only - energy use calculated separately

Water And Wastewater - Construction run only

Solid Waste - Construction Run only

Operational Off-Road Equipment -

Stationary Sources - Emergency Generators and Fire Pumps -

Stationary Sources - User Defined -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	21,526.00	12,400.00
tblEnergyUse	LightingElect	3.45	0.00
tblEnergyUse	LightingElect	1.81	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	NT24E	3.98	0.00
tblEnergyUse	NT24E	1.85	0.00
tblEnergyUse	NT24NG	0.31	0.00
tblEnergyUse	T24E	3.25	0.00

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

tblEnergyUse	T24E	0.56	0.00
tblEnergyUse	T24NG	19.34	0.00
tblEnergyUse	T24NG	3.17	0.00
tblGrading	AcresOfGrading	25.00	15.00
tblOffRoadEquipment	UsageHours	6.00	10.00
tblOffRoadEquipment	UsageHours	7.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	7.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	203.98	0
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	0.01	0.00
tblSolidWaste	SolidWasteGenerationRate	1.67	0.00
tblSolidWaste	SolidWasteGenerationRate	3.97	0.00
tblSolidWaste	SolidWasteGenerationRate	28.20	0.00
tblVehicleEF	HHD	919.08	919.08
tblVehicleEF	LDA	0.73	0.73

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

tblVehicleEF	LDA	2.47	2.48
tblVehicleEF	LDA	255.49	260.73
tblVehicleEF	LDA	53.00	54.10
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.21	0.21
tblVehicleEF	LDA	1.6990e-003	1.7070e-003
tblVehicleEF	LDA	1.9760e-003	1.9860e-003
tblVehicleEF	LDA	1.5670e-003	1.5740e-003
tblVehicleEF	LDA	1.8170e-003	1.8260e-003
tblVehicleEF	LDA	0.06	0.06
tblVehicleEF	LDA	0.16	0.16
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.29	0.29
tblVehicleEF	LDA	0.06	0.06
tblVehicleEF	LDA	0.16	0.16
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.32	0.32
tblVehicleEF	LDA	0.85	0.86
tblVehicleEF	LDA	1.76	1.77
tblVehicleEF	LDA	275.54	281.19
tblVehicleEF	LDA	51.65	52.71
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.18	0.18
tblVehicleEF	LDA	1.6990e-003	1.7070e-003
tblVehicleEF	LDA	1.9760e-003	1.9860e-003

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

tblVehicleEF	LDA	1.5670e-003	1.5740e-003
tblVehicleEF	LDA	1.8170e-003	1.8260e-003
tblVehicleEF	LDA	0.15	0.15
tblVehicleEF	LDA	0.19	0.19
tblVehicleEF	LDA	0.15	0.15
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.23	0.23
tblVehicleEF	LDA	0.15	0.15
tblVehicleEF	LDA	0.19	0.19
tblVehicleEF	LDA	0.15	0.15
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.25	0.25
tblVehicleEF	LDA	0.71	0.71
tblVehicleEF	LDA	2.94	2.95
tblVehicleEF	LDA	251.14	256.29
tblVehicleEF	LDA	53.90	55.02
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.23	0.23
tblVehicleEF	LDA	1.6990e-003	1.7070e-003
tblVehicleEF	LDA	1.9760e-003	1.9860e-003
tblVehicleEF	LDA	1.5670e-003	1.5740e-003
tblVehicleEF	LDA	1.8170e-003	1.8260e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.17	0.17
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.04

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

tblVehicleEF	LDA	0.34	0.34
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.17	0.17
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.37	0.37
tblVehicleEF	LDT1	2.08	2.09
tblVehicleEF	LDT1	3.12	3.14
tblVehicleEF	LDT1	325.34	332.07
tblVehicleEF	LDT1	70.80	72.27
tblVehicleEF	LDT1	0.21	0.21
tblVehicleEF	LDT1	0.45	0.45
tblVehicleEF	LDT1	2.9960e-003	3.0110e-003
tblVehicleEF	LDT1	3.8360e-003	3.8560e-003
tblVehicleEF	LDT1	2.7570e-003	2.7710e-003
tblVehicleEF	LDT1	3.5270e-003	3.5450e-003
tblVehicleEF	LDT1	0.23	0.23
tblVehicleEF	LDT1	0.54	0.54
tblVehicleEF	LDT1	0.18	0.18
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.29	0.29
tblVehicleEF	LDT1	0.76	0.76
tblVehicleEF	LDT1	0.23	0.23
tblVehicleEF	LDT1	0.54	0.54
tblVehicleEF	LDT1	0.18	0.18
tblVehicleEF	LDT1	0.08	0.08
tblVehicleEF	LDT1	0.29	0.29
tblVehicleEF	LDT1	0.83	0.83

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

tblVehicleEF	LDT1	2.39	2.40
tblVehicleEF	LDT1	2.18	2.19
tblVehicleEF	LDT1	347.43	354.61
tblVehicleEF	LDT1	68.68	70.10
tblVehicleEF	LDT1	0.17	0.17
tblVehicleEF	LDT1	0.39	0.39
tblVehicleEF	LDT1	2.9960e-003	3.0110e-003
tblVehicleEF	LDT1	3.8360e-003	3.8560e-003
tblVehicleEF	LDT1	2.7570e-003	2.7710e-003
tblVehicleEF	LDT1	3.5270e-003	3.5450e-003
tblVehicleEF	LDT1	0.63	0.63
tblVehicleEF	LDT1	0.64	0.65
tblVehicleEF	LDT1	0.53	0.53
tblVehicleEF	LDT1	0.06	0.06
tblVehicleEF	LDT1	0.27	0.27
tblVehicleEF	LDT1	0.57	0.57
tblVehicleEF	LDT1	0.63	0.63
tblVehicleEF	LDT1	0.64	0.65
tblVehicleEF	LDT1	0.53	0.53
tblVehicleEF	LDT1	0.09	0.09
tblVehicleEF	LDT1	0.27	0.27
tblVehicleEF	LDT1	0.62	0.63
tblVehicleEF	LDT1	2.04	2.05
tblVehicleEF	LDT1	3.75	3.77
tblVehicleEF	LDT1	320.57	327.21
tblVehicleEF	LDT1	72.22	73.71
tblVehicleEF	LDT1	0.23	0.23
tblVehicleEF	LDT1	0.50	0.50
tblVehicleEF	LDT1	2.9960e-003	3.0110e-003

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

tblVehicleEF	LDT1	3.8360e-003	3.8560e-003
tblVehicleEF	LDT1	2.7570e-003	2.7710e-003
tblVehicleEF	LDT1	3.5270e-003	3.5450e-003
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.57	0.57
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.35	0.35
tblVehicleEF	LDT1	0.89	0.89
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.57	0.57
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.08	0.08
tblVehicleEF	LDT1	0.35	0.35
tblVehicleEF	LDT1	0.97	0.97
tblVehicleEF	LDT2	1.34	1.34
tblVehicleEF	LDT2	3.38	3.40
tblVehicleEF	LDT2	346.81	353.95
tblVehicleEF	LDT2	75.15	76.70
tblVehicleEF	LDT2	0.15	0.15
tblVehicleEF	LDT2	0.45	0.45
tblVehicleEF	LDT2	1.9100e-003	1.9200e-003
tblVehicleEF	LDT2	2.2850e-003	2.2970e-003
tblVehicleEF	LDT2	1.7580e-003	1.7670e-003
tblVehicleEF	LDT2	2.1010e-003	2.1120e-003
tblVehicleEF	LDT2	0.12	0.12
tblVehicleEF	LDT2	0.31	0.31
tblVehicleEF	LDT2	0.11	0.11
tblVehicleEF	LDT2	0.03	0.03

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

tblVehicleEF	LDT2	0.15	0.15
tblVehicleEF	LDT2	0.56	0.56
tblVehicleEF	LDT2	0.12	0.12
tblVehicleEF	LDT2	0.31	0.31
tblVehicleEF	LDT2	0.11	0.11
tblVehicleEF	LDT2	0.04	0.05
tblVehicleEF	LDT2	0.15	0.15
tblVehicleEF	LDT2	0.61	0.61
tblVehicleEF	LDT2	1.55	1.56
tblVehicleEF	LDT2	2.40	2.41
tblVehicleEF	LDT2	368.56	376.15
tblVehicleEF	LDT2	73.14	74.66
tblVehicleEF	LDT2	0.13	0.13
tblVehicleEF	LDT2	0.39	0.39
tblVehicleEF	LDT2	1.9100e-003	1.9200e-003
tblVehicleEF	LDT2	2.2850e-003	2.2970e-003
tblVehicleEF	LDT2	1.7580e-003	1.7670e-003
tblVehicleEF	LDT2	2.1010e-003	2.1120e-003
tblVehicleEF	LDT2	0.32	0.32
tblVehicleEF	LDT2	0.35	0.35
tblVehicleEF	LDT2	0.31	0.31
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.14	0.14
tblVehicleEF	LDT2	0.43	0.43
tblVehicleEF	LDT2	0.32	0.32
tblVehicleEF	LDT2	0.35	0.35
tblVehicleEF	LDT2	0.31	0.31
tblVehicleEF	LDT2	0.05	0.05
tblVehicleEF	LDT2	0.14	0.14

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

tblVehicleEF	LDT2	0.47	0.47
tblVehicleEF	LDT2	1.31	1.31
tblVehicleEF	LDT2	4.04	4.06
tblVehicleEF	LDT2	342.10	349.15
tblVehicleEF	LDT2	76.49	78.07
tblVehicleEF	LDT2	0.17	0.17
tblVehicleEF	LDT2	0.50	0.50
tblVehicleEF	LDT2	1.9100e-003	1.9200e-003
tblVehicleEF	LDT2	2.2850e-003	2.2970e-003
tblVehicleEF	LDT2	1.7580e-003	1.7670e-003
tblVehicleEF	LDT2	2.1010e-003	2.1120e-003
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.32	0.32
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.18	0.18
tblVehicleEF	LDT2	0.65	0.65
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.32	0.32
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.18	0.18
tblVehicleEF	LDT2	0.71	0.71
tblVehicleEF	LHD2	739.26	739.26
tblVehicleEF	MDV	1.56	1.56
tblVehicleEF	MDV	4.19	4.21
tblVehicleEF	MDV	426.55	435.14
tblVehicleEF	MDV	91.00	92.88
tblVehicleEF	MDV	0.19	0.19

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

tblVehicleEF	MDV	0.53	0.53
tblVehicleEF	MDV	2.2300e-003	2.2400e-003
tblVehicleEF	MDV	2.6450e-003	2.6580e-003
tblVehicleEF	MDV	2.0610e-003	2.0700e-003
tblVehicleEF	MDV	2.4320e-003	2.4440e-003
tblVehicleEF	MDV	0.14	0.14
tblVehicleEF	MDV	0.36	0.36
tblVehicleEF	MDV	0.13	0.13
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.18	0.18
tblVehicleEF	MDV	0.71	0.71
tblVehicleEF	MDV	0.14	0.14
tblVehicleEF	MDV	0.36	0.36
tblVehicleEF	MDV	0.13	0.13
tblVehicleEF	MDV	0.06	0.06
tblVehicleEF	MDV	0.18	0.18
tblVehicleEF	MDV	0.78	0.78
tblVehicleEF	MDV	1.79	1.80
tblVehicleEF	MDV	2.95	2.96
tblVehicleEF	MDV	449.44	458.51
tblVehicleEF	MDV	88.45	90.28
tblVehicleEF	MDV	0.16	0.16
tblVehicleEF	MDV	0.45	0.45
tblVehicleEF	MDV	2.2300e-003	2.2400e-003
tblVehicleEF	MDV	2.6450e-003	2.6580e-003
tblVehicleEF	MDV	2.0610e-003	2.0700e-003
tblVehicleEF	MDV	2.4320e-003	2.4440e-003
tblVehicleEF	MDV	0.37	0.37
tblVehicleEF	MDV	0.41	0.41

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

tblVehicleEF	MDV	0.37	0.37
tblVehicleEF	MDV	0.05	0.05
tblVehicleEF	MDV	0.16	0.16
tblVehicleEF	MDV	0.54	0.54
tblVehicleEF	MDV	0.37	0.37
tblVehicleEF	MDV	0.41	0.41
tblVehicleEF	MDV	0.37	0.37
tblVehicleEF	MDV	0.07	0.07
tblVehicleEF	MDV	0.16	0.16
tblVehicleEF	MDV	0.59	0.59
tblVehicleEF	MDV	1.53	1.54
tblVehicleEF	MDV	5.03	5.05
tblVehicleEF	MDV	421.60	430.10
tblVehicleEF	MDV	92.71	94.63
tblVehicleEF	MDV	0.21	0.21
tblVehicleEF	MDV	0.58	0.58
tblVehicleEF	MDV	2.2300e-003	2.2400e-003
tblVehicleEF	MDV	2.6450e-003	2.6580e-003
tblVehicleEF	MDV	2.0610e-003	2.0700e-003
tblVehicleEF	MDV	2.4320e-003	2.4440e-003
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.37	0.37
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.22	0.22
tblVehicleEF	MDV	0.83	0.83
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.37	0.37
tblVehicleEF	MDV	0.03	0.03

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

tblVehicleEF	MDV	0.06	0.06
tblVehicleEF	MDV	0.22	0.22
tblVehicleEF	MDV	0.90	0.90
tblVehicleEF	SBUS	3.1000e-003	3.0990e-003
tblVehicleEF	SBUS	339.91	339.91
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	2.21	0.00
tblVehicleTrips	ST_TR	6.42	0.00
tblVehicleTrips	ST_TR	1.74	0.00
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	0.70	0.00
tblVehicleTrips	SU_TR	5.09	0.00
tblVehicleTrips	SU_TR	1.74	0.00
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	9.74	0.00
tblVehicleTrips	WD_TR	3.93	0.00
tblVehicleTrips	WD_TR	1.74	0.00
tblWater	IndoorWaterUseRate	319,920.75	0.00
tblWater	IndoorWaterUseRate	740,000.00	0.00
tblWater	IndoorWaterUseRate	6,937,500.00	0.00
tblWater	OutdoorWaterUseRate	142,977.76	0.00
tblWater	OutdoorWaterUseRate	196,080.46	0.00

2.0 Emissions Summary

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	3.7098	34.4904	33.0033	0.0701	24.8012	1.5841	26.3853	12.6890	1.4574	14.1464	0.0000	6,924.2455	6,924.2455	1.4990	0.2763	7,029.4869
2024	48.3181	22.9361	31.8922	0.0693	2.5289	0.8605	3.3894	0.6795	0.8085	1.4879	0.0000	6,839.3109	6,839.3109	0.9039	0.2667	6,941.3803
Maximum	**48.3181**	**34.4904**	**33.0033**	**0.0701**	**24.8012**	**1.5841**	**26.3853**	**12.6890**	**1.4574**	**14.1464**	**0.0000**	**6,924.2455**	**6,924.2455**	**1.4990**	**0.2763**	**7,029.4869**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	3.7098	34.4904	33.0033	0.0701	24.8012	1.5841	26.3853	12.6890	1.4574	14.1464	0.0000	6,924.2455	6,924.2455	1.4990	0.2763	7,029.4869
2024	48.3181	22.9361	31.8922	0.0693	2.5289	0.8605	3.3894	0.6795	0.8085	1.4879	0.0000	6,839.3109	6,839.3109	0.9039	0.2667	6,941.3803
Maximum	**48.3181**	**34.4904**	**33.0033**	**0.0701**	**24.8012**	**1.5841**	**26.3853**	**12.6890**	**1.4574**	**14.1464**	**0.0000**	**6,924.2455**	**6,924.2455**	**1.4990**	**0.2763**	**7,029.4869**

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.1684	1.5000e-004	0.0160	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0344	0.0344	9.0000e-005		0.0366
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**1.1684**	**1.5000e-004**	**0.0160**	**0.0000**	**0.0000**	**6.0000e-005**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0344**	**0.0344**	**9.0000e-005**	**0.0000**	**0.0366**

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.1684	1.5000e-004	0.0160	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0344	0.0344	9.0000e-005		0.0366
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**1.1684**	**1.5000e-004**	**0.0160**	**0.0000**	**0.0000**	**6.0000e-005**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0344**	**0.0344**	**9.0000e-005**	**0.0000**	**0.0366**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/20/2023	3/31/2023	5	10	
2	Grading	Grading	4/1/2023	4/28/2023	5	20	
3	Building Construction	Building Construction	4/29/2023	3/15/2024	5	230	
4	Paving	Paving	3/16/2024	4/12/2024	5	20	

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

5	Architectural Coating	Architectural Coating	4/13/2024	5/10/2024	5	20	

Acres of Grading (Site Preparation Phase): 18.75

Acres of Grading (Grading Phase): 15

Acres of Paving: 8.23

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 52,500; Non-Residential Outdoor: 17,500; Striped Parking Area: 12,400 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	10.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	10.00	97	0.37
Grading	Excavators	1	10.00	158	0.38
Grading	Graders	1	10.00	187	0.41
Grading	Rubber Tired Dozers	1	10.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	10.00	97	0.37
Building Construction	Cranes	1	10.00	231	0.29
Building Construction	Forklifts	3	10.00	89	0.20
Building Construction	Generator Sets	1	10.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	10.00	97	0.37
Building Construction	Welders	1	10.00	46	0.45
Paving	Pavers	2	10.00	130	0.42
Paving	Paving Equipment	2	10.00	132	0.36
Paving	Rollers	2	10.00	80	0.38
Architectural Coating	Air Compressors	1	10.00	78	0.48

Trips and VMT

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	167.00	65.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	33.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					24.5713	0.0000	24.5713	12.6281	0.0000	12.6281			0.0000			0.0000
Off-Road	3.3243	34.4052	22.8054	0.0476		1.5825	1.5825		1.4559	1.4559		4,609.1351	4,609.1351	1.4907		4,646.4023
Total	**3.3243**	**34.4052**	**22.8054**	**0.0476**	**24.5713**	**1.5825**	**26.1538**	**12.6281**	**1.4559**	**14.0840**		**4,609.1351**	**4,609.1351**	**1.4907**		**4,646.4023**

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1610	0.0852	1.1316	2.1900e-003	0.2299	1.6000e-003	0.2315	0.0610	1.4800e-003	0.0625		221.7320	221.7320	8.2700e-003	6.9300e-003	224.0041
Total	**0.1610**	**0.0852**	**1.1316**	**2.1900e-003**	**0.2299**	**1.6000e-003**	**0.2315**	**0.0610**	**1.4800e-003**	**0.0625**		**221.7320**	**221.7320**	**8.2700e-003**	**6.9300e-003**	**224.0041**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					24.5713	0.0000	24.5713	12.6281	0.0000	12.6281			0.0000			0.0000
Off-Road	3.3243	34.4052	22.8054	0.0476		1.5825	1.5825		1.4559	1.4559	0.0000	4,609.1351	4,609.1351	1.4907		4,646.4023
Total	**3.3243**	**34.4052**	**22.8054**	**0.0476**	**24.5713**	**1.5825**	**26.1538**	**12.6281**	**1.4559**	**14.0840**	**0.0000**	**4,609.1351**	**4,609.1351**	**1.4907**		**4,646.4023**

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1610	0.0852	1.1316	2.1900e-003	0.2299	1.6000e-003	0.2315	0.0610	1.4800e-003	0.0625		221.7320	221.7320	8.2700e-003	6.9300e-003	224.0041
Total	**0.1610**	**0.0852**	**1.1316**	**2.1900e-003**	**0.2299**	**1.6000e-003**	**0.2315**	**0.0610**	**1.4800e-003**	**0.0625**		**221.7320**	**221.7320**	**8.2700e-003**	**6.9300e-003**	**224.0041**

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	lb/day										lb/day					
Fugitive Dust					8.3230	0.0000	8.3230	4.2237	0.0000	4.2237			0.0000			0.0000
Off-Road	2.1386	22.4198	18.4384	0.0371		0.9687	0.9687		0.8912	0.8912		3,590.8637	3,590.8637	1.1614		3,619.8977
Total	**2.1386**	**22.4198**	**18.4384**	**0.0371**	**8.3230**	**0.9687**	**9.2916**	**4.2237**	**0.8912**	**5.1148**		**3,590.8637**	**3,590.8637**	**1.1614**		**3,619.8977**

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1341	0.0710	0.9430	1.8300e-003	0.1916	1.3400e-003	0.1929	0.0508	1.2300e-003	0.0520		184.7767	184.7767	6.8900e-003	5.7800e-003	186.6701
Total	**0.1341**	**0.0710**	**0.9430**	**1.8300e-003**	**0.1916**	**1.3400e-003**	**0.1929**	**0.0508**	**1.2300e-003**	**0.0520**		**184.7767**	**184.7767**	**6.8900e-003**	**5.7800e-003**	**186.6701**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.3230	0.0000	8.3230	4.2237	0.0000	4.2237			0.0000			0.0000
Off-Road	2.1386	22.4198	18.4384	0.0371		0.9687	0.9687		0.8912	0.8912	0.0000	3,590.8637	3,590.8637	1.1614		3,619.8977
Total	**2.1386**	**22.4198**	**18.4384**	**0.0371**	**8.3230**	**0.9687**	**9.2916**	**4.2237**	**0.8912**	**5.1148**	**0.0000**	**3,590.8637**	**3,590.8637**	**1.1614**		**3,619.8977**

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1341	0.0710	0.9430	1.8300e-003	0.1916	1.3400e-003	0.1929	0.0508	1.2300e-003	0.0520		184.7767	184.7767	6.8900e-003	5.7800e-003	186.6701
Total	**0.1341**	**0.0710**	**0.9430**	**1.8300e-003**	**0.1916**	**1.3400e-003**	**0.1929**	**0.0508**	**1.2300e-003**	**0.0520**		**184.7767**	**184.7767**	**6.8900e-003**	**5.7800e-003**	**186.6701**

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	lb/day										lb/day					
Off-Road	2.0918	19.2971	21.6376	0.0360		0.9351	0.9351		0.8786	0.8786		3,422.6919	3,422.6919	0.8338		3,443.5361
Total	**2.0918**	**19.2971**	**21.6376**	**0.0360**		**0.9351**	**0.9351**		**0.8786**	**0.8786**		**3,422.6919**	**3,422.6919**	**0.8338**		**3,443.5361**

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1247	4.3924	0.8673	0.0137	0.3958	0.0275	0.4232	0.1138	0.0263	0.1400		1,444.3736	1,444.3736	5.9200e-003	0.2120	1,507.6905
Worker	1.4933	0.7904	10.4984	0.0204	2.1331	0.0149	2.1480	0.5657	0.0137	0.5794		2,057.1800	2,057.1800	0.0767	0.0643	2,078.2604
Total	**1.6180**	**5.1828**	**11.3657**	**0.0340**	**2.5289**	**0.0423**	**2.5712**	**0.6795**	**0.0400**	**0.7194**		**3,501.5536**	**3,501.5536**	**0.0826**	**0.2763**	**3,585.9509**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0918	19.2971	21.6376	0.0360		0.9351	0.9351		0.8786	0.8786	0.0000	3,422.6919	3,422.6919	0.8338		3,443.5361
Total	**2.0918**	**19.2971**	**21.6376**	**0.0360**		**0.9351**	**0.9351**		**0.8786**	**0.8786**	**0.0000**	**3,422.6919**	**3,422.6919**	**0.8338**		**3,443.5361**

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1247	4.3924	0.8673	0.0137	0.3958	0.0275	0.4232	0.1138	0.0263	0.1400		1,444.3736	1,444.3736	5.9200e-003	0.2120	1,507.6905
Worker	1.4933	0.7904	10.4984	0.0204	2.1331	0.0149	2.1480	0.5657	0.0137	0.5794		2,057.1800	2,057.1800	0.0767	0.0643	2,078.2604
Total	**1.6180**	**5.1828**	**11.3657**	**0.0340**	**2.5289**	**0.0423**	**2.5712**	**0.6795**	**0.0400**	**0.7194**		**3,501.5536**	**3,501.5536**	**0.0826**	**0.2763**	**3,585.9509**

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9588	18.0311	21.5338	0.0361		0.8206	0.8206		0.7708	0.7708		3,423.3904	3,423.3904	0.8294		3,444.1261
Total	**1.9588**	**18.0311**	**21.5338**	**0.0361**		**0.8206**	**0.8206**		**0.7708**	**0.7708**		**3,423.3904**	**3,423.3904**	**0.8294**		**3,444.1261**

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

3.4 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1173	4.2043	0.8337	0.0135	0.3958	0.0261	0.4219	0.1138	0.0250	0.1388		1,422.4165	1,422.4165	5.5800e-003	0.2077	1,484.4498
Worker	1.3983	0.7007	9.5247	0.0197	2.1331	0.0138	2.1469	0.5657	0.0128	0.5784		1,993.5039	1,993.5039	0.0688	0.0590	2,012.8044
Total	**1.5156**	**4.9050**	**10.3584**	**0.0332**	**2.5289**	**0.0399**	**2.5689**	**0.6795**	**0.0377**	**0.7172**		**3,415.9204**	**3,415.9204**	**0.0744**	**0.2667**	**3,497.2542**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9588	18.0311	21.5338	0.0361		0.8206	0.8206		0.7708	0.7708	0.0000	3,423.3904	3,423.3904	0.8294		3,444.1261
Total	**1.9588**	**18.0311**	**21.5338**	**0.0361**		**0.8206**	**0.8206**		**0.7708**	**0.7708**	**0.0000**	**3,423.3904**	**3,423.3904**	**0.8294**		**3,444.1261**

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

3.4 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1173	4.2043	0.8337	0.0135	0.3958	0.0261	0.4219	0.1138	0.0250	0.1388		1,422.4165	1,422.4165	5.5800e-003	0.2077	1,484.4498
Worker	1.3983	0.7007	9.5247	0.0197	2.1331	0.0138	2.1469	0.5657	0.0128	0.5784		1,993.5039	1,993.5039	0.0688	0.0590	2,012.8044
Total	**1.5156**	**4.9050**	**10.3584**	**0.0332**	**2.5289**	**0.0399**	**2.5689**	**0.6795**	**0.0377**	**0.7172**		**3,415.9204**	**3,415.9204**	**0.0744**	**0.2667**	**3,497.2542**

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2352	11.9057	18.2822	0.0285		0.5857	0.5857		0.5388	0.5388		2,759.4340	2,759.4340	0.8925		2,781.7454
Paving	0.7179					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.9531**	**11.9057**	**18.2822**	**0.0285**		**0.5857**	**0.5857**		**0.5388**	**0.5388**		**2,759.4340**	**2,759.4340**	**0.8925**		**2,781.7454**

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

3.5 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1256	0.0629	0.8555	1.7700e-003	0.1916	1.2400e-003	0.1928	0.0508	1.1500e-003	0.0520		179.0572	179.0572	6.1800e-003	5.3000e-003	180.7908
Total	**0.1256**	**0.0629**	**0.8555**	**1.7700e-003**	**0.1916**	**1.2400e-003**	**0.1928**	**0.0508**	**1.1500e-003**	**0.0520**		**179.0572**	**179.0572**	**6.1800e-003**	**5.3000e-003**	**180.7908**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2352	11.9057	18.2822	0.0285		0.5857	0.5857		0.5388	0.5388	0.0000	2,759.4340	2,759.4340	0.8925		2,781.7454
Paving	0.7179					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.9531**	**11.9057**	**18.2822**	**0.0285**		**0.5857**	**0.5857**		**0.5388**	**0.5388**	**0.0000**	**2,759.4340**	**2,759.4340**	**0.8925**		**2,781.7454**

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

3.5 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1256	0.0629	0.8555	1.7700e-003	0.1916	1.2400e-003	0.1928	0.0508	1.1500e-003	0.0520		179.0572	179.0572	6.1800e-003	5.3000e-003	180.7908
Total	**0.1256**	**0.0629**	**0.8555**	**1.7700e-003**	**0.1916**	**1.2400e-003**	**0.1928**	**0.0508**	**1.1500e-003**	**0.0520**		**179.0572**	**179.0572**	**6.1800e-003**	**5.3000e-003**	**180.7908**

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	47.7405					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3013	2.0313	3.0169	4.9500e-003		0.1015	0.1015		0.1015	0.1015		469.0801	469.0801	0.0264		469.7404
Total	**48.0418**	**2.0313**	**3.0169**	**4.9500e-003**		**0.1015**	**0.1015**		**0.1015**	**0.1015**		**469.0801**	**469.0801**	**0.0264**		**469.7404**

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

3.6 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.2763	0.1385	1.8821	3.9000e-003	0.4215	2.7400e-003	0.4243	0.1118	2.5200e-003	0.1143		393.9259	393.9259	0.0136	0.0117	397.7398
Total	**0.2763**	**0.1385**	**1.8821**	**3.9000e-003**	**0.4215**	**2.7400e-003**	**0.4243**	**0.1118**	**2.5200e-003**	**0.1143**		**393.9259**	**393.9259**	**0.0136**	**0.0117**	**397.7398**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	47.7405					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3013	2.0313	3.0169	4.9500e-003		0.1015	0.1015		0.1015	0.1015	0.0000	469.0801	469.0801	0.0264		469.7404
Total	**48.0418**	**2.0313**	**3.0169**	**4.9500e-003**		**0.1015**	**0.1015**		**0.1015**	**0.1015**	**0.0000**	**469.0801**	**469.0801**	**0.0264**		**469.7404**

3.6 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.2763	0.1385	1.8821	3.9000e-003	0.4215	2.7400e-003	0.4243	0.1118	2.5200e-003	0.1143		393.9259	393.9259	0.0136	0.0117	397.7398
Total	**0.2763**	**0.1385**	**1.8821**	**3.9000e-003**	**0.4215**	**2.7400e-003**	**0.4243**	**0.1118**	**2.5200e-003**	**0.1143**		**393.9259**	**393.9259**	**0.0136**	**0.0117**	**397.7398**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
General Office Building	0.00	0.00	0.00		
Manufacturing	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

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

	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
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6
General Office Building	14.70	6.60	6.60	33.00	48.00	19.00	77	19	4
Manufacturing	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Parking Lot	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	14.70	6.60	6.60	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462
General Office Building	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462
Manufacturing	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462
Other Asphalt Surfaces	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462
Other Non-Asphalt Surfaces	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462
Parking Lot	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462
Unrefrigerated Warehouse-No Rail	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.1684	1.5000e-004	0.0160	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0344	0.0344	9.0000e-005		0.0366
Unmitigated	1.1684	1.5000e-004	0.0160	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0344	0.0344	9.0000e-005		0.0366

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2906					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.8763					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.4800e-003	1.5000e-004	0.0160	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0344	0.0344	9.0000e-005		0.0366
Total	**1.1684**	**1.5000e-004**	**0.0160**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**		**0.0344**	**0.0344**	**9.0000e-005**		**0.0366**

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2906					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.8763					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.4800e-003	1.5000e-004	0.0160	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0344	0.0344	9.0000e-005		0.0366
Total	**1.1684**	**1.5000e-004**	**0.0160**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**		**0.0344**	**0.0344**	**9.0000e-005**		**0.0366**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Aerial Lifts	0	8.00	260	63	0.31	Diesel
Forklifts	0	8.00	260	89	0.20	Diesel
Off-Highway Trucks	0	8.00	260	402	0.38	Diesel

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

Other Material Handling Equipment	0	8.00	260	168	0.40	Diesel
Other Material Handling Equipment	0	8.00	260	168	0.40	Diesel
Rubber Tired Loaders	0	8.00	260	203	0.36	Diesel
Skid Steer Loaders	0	8.00	260	65	0.37	Diesel
Tractors/Loaders/Backhoes	0	8.00	260	97	0.37	Diesel
Tractors/Loaders/Backhoes	0	8.00	260	97	0.37	Diesel

UnMitigated/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
Equipment Type	lb/day										lb/day					
Aerial Lifts	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Forklifts	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Off-Highway Trucks	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Other Material Handling Equipment	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Rubber Tired Loaders	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Skid Steer Loaders	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Tractors/Loaders/ Backhoes	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Tuolumne Biomass Project - Construction Only - Tuolumne County, Summer

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

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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

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1.0 Project Characteristics

1.1 Land Usage

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

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	66
Climate Zone	1			**Operational Year**	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	134.44	**CH4 Intensity (lb/MWhr)**	33.46	**N2O Intensity (lb/MWhr)**	3.94

1.3 User Entered Comments & Non-Default Data

Project Characteristics - This run is for on-site operational Tier 4 off-road equipment and elecricity use only. PGE factors interpolated from 2020 EFs and a zero EF in 2045 (SB100)

Land Use - Left blank - operational run

Construction Phase - Due to the limitations of CalEEMod, Tier 4 on-site operational equipment is modeled in the construction run.

Off-road Equipment - Unit amount, hours/day and HP sourced from client-provided equipment list

Energy Use - This run is for on-site Tier 4 off-road equipment only.

Construction Off-road Equipment Mitigation - Client confirmed all operational equipment will be Tier 4

Operational Off-Road Equipment - .

Trips and VMT - All construction trips zeroed. This run is for on-site Tier 4 off-road equipment only.

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0

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tblAreaCoating	Area_Nonresidential_Exterior	500	0
tblAreaCoating	Area_Nonresidential_Interior	1500	0
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintResidentialExteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintResidentialInteriorValue	250	0
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	1.00	260.00
tblEnergyUse	LightingElect	1.81	0.00
tblEnergyUse	NT24E	1.85	0.00
tblEnergyUse	NT24NG	0.31	0.00
tblEnergyUse	T24E	0.56	216.00
tblEnergyUse	T24NG	3.17	0.00
tblOffRoadEquipment	HorsePower	63.00	82.00
tblOffRoadEquipment	HorsePower	89.00	62.00
tblOffRoadEquipment	HorsePower	168.00	225.00
tblOffRoadEquipment	HorsePower	168.00	74.00

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tblOffRoadEquipment	HorsePower	203.00	172.00
tblOffRoadEquipment	HorsePower	65.00	51.00
tblOffRoadEquipment	HorsePower	97.00	55.00
tblOffRoadEquipment	HorsePower	97.00	48.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	33.46
tblProjectCharacteristics	CO2IntensityFactor	203.98	134.44
tblProjectCharacteristics	N2OIntensityFactor	0.004	3.94
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	VendorTripLength	6.60	0.00
tblTripsAndVMT	WorkerTripLength	16.80	0.00
tblTripsAndVMT	WorkerTripNumber	25.00	0.00

2.0 Emissions Summary

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

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0822	0.7133	0.7273	1.5500e-003	0.0000	0.0305	0.0305	0.0000	0.0280	0.0280	0.0000	136.2342	136.2342	0.0441	0.0000	137.3357
Maximum	**0.0822**	**0.7133**	**0.7273**	**1.5500e-003**	**0.0000**	**0.0305**	**0.0305**	**0.0000**	**0.0280**	**0.0280**	**0.0000**	**136.2342**	**136.2342**	**0.0441**	**0.0000**	**137.3357**

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					
2023	0.0473	0.3562	0.9228	1.5500e-003	0.0000	0.0144	0.0144	0.0000	0.0134	0.0134	0.0000	136.2340	136.2340	0.0441	0.0000	137.3356
Maximum	**0.0473**	**0.3562**	**0.9228**	**1.5500e-003**	**0.0000**	**0.0144**	**0.0144**	**0.0000**	**0.0134**	**0.0134**	**0.0000**	**136.2340**	**136.2340**	**0.0441**	**0.0000**	**137.3356**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**42.52**	**50.07**	**-26.88**	**0.00**	**0.00**	**52.72**	**52.72**	**0.00**	**52.21**	**52.21**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	3-20-2023	6-19-2023	0.2011	0.1020
2	6-20-2023	9-19-2023	0.2011	0.1020
3	9-20-2023	9-30-2023	0.0240	0.0122
		Highest	0.2011	0.1020

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	3.9100e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	13.1719	13.1719	3.2783	0.3860	210.1643
Mobile	5.3700e-003	8.5700e-003	0.0481	7.0000e-005	6.3800e-003	9.0000e-005	6.4700e-003	1.7100e-003	9.0000e-005	1.8000e-003	0.0000	6.4767	6.4767	5.7000e-004	3.9000e-004	6.6060
Offroad	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.2517	0.0000	0.2517	0.0149	0.0000	0.6236
Water						0.0000	0.0000		0.0000	0.0000	0.0734	0.0763	0.1497	0.0265	2.4100e-003	1.5323
Total	**9.2800e-003**	**8.5700e-003**	**0.0481**	**7.0000e-005**	**6.3800e-003**	**9.0000e-005**	**6.4700e-003**	**1.7100e-003**	**9.0000e-005**	**1.8000e-003**	**0.3251**	**19.7250**	**20.0500**	**3.3203**	**0.3888**	**218.9262**

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

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.9100e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	13.1719	13.1719	3.2783	0.3860	210.1643
Mobile	5.3700e-003	8.5700e-003	0.0481	7.0000e-005	6.3800e-003	9.0000e-005	6.4700e-003	1.7100e-003	9.0000e-005	1.8000e-003	0.0000	6.4767	6.4767	5.7000e-004	3.9000e-004	6.6060
Offroad	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.2517	0.0000	0.2517	0.0149	0.0000	0.6236
Water						0.0000	0.0000		0.0000	0.0000	0.0734	0.0763	0.1497	0.0265	2.4100e-003	1.5323
Total	**9.2800e-003**	**8.5700e-003**	**0.0481**	**7.0000e-005**	**6.3800e-003**	**9.0000e-005**	**6.4700e-003**	**1.7100e-003**	**9.0000e-005**	**1.8000e-003**	**0.3251**	**19.7250**	**20.0500**	**3.3203**	**0.3888**	**218.9262**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2023	12/29/2023	5	260	

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Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation		0			
Site Preparation	Aerial Lifts	1	0.50	82	0.31
Site Preparation	Forklifts	2	2.00	62	0.20
Site Preparation	Off-Highway Trucks	1	0.50	402	0.38
Site Preparation	Other Material Handling Equipment	1	6.00	225	0.40
Site Preparation	Other Material Handling Equipment	1	2.00	74	0.40
Site Preparation	Rubber Tired Loaders	1	2.00	172	0.36
Site Preparation	Skid Steer Loaders	1	0.50	51	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	6.00	55	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	6.00	48	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	10	0.00	0.00	0.00	0.00	0.00	0.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Alternative Fuel for Construction Equipment

Use Cleaner Engines for Construction Equipment

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3.2 Site Preparation - 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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0822	0.7133	0.7273	1.5500e-003		0.0305	0.0305		0.0280	0.0280	0.0000	136.2342	136.2342	0.0441	0.0000	137.3357
Total	**0.0822**	**0.7133**	**0.7273**	**1.5500e-003**	**0.0000**	**0.0305**	**0.0305**	**0.0000**	**0.0280**	**0.0280**	**0.0000**	**136.2342**	**136.2342**	**0.0441**	**0.0000**	**137.3357**

Unmitigated Construction Off-Site

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

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3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0473	0.3562	0.9228	1.5500e-003		0.0144	0.0144		0.0134	0.0134	0.0000	136.2340	136.2340	0.0441	0.0000	137.3356
Total	**0.0473**	**0.3562**	**0.9228**	**1.5500e-003**	**0.0000**	**0.0144**	**0.0144**	**0.0000**	**0.0134**	**0.0134**	**0.0000**	**136.2340**	**136.2340**	**0.0441**	**0.0000**	**137.3356**

Mitigated Construction Off-Site

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

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4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	5.3700e-003	8.5700e-003	0.0481	7.0000e-005	6.3800e-003	9.0000e-005	6.4700e-003	1.7100e-003	9.0000e-005	1.8000e-003	0.0000	6.4767	6.4767	5.7000e-004	3.9000e-004	6.6060
Unmitigated	5.3700e-003	8.5700e-003	0.0481	7.0000e-005	6.3800e-003	9.0000e-005	6.4700e-003	1.7100e-003	9.0000e-005	1.8000e-003	0.0000	6.4767	6.4767	5.7000e-004	3.9000e-004	6.6060

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Manufacturing	3.93	6.42	5.09	17,198	17,198
Total	3.93	6.42	5.09	17,198	17,198

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
Manufacturing	14.70	6.60	6.60	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
Manufacturing	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462

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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	13.1719	13.1719	3.2783	0.3860	210.1643
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	13.1719	13.1719	3.2783	0.3860	210.1643
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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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					
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	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					
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Manufacturing	216000	13.1719	3.2783	0.3860	210.1643
Total		**13.1719**	**3.2783**	**0.3860**	**210.1643**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Manufacturing	216000	13.1719	3.2783	0.3860	210.1643
Total		**13.1719**	**3.2783**	**0.3860**	**210.1643**

6.0 Area Detail

6.1 Mitigation Measures Area

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.9100e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated	3.9100e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.9100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**3.9100e-003**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

TBLLC Operational Equipment and Electricity Run Only - Tuolumne County, Annual

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.9100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**3.9100e-003**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

TBLLC Operational Equipment and Electricity Run Only - Tuolumne County, Annual

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

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.1497	0.0265	2.4100e-003	1.5323
Unmitigated	0.1497	0.0265	2.4100e-003	1.5323

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Manufacturing	0.23125 / 0	0.1497	0.0265	2.4100e-003	1.5323
Total		**0.1497**	**0.0265**	**2.4100e-003**	**1.5323**

TBLLC Operational Equipment and Electricity Run Only - Tuolumne County, Annual

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

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Manufacturing	0.23125 / 0	0.1497	0.0265	2.4100e-003	1.5323
Total		**0.1497**	**0.0265**	**2.4100e-003**	**1.5323**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.2517	0.0149	0.0000	0.6236
Unmitigated	0.2517	0.0149	0.0000	0.6236

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Manufacturing	1.24	0.2517	0.0149	0.0000	0.6236
Total		**0.2517**	**0.0149**	**0.0000**	**0.6236**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Manufacturing	1.24	0.2517	0.0149	0.0000	0.6236
Total		**0.2517**	**0.0149**	**0.0000**	**0.6236**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Aerial Lifts	0	8.00	260	63	0.31	Diesel

TBLLC Operational Equipment and Electricity Run Only - Tuolumne County, Annual

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

Forklifts	0	8.00	260	89	0.20	Diesel
Off-Highway Trucks	0	8.00	260	402	0.38	Diesel
Other Material Handling Equipment	0	8.00	260	168	0.40	Diesel
Other Material Handling Equipment	0	8.00	260	168	0.40	Diesel
Rubber Tired Loaders	0	8.00	260	203	0.36	Diesel
Skid Steer Loaders	0	8.00	260	65	0.37	Diesel
Tractors/Loaders/Backhoes	0	8.00	260	97	0.37	Diesel
Tractors/Loaders/Backhoes	0	8.00	260	97	0.37	Diesel

UnMitigated/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
Equipment Type	tons/yr										MT/yr					
Aerial Lifts	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Forklifts	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Highway Trucks	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Material Handling Equipment	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Rubber Tired Loaders	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Skid Steer Loaders	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tractors/Loaders/Backhoes	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

TBLLC Operational Equipment and Electricity Run Only - Tuolumne County, Annual

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

TBLLC Operational Equipment and Electricity Run Only - Tuolumne County, Summer

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

TBLLC Operational Equipment and Electricity Run Only

Tuolumne County, Summer

1.0 Project Characteristics

1.1 Land Usage

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

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	66
Climate Zone	1			**Operational Year**	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	134.44	**CH4 Intensity (lb/MWhr)**	33.46	**N2O Intensity (lb/MWhr)**	3.94

1.3 User Entered Comments & Non-Default Data

Project Characteristics - This run is for on-site operational Tier 4 off-road equipment and elecricity use only. PGE factors interpolated from 2020 EFs and a zero EF in 2045 (SB100)

Land Use - Left blank - operational run

Construction Phase - Due to the limitations of CalEEMod, Tier 4 on-site operational equipment is modeled in the construction run.

Off-road Equipment - Unit amount, hours/day and HP sourced from client-provided equipment list

Energy Use - This run is for on-site Tier 4 off-road equipment only.

Construction Off-road Equipment Mitigation - Client confirmed all operational equipment will be Tier 4

Operational Off-Road Equipment - .

Trips and VMT - All construction trips zeroed. This run is for on-site Tier 4 off-road equipment only.

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0

TBLLC Operational Equipment and Electricity Run Only - Tuolumne County, Summer

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

tblAreaCoating	Area_Nonresidential_Exterior	500	0
tblAreaCoating	Area_Nonresidential_Interior	1500	0
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintResidentialExteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintResidentialInteriorValue	250	0
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	1.00	260.00
tblEnergyUse	LightingElect	1.81	0.00
tblEnergyUse	NT24E	1.85	0.00
tblEnergyUse	NT24NG	0.31	0.00
tblEnergyUse	T24E	0.56	216.00
tblEnergyUse	T24NG	3.17	0.00
tblOffRoadEquipment	HorsePower	63.00	82.00
tblOffRoadEquipment	HorsePower	89.00	62.00
tblOffRoadEquipment	HorsePower	168.00	225.00
tblOffRoadEquipment	HorsePower	168.00	74.00

TBLLC Operational Equipment and Electricity Run Only - Tuolumne County, Summer

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

tblOffRoadEquipment	HorsePower	203.00	172.00
tblOffRoadEquipment	HorsePower	65.00	51.00
tblOffRoadEquipment	HorsePower	97.00	55.00
tblOffRoadEquipment	HorsePower	97.00	48.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	33.46
tblProjectCharacteristics	CO2IntensityFactor	203.98	134.44
tblProjectCharacteristics	N2OIntensityFactor	0.004	3.94
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	VendorTripLength	6.60	0.00
tblTripsAndVMT	WorkerTripLength	16.80	0.00
tblTripsAndVMT	WorkerTripNumber	25.00	0.00

2.0 Emissions Summary

TBLLC Operational Equipment and Electricity Run Only - Tuolumne County, Summer

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

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	0.6326	5.4870	5.5946	0.0119	0.0000	0.2343	0.2343	0.0000	0.2156	0.2156	0.0000	1,155.1731	1,155.1731	0.3736	0.0000	1,164.5133
Maximum	**0.6326**	**5.4870**	**5.5946**	**0.0119**	**0.0000**	**0.2343**	**0.2343**	**0.0000**	**0.2156**	**0.2156**	**0.0000**	**1,155.1731**	**1,155.1731**	**0.3736**	**0.0000**	**1,164.5133**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	0.3636	2.7396	7.0984	0.0119	0.0000	0.1107	0.1107	0.0000	0.1030	0.1030	0.0000	1,155.1731	1,155.1731	0.3736	0.0000	1,164.5133
Maximum	**0.3636**	**2.7396**	**7.0984**	**0.0119**	**0.0000**	**0.1107**	**0.1107**	**0.0000**	**0.1030**	**0.1030**	**0.0000**	**1,155.1731**	**1,155.1731**	**0.3736**	**0.0000**	**1,164.5133**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**42.52**	**50.07**	**-26.88**	**0.00**	**0.00**	**52.74**	**52.74**	**0.00**	**52.20**	**52.20**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

TBLLC Operational Equipment and Electricity Run Only - Tuolumne County, Summer

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0214	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0469	0.0612	0.3800	5.8000e-004	0.0526	7.2000e-004	0.0533	0.0141	6.8000e-004	0.0147		59.3231	59.3231	4.6500e-003	3.1300e-003	60.3711
Offroad	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0684**	**0.0612**	**0.3801**	**5.8000e-004**	**0.0526**	**7.2000e-004**	**0.0533**	**0.0141**	**6.8000e-004**	**0.0147**	**0.0000**	**59.3233**	**59.3233**	**4.6500e-003**	**3.1300e-003**	**60.3714**

TBLLC Operational Equipment and Electricity Run Only - Tuolumne County, Summer

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

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0214	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0469	0.0612	0.3800	5.8000e-004	0.0526	7.2000e-004	0.0533	0.0141	6.8000e-004	0.0147		59.3231	59.3231	4.6500e-003	3.1300e-003	60.3711
Offroad	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0684**	**0.0612**	**0.3801**	**5.8000e-004**	**0.0526**	**7.2000e-004**	**0.0533**	**0.0141**	**6.8000e-004**	**0.0147**	**0.0000**	**59.3233**	**59.3233**	**4.6500e-003**	**3.1300e-003**	**60.3714**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2023	12/29/2023	5	260	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

TBLLC Operational Equipment and Electricity Run Only - Tuolumne County, Summer

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

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation		0			
Site Preparation	Aerial Lifts	1	0.50	82	0.31
Site Preparation	Forklifts	2	2.00	62	0.20
Site Preparation	Off-Highway Trucks	1	0.50	402	0.38
Site Preparation	Other Material Handling Equipment	1	6.00	225	0.40
Site Preparation	Other Material Handling Equipment	1	2.00	74	0.40
Site Preparation	Rubber Tired Loaders	1	2.00	172	0.36
Site Preparation	Skid Steer Loaders	1	0.50	51	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	6.00	55	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	6.00	48	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	10	0.00	0.00	0.00	0.00	0.00	0.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Alternative Fuel for Construction Equipment

Use Cleaner Engines for Construction Equipment

TBLLC Operational Equipment and Electricity Run Only - Tuolumne County, Summer

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

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6326	5.4870	5.5946	0.0119		0.2343	0.2343		0.2156	0.2156		1,155.1731	1,155.1731	0.3736		1,164.5133
Total	**0.6326**	**5.4870**	**5.5946**	**0.0119**	**0.0000**	**0.2343**	**0.2343**	**0.0000**	**0.2156**	**0.2156**		**1,155.1731**	**1,155.1731**	**0.3736**		**1,164.5133**

Unmitigated Construction Off-Site

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

TBLLC Operational Equipment and Electricity Run Only - Tuolumne County, Summer

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

3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.3636	2.7396	7.0984	0.0119		0.1107	0.1107		0.1030	0.1030	0.0000	1,155.1731	1,155.1731	0.3736		1,164.5133
Total	**0.3636**	**2.7396**	**7.0984**	**0.0119**	**0.0000**	**0.1107**	**0.1107**	**0.0000**	**0.1030**	**0.1030**	**0.0000**	**1,155.1731**	**1,155.1731**	**0.3736**		**1,164.5133**

Mitigated Construction Off-Site

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

TBLLC Operational Equipment and Electricity Run Only - Tuolumne County, Summer

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0469	0.0612	0.3800	5.8000e-004	0.0526	7.2000e-004	0.0533	0.0141	6.8000e-004	0.0147		59.3231	59.3231	4.6500e-003	3.1300e-003	60.3711
Unmitigated	0.0469	0.0612	0.3800	5.8000e-004	0.0526	7.2000e-004	0.0533	0.0141	6.8000e-004	0.0147		59.3231	59.3231	4.6500e-003	3.1300e-003	60.3711

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Manufacturing	3.93	6.42	5.09	17,198	17,198
Total	3.93	6.42	5.09	17,198	17,198

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
Manufacturing	14.70	6.60	6.60	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
Manufacturing	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462

TBLLC Operational Equipment and Electricity Run Only - Tuolumne County, Summer

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

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

TBLLC Operational Equipment and Electricity Run Only - Tuolumne County, Summer

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

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**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	lb/day										lb/day					
Mitigated	0.0214	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	0.0214	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

TBLLC Operational Equipment and Electricity Run Only - Tuolumne County, Summer

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

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0214					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.0214**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

TBLLC Operational Equipment and Electricity Run Only - Tuolumne County, Summer

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0214					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.0214**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Aerial Lifts	0	8.00	260	63	0.31	Diesel
Forklifts	0	8.00	260	89	0.20	Diesel
Off-Highway Trucks	0	8.00	260	402	0.38	Diesel

TBLLC Operational Equipment and Electricity Run Only - Tuolumne County, Summer

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

Other Material Handling Equipment	0	8.00	260	168	0.40	Diesel
Other Material Handling Equipment	0	8.00	260	168	0.40	Diesel
Rubber Tired Loaders	0	8.00	260	203	0.36	Diesel
Skid Steer Loaders	0	8.00	260	65	0.37	Diesel
Tractors/Loaders/Backhoes	0	8.00	260	97	0.37	Diesel
Tractors/Loaders/Backhoes	0	8.00	260	97	0.37	Diesel

UnMitigated/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
Equipment Type	lb/day										lb/day					
Aerial Lifts	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Forklifts	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Off-Highway Trucks	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Other Material Handling Equipment	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Rubber Tired Loaders	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Skid Steer Loaders	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Tractors/Loaders/ Backhoes	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

TBLLC Operational Equipment and Electricity Run Only - Tuolumne County, Summer

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

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

Input Assumptions

inputs/assumptions
calculations/links

Biomass Consumption Assumptions	Amount	Units	Source
Annual Biomass Delivered to Project	20,000	green tons/yr	Project Description [1]
Total Bone Dry Tons (Average annual)	12,000	bone dry tons/yr	Calculated
Biomass Used for Combustion	1,049	green tons/yr	Project Description
Green Biomass Moisture Content	40%	Percent	Project Description
Haul Trips From Field			
Annual Biomass	20,000	green tons/yr	Project Description [1]
Haul Work Days	260	days/yr	Project Description [2]
Daily Haul - Logs from Field	135.0	green tons/day	Project Description [3]
Chip Van Capacity	30	tons/truck	Project Description [4]
Daily Log Truck Trips	3.5	trips/day	Project Description [5]
Distance to Facility (from field)	40	miles	Project Description
Idling time at loading	5	minutes	
Idling time at unloading	5	minutes	
Daily Roundtrip Miles	280	miles/day	
Project site			
Working days per year	260	days/yr	Project Description [2]

Notes

[1] The expected volume of throughput at the TBLLC facility would grow from an estimated 10,000 tons to 20,000 tons of biomass (moisture content of 40 percent) per year over a 5-year period.

[2] Based on an assumption of haul trucks operating 5 days per week and 52 weeks per year.

[3] estimated 20-27 green tons per truck 5 trips/day27X5

[4] 28-30 ton trucks

[5]The facility would receive an estimated five log trucks per day

Construction Emission

CalEEMod Results - Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.3571	2.5711	3.1145	6.65E-03	0.4219	0.1032	0.5250	0.1635	0.0966	0.2601	0.0000	594.9510	594.9510	0.0903	0.0227	603.9720
2024	0.5971	0.7817	1.0907	2.26E-03	0.0728	0.0306	0.1034	0.0196	0.0287	0.0483	0.0000	201.5292	201.5292	0.0311	7.02E-03	204.3990
Maximum	0.5971	2.5711	3.1145	**6.65E-03**	0.4219	0.1032	0.5250	0.1635	0.0966	0.2601	0.0000	594.9510	594.9510	0.0903	0.0227	603.9720

Project Lifetime Assumpt 30 years
Amortized Construction (26.9 MTCO2/yr

CalEEMod Results - Daily

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	3.7098	34.4904	33.0033	0.0701	24.8012	1.5841	26.3853	12.6890	1.4574	14.1464	0.0000	6,924.25	6,924.25	1.4990	0.2763	7,029.49
2024	48.3181	22.9361	31.8922	0.0693	2.5289	0.8605	3.3894	0.6795	0.8085	1.4879	0.0000	6,839.31	6,839.31	0.9039	0.2667	6,941.38
Maximum	48.3181	34.4904	33.0033	0.0701	24.8012	1.5841	26.3853	12.6890	1.4574	14.1464	0.0000	**6,924.25**	**6,924.25**	1.4990	0.2763	**7,029.49**

See separate CalEEMod outputs for more details

Project Worker Trip Exhaust Emissions

Commute Trips by Workers on Field Crew

	value	units	source
Number of workers on crew			
Number of crews	1	crews/day	Tuolumne PD
Workers per crew	20	workers/day	Tuolumne PD
Trip rate for crew workers	2	trips/day	assumption
	520	trips/year	
Avg. worker commute trip length (1-way)	16.8	miles/trip	default worker trip length in construction module of CalEEMod

Daily VMT by crew workers per crew

Average daily	672	VMT/day	calculation
	174720		

Mix of passenger vehicles used in employee commutes

breakdown of passenger car VMT in Tuolomne County (EMFAC 2021 Average Distributions)

	value	units	source
light duty autos - gasoline	649,911	VMT/day	wksht: On-Rd Veh Emiss Rates
light duty autos - diesel	3,092	VMT/day	wksht: On-Rd Veh Emiss Rates
light duty autos - electricity	36,361	VMT/day	wksht: On-Rd Veh Emiss Rates
light duty autos - plug in hybrid	18,810	VMT/day	wksht: On-Rd Veh Emiss Rates
light duty trucks 1 - gasoline	124,075	VMT/day	wksht: On-Rd Veh Emiss Rates
light duty trucks 1 - diesel	20	VMT/day	wksht: On-Rd Veh Emiss Rates
light duty trucks 1 - electricity	94	VMT/day	wksht: On-Rd Veh Emiss Rates
light duty trucks 1 - plug in hybrid	99	VMT/day	wksht: On-Rd Veh Emiss Rates
light duty trucks 2 - gasoline	494,235	VMT/day	wksht: On-Rd Veh Emiss Rates
light duty trucks 2 - diesel	1,393	VMT/day	wksht: On-Rd Veh Emiss Rates
light duty trucks 2 - electricity	1,689	VMT/day	wksht: On-Rd Veh Emiss Rates
light duty trucks 2 - plug in hybrid	3,389	VMT/day	wksht: On-Rd Veh Emiss Rates
Total, all passenger vehicle types	1,333,168	VMT/day	summation

relative portion of passenger car VMT by veh type	value	units	source
light duty autos - gasoline	48.7%	%	calculation
light duty autos - diesel	0.2%	%	calculation
light duty autos - electricity	2.7%	%	calculation
light duty autos - plug in hybrid	1.4%	%	calculation
light duty trucks 1 - gasoline	9.3%	%	calculation
light duty trucks 1 - diesel	0.0%	%	calculation
light duty trucks 1 - electricity	0.0%	%	calculation
light duty trucks 1 - plug in hybrid	0.0%	%	calculation
light duty trucks 2 - gasoline	37.1%	%	calculation
light duty trucks 2 - diesel	0.1%	%	calculation
light duty trucks 2 - electricity	0.1%	%	calculation
light duty trucks 2 - plug in hybrid	0.3%	%	calculation
Total, all passenger vehicle types	100.0%	%	summation

Project Worker Trip Exhaust Emissions

Emission Rates (running exhaust)

	ROG	NOx	PM10	PM2.5	CO	CO2	CH4	N2O	CO2e	units	source	Fuel Use	units	source
light duty autos - gasoline	1.83E-02	5.73E-02	1.60E-03	1.47E-03	1.38E+00	318.8398	4.44E-03	5.58E-03	320.614	g/mile	wksht: On-Rd Veh Emiss Rates	0.0362	gal/mile	wksht: EMFAC(2023) Output Fuel Use
light duty autos - diesel	4.73E-02	3.93E-01	2.67E-02	2.56E-02	5.61E-01	249.6840	2.20E-03	3.93E-02	261.462	g/mile	wksht: On-Rd Veh Emiss Rates	0.0248	gal/mile	wksht: EMFAC(2023) Output Fuel Use
light duty autos - electricity	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0000	0.00E+00	0.00E+00	0.000	g/mile	wksht: On-Rd Veh Emiss Rates	0.0000	gal/mile	wksht: EMFAC(2023) Output Fuel Use
light duty autos - plug in hybrid	1.89E-03	3.07E-03	7.41E-04	6.81E-04	3.35E-01	164.8956	6.12E-04	5.81E-04	165.084	g/mile	wksht: On-Rd Veh Emiss Rates	0.0187	gal/mile	wksht: EMFAC(2023) Output Fuel Use
light duty trucks 1 - gasoline	8.01E-02	2.49E-01	3.57E-03	3.28E-03	3.94E+00	389.3782	1.71E-02	1.63E-02	394.656	g/mile	wksht: On-Rd Veh Emiss Rates	0.0444	gal/mile	wksht: EMFAC(2023) Output Fuel Use
light duty trucks 1 - diesel	2.81E-01	1.31E+00	2.46E-01	2.35E-01	1.78E+00	417.7508	1.30E-02	6.58E-02	437.690	g/mile	wksht: On-Rd Veh Emiss Rates	0.0412	gal/mile	wksht: EMFAC(2023) Output Fuel Use
light duty trucks 1 - electricity	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0000	0.00E+00	0.00E+00	0.000	g/mile	wksht: On-Rd Veh Emiss Rates	0.0000	gal/mile	wksht: EMFAC(2023) Output Fuel Use
light duty trucks 1 - plug in hybrid	1.72E-03	2.80E-03	4.95E-04	4.56E-04	3.09E-01	151.0744	5.63E-04	5.39E-04	151.249	g/mile	wksht: On-Rd Veh Emiss Rates	0.0172	gal/mile	wksht: EMFAC(2023) Output Fuel Use
light duty trucks 2 - gasoline	2.46E-02	1.09E-01	1.77E-03	1.63E-03	1.71E+00	397.1854	5.84E-03	8.14E-03	399.757	g/mile	wksht: On-Rd Veh Emiss Rates	0.0457	gal/mile	wksht: EMFAC(2023) Output Fuel Use
light duty trucks 2 - diesel	2.98E-02	1.87E-01	1.12E-02	1.08E-02	2.91E-01	328.1434	1.39E-03	5.17E-02	343.584	g/mile	wksht: On-Rd Veh Emiss Rates	0.0332	gal/mile	wksht: EMFAC(2023) Output Fuel Use
light duty trucks 2 - electricity	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0000	0.00E+00	0.00E+00	0.000	g/mile	wksht: On-Rd Veh Emiss Rates	0.0000	gal/mile	wksht: EMFAC(2023) Output Fuel Use
light duty trucks 2 - plug in hybrid	1.81E-03	2.95E-03	6.53E-04	6.01E-04	3.24E-01	158.9663	5.94E-04	5.69E-04	159.151	g/mile	wksht: On-Rd Veh Emiss Rates	0.0180	gal/mile	wksht: EMFAC(2023) Output Fuel Use
Composite emiss rates - all pass vehicles	**0.026**	**0.093**	**0.002**	**0.002**	**1.679**	**342.586**	**0.006**	**0.007**	**344.943**	**g/mile**	**Sumproduct calculation**	**0.039**	**gal/mile**	**Sumproduct calculation**

Composite Emissions Rates in lb/mi	ROG	NOx	PM10	CO
	lb/mi	lb/mi	lb/mi	lb/mi
	5.66E-05	2.04E-04	4.09E-06	3.70E-03

Worker Commute Emissions (exhaust)

Annual Emissions	ROG	NOx	PM10	PM2.5	CO	CO2e
	tons/year	tons/year	tons/year	tons/year	tons/year	MT/year
Emissions per year	**0.005**	**0.018**	**0.000**	**0.000**	**0.323**	**60.268**

Daily Emissions	ROG	NOx	PM10	PM2.5	CO
	lb/day	lb/day	lb/day	lb/day	lb/day
Emissions per day	**0.038**	**0.137**	**0.003**	**0.003**	**2.488**

CalEEMod Operational Emissions (On-Site Off-Road Equipment + Net Electricity Use)

CalEEMod Results - Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Source	tons/yr										MT/yr					
Off-Road Equipment	0.0473	0.3562	0.9228	0.0016	0.0000	0.0144	0.0144	0.0000	0.0134	0.0134	0.0000	136.2340	136.2340	0.0441	0.0000	137.3356
Electricity Use	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	13.1719	13.1719	3.2783	0.3860	210.1643
Total	**0.0473**	**0.3562**	**0.9228**	**0.0016**	**0.0000**	**0.0144**	**0.0144**	**0.0000**	**0.0134**	**0.0134**	**0.0000**	**149.4059**	**149.4059**	**3.3224**	**0.3860**	**347.4999**

CalEEMod Results - Daily

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5Total
Source	lb/day									
Off-Road Equipment	0.3636	2.7396	7.0984	0.0119	0.0000	0.1107	0.1107	0.0000	0.1030	0.1030
Electricity Use	0.0000	0.0000	0.0000	0.00E+00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.3636**	**2.7396**	**7.0984**	**0.0119**	**0.0000**	**0.1107**	**0.1107**	**0.0000**	**0.1030**	**0.1030**

See separate CalEEMod outputs for more details

Offsite-to-Project Haul Trip Emissions

Basic Information	value	units	Source	
Annual Haul Tonnage	20,000	green tons/yr	Project Description	
Work Days	260	days/yr	See Input Assumptions	
Daily Haul Tonnage	76.9	green tons/day	Calculation	
Usable Biomass Fuel	46.2	BDT/day	Calculation	12000 BDT/yr

Haul Trips to Project	value	units	
Truck Capacity	30	tons/truck	See Input Assumptions
Daily Truck Trips	3.5	trips/day	See Input Assumptions
Annual Truck Trips	910	trips/year	See Input Assumptions
Distance to Facility	40	miles/trip	See Input Assumptions
Daily Roundtrip Miles	280	miles/day	Calculation
Annual Round Trip Miles	72,800	miles/year	Calculation

Idling Assumptions	value	units
Idling time at unloading per trip	5	minutes
Idling time per day	8.75	minutes
Idling time per year	2275	minutes

Water Trips			
trips per week	2	trips/wk	
delivery miles per trip	20	miles/trip	note: one way
trips per yr	104	trips/yr	
miles per yr	2,080	miles/yr	
trips per day	0.4	trips.day	
miles per day	8.0	miles/day	

Idling Assumptions per water truck trip	value	units
Idling time at unloading	5	minutes
Max idling time per day	5	minutes
Average Idling time per day	1.0	minutes
Idling time per year	260	minutes

Haul Truck Emission Rates (Diesel)		ROG	NOx	PM10	PM2.5	CO	CO2	CH4	N2O	CO2e	units
T6 instate heavy	running exhaust	1.69E-02	1.26E+00	8.36E-03	8.00E-03	9.68E-02	1.10E+03	7.83E-04	1.73E-01	1,146.60	g/mile
T6 instate heavy	idling	2.15E-04	7.63E-03	2.68E-05	2.56E-05	5.20E-03	1.58E+00	1.00E-05	2.49E-04	1.65	g/min
LHD1	running exhaust	2.92E-01	3.35E+00	6.75E-02	6.46E-02	9.04E-01	6.28E+02	1.36E-02	9.90E-02	658.20	g/mile
LHD1	idling	7.62E-05	1.67E-03	1.92E-05	1.84E-05	6.32E-04	9.64E-02	3.54E-06	1.52E-05	0.10	g/min

Source: wksht: 2023 On-Rd Veh Emiss Rates

Hauling trucks by VMT	value	unit
T6 instate heavy	2477.236916	VMT/day
LHD1	85005.81407	VMT/day
Total	87483.05099	VMT/day

relative proportion	value
T6 instate heavy	3%
LHD1	97%

Exhaust Composite emissions rates		ROG	NOx	PM10	PM2.5	CO	CO2	CH4	N2O	CO2e	
T6 instate heavy	running exhaust	1.69E-02	1.26E+00	8.36E-03	8.00E-03	9.68E-02	1.10E+03	7.83E-04	1.73E-01	1146.6	g/mile
LHD1	running exhaust	2.92E-01	3.35E+00	6.75E-02	6.46E-02	9.04E-01	6.28E+02	1.36E-02	9.90E-02	658.197	g/mile

	ROG	Nox	PM10	PM2.5	CO	CO2	CH4	N2O	CO2e	
Composite emissions rates	**2.85E-01**	**3.29E+00**	**6.59E-02**	**6.30E-02**	**8.81E-01**	**6.42E+02**	**1.32E-02**	**1.01E-01**	672.027	**g/mile**

Offsite-to-Project Haul Trip Emissions

Biomass Delivery Trips

Annual Emissions

Haul Truck Emissions	ROG	NOx	PM10	PM2.5	CO	CO2	CH4	N2O	CO2e
Raw biomass fuel	tons/year	tons/year	tons/year	tons/year	tons/year	MT/year	MT/year	MT/year	MT/year
Trip emissions in MCAB	0.001	0.101	0.001	0.001	0.008	79.728	0.000	0.013	83.472
Loading/Unloading	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.004
Total Hauling	**0.001**	**0.102**	**0.001**	**0.001**	**0.008**	**79.732**	**0.000**	**0.013**	**83.476**

Daily Emissions

Haul Truck Emissions	ROG	NOx	PM10	PM2.5	CO
Raw biomass fuel	lb/day	lb/day	lb/day	lb/day	lb/day
Trip emissions in MCAB	0.010	0.781	0.005	0.005	0.060
Loading/Unloading	0.000	0.000	0.000	0.000	0.000
Total Hauling	**0.010**	**0.781**	**0.005**	**0.005**	**0.060**

Water Truck Delivery Emissions

Annual Emissions

Haul Truck Emissions	ROG	NOx	PM10	PM2.5	CO	CO2	CH4	N2O	CO2e
Raw biomass fuel	tons/year	tons/year	tons/year	tons/year	tons/year	MT/year	MT/year	MT/year	MT/year
Trip emissions	0.001	0.008	0.000	0.000	0.002	1.441	0.000	0.000	1.509
Loading/Unloading	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Water Truck Delivery	**0.001**	**0.008**	**0.000**	**0.000**	**0.002**	**1.441**	**0.000**	**0.000**	**1.509**

Daily Emissions

Haul Truck Emissions	ROG	NOx	PM10	PM2.5	CO
Raw biomass fuel	lb/day	lb/day	lb/day	lb/day	lb/day
Trip emissions	0.005	0.059	0.001	0.001	0.016
Loading/Unloading	0.000	0.000	0.000	0.000	0.000
Total Water Truck Delivery	**0.005**	**0.059**	**0.001**	**0.001**	**0.016**

Gasifier CHP Emissions

Gasifier CHP Input Specifications

	value	units	source/notes
		Green tons combusted	
	1,049	per year	Project description
	359	Days/year	operational days per year minus 6 maintenance calls per year (assumption)
	8,200	hours/year	Wisewood Energy Gasified CHP System [1]
	24	hours/day	24 hr/day operation noted in PD

Exhaust Flow Rate	426	m3/hr	Wisewood Energy Gasified CHP System [1]

Maintenance Assumptions	value	units	source/notes
	50	lbs of charcoal/session maintenance	charcoal used for warm/cold start ups after maintenance periods [Email from Matt King (10/4/22)
	6	sessions/year	Email from Matt King (10/4/22)
	45	minutes per session	Email from Matt King (10/4/22)

Charcoal Emissions

	Unit	Value	lb/lb	Source	lb/ton
PM2.5	mg/kg	500	5.00E-04		1.00
HC	mg/kg	1122	1.12E-03		2.24
CO	g/kg	157.5	1.58E-01	[7]	315.00
CO2	g/kg	2022	2.02E+00		4044.00
NOx	mg/kg	220.6	2.21E-04		0.44

Criteria Pollutant Emission Rates

	ROG tons/year	NOx tons/year	PM10 [3] tons/year	PM2.5 [3] tons/year	CO tons/year
Dryer	0.024	0	1.54	1.54	0
CHP Engine	0.005	2.04	0.08	0.08	0.15
CHP Engine (maintenance)					

Source: Wisewood Energy Process Flow Diagram

TAC Emission Factors

Wood Chip Dryer Emissions	value	units	source/notes
Methanol	0.048	lb/BDT	Wisewood Energy Gasified CHP System [1]
Formaldehyde	0.0037	lb/BDT	Wisewood Energy Gasified CHP System [1]
Acetaldehyde	0.013	lb/BDT	Wisewood Energy Gasified CHP System [1]
Propionaldehyde	0.00107	lb/BDT	Wisewood Energy Gasified CHP System [1]
Acrolein	0.0015	lb/BDT	Wisewood Energy Gasified CHP System [1]
Wood Chip Demand	0.086	BDT/hr	Wisewood Energy Gasified CHP System [1]

Gasifier Emissions			
Benzene	0.1	mg/m3	2013 LGA Emissions and Occupational Safety (Gasifer Emissions Report - in German)
Formaldehyde	0.5	mg/m3	2013 LGA Emissions and Occupational Safety (Gasifer Emissions Report - in German)

Maintenance Emissions (TAC Charcoal Emissions)

	Unit	Value	lb/lb	Source
Chromium	ug/kg	47.53	4.75E-08	[7]
Benzene	ppb	752	8.28937E-07	[8]
Toluene	ppb	1780	1.96211E-06	[8]
Ethyl Benzene	ppb	111	1.22356E-07	[8]
Meta para xylene	ppb	43.1	4.75096E-08	[8]
Styrene	ppb	16.2	1.78574E-08	[8]
Formaldehyde	ppb	2008	2.21344E-06	[8]
Acetaldehyde	ppb	747	8.23426E-07	[8]
Acrolein	ppb	65	7.16502E-08	[8]
Acetone	ppb	195	2.1495E-07	[8]

GHG Emission Factors (biomass gasification)	value	units	source/notes
Syngas production from gasification of forest biomass	2.4	kg syngas per kg wood biomass	[4]
Density of biomass-based syngas	0.95	kg/m3	[4]
Energy density of biomass-based syngas	4.45	MJ/Nm3	[6]
Fuel carbon content of biomass-based syngas used in CHP engines			
CO2 emissions per C from syngas	3.4	lb/MMBTU	based on average carbon content of other syngas types
CO2 emissions per C from syngas	0.0015	kg CO2/MJ	Calculated
CO2 emissions per C (syngas from natural gas)	*3.4*	*lb/MMBTU*	[5]
CO2 emissions per C (syngas from oil)	*3.3*	*lb/MMBTU*	[5]
CO2 emissions per C (syngas from coal)	*3.4*	*lb/MMBTU*	[5]
Biomass Gasifier CO2 Emissions Factor	0.016	kg CO2/kg wood biomass	Calculated
Biomass Gasifier CO2 Emissions Factor	14.906	kg CO2/ton wood biomass	Calculated
Biomass Gasifier CO2 Emissions Factor	32.862	lb CO2/ton wood biomass	Calculated
	value	units	source/notes
CO2 emissions - syngas	15.6	MT/year	Calculated
CO2 emissions - charcoal	0.3	MT/year	Calculated
CO2 emissions - Total	**16**	MT/year	Calculated

Emissions Results

Annual Emissions	ROG	NOx	PM10 [3]	PM2.5 [3]	CO
	tons/year	tons/year	tons/year	tons/year	tons/year
Dryer Emissions	0.02	0.00	1.54	1.54	0.00
Gasifier Maintenace	0.00	0.00	0.00	0.00	0.02
CHP Emissions	0.01	2.04	0.08	0.08	0.15
Total Emissions from Gasifier System	**0.029**	**2.040**	**1.620**	**1.620**	**0.174**
lbs/ton of green fuel	*0.056*	*3.889*	*3.089*	*3.089*	*0.331*

Daily Emissions	ROG	NOx	PM10 [3]	PM2.5 [3]	CO
	lb/day	lb/day	lb/day	lb/day	lb/day
Dryer Emissions	0.13	0.00	8.58	8.58	0.00
CHP Emissions	0.03	11.36	0.45	0.45	0.84
Gasifier Maintenace	0.06	0.01	0.03	0.03	7.88
Emissions per day	**0.22**	**11.38**	**9.05**	**9.050**	**8.71**

TAC Emissions (On-Site Diesel Operations)	lb/year	lb/hr
Diesel PM	28.80036	1.38E-02

TAC Emissions (Dryer)	lb/year	lb/hr
Methanol	3.38E+01	4.13E-03
Formaldehyde	2.61E+00	3.18E-04
Acetaldehyde	9.17E+00	1.12E-03
Propionaldehyde	7.55E-01	9.20E-05
Acrolein	1.06E+00	1.29E-04

TAC Emissions (Gasifier)	lb/year	lb/hr
Benzene	7.70E-01	9.39E-05
Formaldehyde	3.85E+00	4.70E-04

TAC Emissions (Gasifier-Maintenance)	lb/year	lb/hr
Formaldehyde	6.64E-04	1.11E-04
Acetaldehyde	2.47E-04	4.12E-05
Acrolein	2.15E-05	3.58E-06
Benzene	2.49E-04	4.14E-05
Chromium	1.43E-05	2.38E-06
Toluene	5.89E-04	9.81E-05
Ethyl Benzene	3.67E-05	6.12E-06
Meta para xylene	1.43E-05	2.38E-06
Styrene	5.36E-06	8.93E-07
Acetone	6.45E-05	1.07E-05

TAC Emissions	lb/year	lb/hr
Methanol	3.38E+01	4.13E-03
Formaldehyde	6.46E+00	7.88E-04
Acetaldehyde	9.17E+00	1.12E-03
Acrolein	1.06E+00	1.29E-04
Benzene	7.70E-01	1.35E-04
Toluene	5.89E-04	9.81E-05
Ethyl Benzene	3.67E-05	6.12E-06
Meta para xylene	1.43E-05	2.38E-06
Styrene	5.36E-06	8.93E-07

Notes

[1] Climate Registry Default Emission Factors 2021

[2] Provided by Matt King (June 9, 2022)

[3] No distinction was provided for the PM emissions factors. To be conservative. PM was assumed to be both PM10 and PM2.5

[4] Mustafa et. al. 2017 "A Techno-Economic Study of a Biomass Gasification Plant for the Production of Transport Biofuel for Small Communities "

[5] EPA 2017. "Catalog of CHP technologies" https://www.epa.gov/sites/default/files/2015-07/documents/catalog_of_chp_technologies.pdf

[6] Havilah et. al. "Biomass Gasification in Downdraft Gasifiers: A Technical Review on Production, Up-Gradation and Application of Synthesis Gas" https://www.google.com/url?sa=i&rct=j&q=&esrc=s&source=web&cd=&ved=0CAQQw7AJahcKEwiYsvG_sfL6AhUAAAAAHQAAAAQAw&url=https%3A%2F%2Fwww.mdpi.com%2F1996-1073%2F15%2F11%2F3938%2Fpdf&psig=AOvVaw18XxNgI8EP7-n2lDsEYU2n&ust=1666478276071337

[7] Yu et. al. 2020. "Effects of Oil Drops and the Charcoal's Proximate Composition on the Air Pollution Emitted from Charcoal Barbecues" Control Techniques and Strategy Volume 20, Issue 6, June 2020 (https://aaqr.org/articles/aaqr-19-01-oa-0042)

[8] Kabir et. al. 2010 "Barbecue charcoal combustion as a potential source of aromatic volatile organic compounds and carbonyls" Journal of Hazardous Materials Volume 174, Issues 1–3, 15 February 2010, Pages 492-499 (https://www.sciencedirect.com/science/article/abs/pii/S0304389409015404)

Project-to-Offsite Haul Trips

Wood Product Retail Delivery	value	units	Source
Total Biomass Delivered from Field	20,000	tons/yr (estimated maximum for project)	Project Description
Green Tons Burned	1,049	tons/yr	Project Description
Green tons sold to Chinese Station	2,000	tons/yr	Project Description
Remaining Wood to be Manufactured	16,951	tons/yr	Calculated
Number of Delivery Destinations	5	destinations	Project Description
Tons per truck	30	tons/trip	Project Description
Retail trip distance within Tuolumne County	40	mi	Distances based on assumed retail destinations (see below), as provided by the applicant. Distribution of retail deliveries by destination were not provided. Conservative estimate of travel occuring within the MCAB.
Trips per Year	565	trips/year	Calculated
Retail VMT per Year	45,203	VMT/year	Calculated. Assuming round trips
Work days per year	260	days per year	See input assumptions
Retail VMT per Day	174	VMT/day	Calculated. Assuming round trips
Idling Assumptions per truck trip	value	units	
Idling time at loading	5	minutes	Conservative Assumption. Trucks will likely be shut off while loading.
Idling time per year	2,825	minutes	
Max idling time per day	11	minutes	

Retail Delivery Destinations	Miles (from site to destination)	notes
Riverbank	31.7	source: google earth
Sacramento	94.5	source: google earth
Modesto	42.5	source: google earth
LA	323	source: google earth
Sierra Pacific Power Company	1.3	Assumed to be Sierra Electric

Hog Fuel Delivery to Chinese Power Station	value	units	Source
Green tons sold to Chinese Station	2,000	tons/yr	Project Description
Tons per truck	30	tons/trip	Project Description
Hog Fuel Trips per Year (Chip Van Trips)	70.0	trips/yr	Project Description
Max Hog Fuel Trips per Day	2.0	trips/day	round trip (pick up and drop off)
Driving Distance to Chinese Power Station	6.2	miles	Google Maps
Hog Fuel VMT per Year	434.0	VMT/year	Calculated
Max Hog Fuel VMT per Day	12.4	VMT/day	Calculated
Idling Assumptions per truck trip	value	units	
Idling time at loading	5	minutes	Conservative Assumption. Trucks will likely be shut off while loading.
Idling time per year	175	minutes	Calculated
Max idling time per day	5	minutes	Calculated

Solid Waste Collection Trips	value	units	Source
trips per week	2	trips/wk	Assumption for weekly solid waste pick ups
delivery miles per trip	16	miles/trip	note: one way to Cal Sierra Transfer Station
trips per yr.	104	trips/yr	Calculated
miles per yr	1,664	miles/yr	Calculated
trips per day	0.4	trips.day	Calculated
miles pday	6.4	miles/day	Calculated
Idling Assumptions per truck trip	value	units	
Idling time at unloading	5	minutes	Assumption
Idling time per day	5	minutes	Assumption
Idling time per year	520	minutes	Assumption

Haul Truck Emission Rates (Diesel)											
		ROG	NOx	PM10	PM2.5	CO	CO2	CH4	N2O	CO2e	units
T6 instate heavy	running exhaust	1.69E-02	1.26E+00	8.36E-03	8.00E-03	9.68E-02	1.10E+03	7.83E-04	1.73E-01	1146.6	g/mile
T6 instate heavy	idling	2.15E-04	7.63E-03	2.68E-05	2.56E-05	5.20E-03	1.58E+00	1.00E-05	2.49E-04	1.655	g/min
T7 SWCV	running exhaust	3.03E-02	6.39E+00	1.49E-02	1.43E-02	8.09E-02	3.92E+03	1.41E-03	6.17E-01	4103.273	g/mile
T7 SWCV	idling	8.52E-04	2.17E-02	2.93E-05	2.80E-05	7.54E-03	2.59E+00	3.96E-05	4.08E-04	2.714	g/min

Source: wksht: 2024 On-Rd Veh Emiss Rates

Annual Emissions

Haul Truck Emissions (exhaust)	ROG	NOx	PM10	PM2.5	CO	CO2	CH4	N2O	CO2e
	tons/year	tons/year	tons/year	tons/year	tons/year	MT/year	MT/year	MT/year	MT/year
Wood Products Loading/Idling	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.005
Wood Products Delivery	0.001	0.063	0.000	0.000	0.005	49.504	0.000	0.008	51.829
Hog Fuel Loading/Idling	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Hog Fuel Delivery	0.000	0.001	0.000	0.000	0.000	0.475	0.000	0.000	0.498
T7 SWCV Loading/Idling	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.002
T7 SWVC Delivery	0.000	0.012	0.000	0.000	0.000	7.189	0.000	0.001	7.526
Total Annual Emissions	**0.001**	**0.075**	**0.000**	**0.000**	**0.005**	**57.174**	**0.000**	**0.009**	**59.860**

Daily Emissions	ROG	NOx	PM10	PM2.5	CO	CO2	CH4	N2O	CO2e
	lb/day	lb/day	lb/day	lb/day	lb/day	g/day	g/day	g/day	g/day
Wood Products Loading/Idling	0.000	0.000	0.000	0.000	0.000	17.173	0.000	0.003	17.982
Wood Products Delivery	0.006	0.485	0.003	0.003	0.037	190400.726	0.136	29.998	199343.449
Hog Fuel Loading/Idling	0.000	0.000	0.000	0.000	0.000	7.902	0.000	0.001	8.274
Hog Fuel Delivery	0.000	0.035	0.000	0.000	0.003	13579.994	0.010	2.140	14217.818
T7 SWCV Loading/Idling	0.000	0.001	0.000	0.000	0.000	0.071	0.000	0.000	0.074
T7 SWCV Delivery	0.000	0.090	0.000	0.000	0.001	55.299	0.000	0.009	57.895
Total Daily Emissions	**0.007**	**0.610**	**0.004**	**0.003**	**0.041**	**204061.164**	**0.146**	**32.150**	**213645.493**

idling totals	**0.000**	**0.090**	**0.000**	**0.000**	**0.001**

	value	units	source
mass conversion rate	2000	lb/ton	wksht: Unit Conversions
mass conversion rate	1,000,000	g/MT	wksht: Unit Conversions
mass conversion rate	453.59	g/lb	wksht: Unit Conversions

Pile Burning Emissions

GHG Emissions

			CO2-eq
	Source	Tons of biomass per year (BDT)	MT/year
	Pile Burning	12,000	20,202
	Total	12,000	**20,202**

Fire Average Emissions Factors (Flaming and Smoldering Average)

Prescribed Burn Vegetation Type	Pollutant Emission Factors (lb of emissions/ton of fuel consumed)			
	CO2	CH4	N2O	CO2e
Pile and Burn (slash)	3,207	16.6	0.3	3,711

Source: Urbanski, S. Wildland fire emissions, carbon, and climate: Emission factors. *Forest Ecology and Management* . 317: 51–60 (as presented in NWCG 2018, Table 4.1.1) https://www.nwcg.gov/sites/default/files/publications/pms420-3.pdf

mass conversions:	value	units
	1,000	kg/MT
	1,000,000	g/MT
	2,000	lb/ton
	2,204.62	lb/MT

Criteria Air Pollutants

Assumed number of days of pile burning per year 100 [2]

Fire Average Emissions Factors (Flaming and Smoldering Average)

Prescribed Burn Vegetation Type	Pollutant Emission Factors (lb of emissions/ton of fuel consumed)				
	ROG	NOx	PM10 [1]	PM2.5	CO
Pile and Burn (slash)	11.6	4.1	18.9	17.1	169.0

Source: Urbanski, S. Wildland fire emissions, carbon, and climate: Emission factors. *Forest Ecology and Management* . 317: 51–60 (as presented in NWCG 2018, Table 4.1.1) https://www.nwcg.gov/sites/default/files/publications/pms420-3.pdf

Derived PM10 Emissions Factor

Pile and Burn (slash) Average Pile PM2.5 (kg/Mg)	8.6
Pile and Burn (slash) Average Pile PM10 (kg/Mg)	9.5
Ratio of PM10 to PM2.5 (calculated)	1.10

Source: Battye W., and Battye R. 2002. Development of Emissions Inventory Methods for Wildland Fire. Table 22. Prepared for U.S. EPA. https://www.epa.gov/sites/default/files/2020-10/documents/development_of_emissions_inventory_methods_for_wildland_fire.pdf

Source	ROG	NOx	PM10	PM2.5	CO
Total Daily (lb/day)	**1,392**	**492**	**2,267**	**2,052**	**20,280**
Total Annual (tons/year)	**70**	**25**	**113**	**103**	**1,014**

[1] Note: No emission factor for PM 10 given in Urbanski article. Used the ratio of PM10 to PM2.5 in average pile burning to derive a PM10

[2] Based on assumptions used for the Tuolomne BioEnergy Inc Woody Biomass Project 2021

Net Emissions Analysis

Total Annual Emissions

Source	ROG	NOx	PM10	CO	**MTCO2e**
	tons/year	tons/year	tons/year	tons/year	**MT/year**
Construction Emissions	**0.60**	**2.57**	**0.53**	**3.11**	**26.95**
Pile Burning Emissions	**70**	**25**	**113**	**1,014**	**20,201.55**
Project Emissions					
Project Worker Trips	0.00	0.02	0.00	0.32	60
Offsite-to-Project Haul Trips	0.00	0.11	0.00	0.01	85
Dryer Emissions	0.02	-	1.54	-	-
CHP Emissions	0.01	2.04	0.08	0.17	16
Off-Road Equipment	0.05	0.36	0.01	0.92	137
Net Electricity Use	-	-	-	-	210
Project-to-Offsite Haul Trips	0.00	0.08	0.00	0.01	60
TOTAL	**0.08**	**2.60**	**1.64**	**1.43**	**569**
Difference in Operational Emissions	**-70**	**-22**	**-112**	**-1,013**	**(19,633)**

Total Daily Emissions

Source	ROG	NOx	PM10	CO
	lb/day	lb/day	lb/day	lb/day
Construction Emissions	**48.32**	**34.49**	**26.39**	**33.00**
Pile Burning Emissions	**1,392**	**492**	**2,267**	**20,280**
Project Emissions				
Offsite-to-Project Haul Trips	0.01	0.78	0.01	0.06
Project Worker Trips	0.04	0.14	0.00	2.49
Dryer Emissions	0.13	0.00	8.58	0.00
CHP Emissions	0.08	11.38	0.47	8.71
Off-Road Equipment	0.36	2.74	0.11	7.10
Net Electricity Use	0.00	0.00	0.00	0.00
Project-to-Offsite Haul Trips	0.01	0.61	0.00	0.041
TOTAL	**0.64**	**15.64**	**9.17**	**18.40**
Difference in Operational Emissions	**-1,391**	**-476**	**-2,258**	**-20,262**

Project Energy Use Calculations

Proposed Project

Construction

		MTCO2 [1]	kg CO2 [2]	Gallons[2]
On-Road Trucks/Off-road Equipment	**Diesel**	599.38	599,384	58,706
On-road Worker Trips	**Gasoline**	211.99	211,988	24,144

[1] From Annual CalEEMod outputs

[2] Calculated

Operations

Activity	**Fuel**	**MTCO2 [1]**	**kg CO2 [2]**	**Gallons[2]**
Off-road Equipment	Diesel	137.34	137,335.60	13,451.09
On-road	Gasoline	60.27	60,268.37	6,864.28
On-road	Diesel	60.27	60,268.37	5,902.88
Total	**Diesel**	**197.60**	**197,603.97**	**19,353.96**
Total	**Gasoline**	**60.27**	**60,268.37**	**6,864.28**

[1] From calculation sheet

[2] Calculated

		kWh/year	kWh/month
Plant Operations	Electricity Generated	984,000	82,000
	Electricity Purchased	216,000	18,000
	Total Electricity Used	1,200,000	100,000

Emission Factors per Fuel Unit

Gasoline	8.78	kg CO2/gal
Diesel (Distallate No. 2)	10.21	kg CO2/gal

Source: 2021 Default Emission Factors. Climate Registry.

Appendix B

Health Risk Assessment

Health Risk Assessment

for the Biomass Utilization Fund,

Tuolumne Biomass LLC

Wallowa Resources Community Solutions

Prepared for:
Rural Community Assistance Corporation
3120 Freeboard Drive, Suite 201
West Sacramento, CA 95691

Health Risk Assessment for the

Tuolumne Biomass LLC,

Biomass Utilization Project

Prepared For:

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November 2022

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LIST OF ABBREVIATIONS

AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model Improvement Committee modeling system
CARB	California Air Resources Board's
CEQA	California Environmental Quality Act
CHP	combined heat and power
g/s	gram per second
GLCs	ground level concentrations
HHI	health hazard indices
HRA	health risk assessment
m	meter
m^2	square meter
NOAA	National Oceanic and Atmospheric Administration
PMI	point of maximum impact
Project	Tuolumne Biomass LLC Biomass Utilization Project
REL	reference exposure levels
TACs	toxic air contaminants
TBLLC	Tuolumne Biomass LLC
TCAPCD	Tuolumne County Air Pollution Control District
$\mu g/m^3$	micrograms per cubic meter

1 INTRODUCTION

Ascent Environmental (Ascent) is conducting a comprehensive Air Quality assessment for the Tuolumne Biomass LLC (TBLLC) Biomass Utilization Project (Project) to determine the significance of the Project's estimated emissions to support environmental review pursuant to the National Environmental Policy Act and the California Environmental Quality Act (CEQA). The Project, located near Jamestown, CA proposes to use woody biomass material from forest stewardship projects, including forest restoration and wildfire mitigation activities, to manufacture a number of value-added products, with a portion of the total biomass being used to power operations on-site and reduce net energy usage from the grid.

This health risk assessment (HRA) evaluates the potential risks associated with construction activities and operation of the Project. Air pollutants of concern for this analysis are toxic air contaminants (TACs), primarily formaldehyde and benzene emissions, from TBLLC-operated gasifier engine. This HRA addresses health risks that would likely result from TAC emissions generated by the on-site chip dryer and gasifier engine. The HRA also estimates the levels of cancer risk within 2,000 feet of the project site, with particular focus on potential impacts at the nearby Sierra Conservation Camp, which is located 550 feet from the nearest project emissions source. The Sierra Conservation Camp is a minimum to medium security state prison just west of the project site that houses approximately 4,000 inmates. Risks related to diesel particulate matter from construction and hauling activities are not included in this HRA and have been screened out based on receptor distances and the number of estimated truck trips per day the California Air Resources Board's (CARB) Air Quality and Land Use Handbook (CARB 2005).

The HRA was conducted in accordance with California Office of Environmental Health and Hazard Assessment (OEHHA) *Air Toxic Hot Spot Program Guidance Manual for Preparation of Health and Risk Assessments* (OEHHA 2015). This report is organized in two primary sections, the first discusses the methodology used in analyzing the health risks and the second presents the results of the HRA.

2 METHODOLOGY

This section is organized by first discussing the overall approach used to conduct the operational HRA, then addressing the specific inputs and calculation methods used to quantify the risks from the operation of the project.

2.1 HEALTH RISK ASSESSMENT METHODLOGY AND APPROACH

To determine the public health impacts of TACs emitted during the operation of the Project, the emissions sources of concern were first inventoried. The various emissions source parameters (e.g., stack flow rates, exhaust temperatures, and locations) were used to model the dispersion of pollutants into the atmosphere based on local meteorological conditions.

Air dispersion modeling was conducted using CARB-approved American Meteorological Society/Environmental Protection Agency Regulatory Model Improvement Committee modeling system (AERMOD) Version 22122. AERMOD was used to obtain ground level concentrations (GLCs) over a receptor grid surrounding the TBLLC project site. The resulting GLCs of each pollutant were input into the Hotspots Analysis and Reporting Program Version 22118 (HARP2) software, to match the GLCs with known pollutant risk values to determine the spatial distribution of cancer and non-cancer health risks at each receptor. Results are presented graphically on maps including risk isopleths and aerial imagery.

The specific TACs and related risks analyzed in this HRA are based on the list provided in the *Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values* (Consolidated Table) (CARB 2022). Details pertaining to each

component of the HRA (e.g., source inventory, air dispersion modeling, emission rate calculations, and risk calculations) are discussed in further detail below.

2.2 SOURCE INVENTORY

For this HRA, emissions sources during operation include operation of diesel off-road material handling equipment and loading and unloading of diesel-powered haul trucks; the chip dryer; and syngas and charcoal combustion emissions from the gasifier system. Charcoal is used during occasional maintenance events throughout the year.

EXCLUDED SOURCES

Construction activities and traffic-related TACs (e.g., hauling) are excluded from this analysis. Construction-related activities would result in temporary, short-term project-generated emissions which would expose the receptors to intermittent daily exposure for a temporary period of time. The proposed project's construction would last one year. Consequently, the use of off-road heavy-duty diesel equipment would be intermittent and limited to the 1-year construction period. Also, studies show that diesel PM is highly dispersive (e.g., decrease of 70 percent at 500 feet from the source) (Zhu et al. 2002). The nearest sensitive receptor from the project site is the Sierra Conservation Camp within 600 feet of the nearest project site emissions source (e.g., deck yard). The next nearest sensitive receptors are located 3,000 feet from the project site. Thus, given the distance to residential land uses and the exposure potential at the Sierra Conservation Camp from the project site, TAC exposure at both these land uses would not be substantial and hence construction activities were excluded from this analysis.

With respect to the exclusion of traffic-related TACs, CARB guidance states that sensitive land uses should not be sited within 1,000 feet of a distribution center that accommodates more than 100 trucks per day (CARB 2005:15). The project, which relies on deliveries of biomass sources and retail shipments, would generate only 15 truck trips per day, which will be less than the recommended 100 trucks per day. Thus, given CARB's guidance, TAC exposure at the nearest sensitive receptor due to on-road activities, such as hauling, would not be substantial and hence traffic-related TACs were excluded from this analysis.

EMISSION RATES

The emission rates from each emissions source, measured as mass over time, were used to calculate the TAC GLCs at receptor locations, measured in micrograms per cubic meter ($\mu g/m^3$). Average annual and hourly emission rates were calculated based on 1) the operation schedule of each emissions source and 2) the emission factors of each source based on the type of equipment and amount of fuel combusted or evaporation factors associated with the use and storage of laboratory chemicals. The methods used to estimate the individual emission rates vary by the type of TAC source (e.g., diesel-powered haul trucks; the chip dryer; and syngas and charcoal combustion emissions from the gasifier system) and are discussed separately in further detail below for the operational analyses.

2.3 AIR DISPERSION MODELING

MODELING APPROACH

Dispersion modeling was conducted using AERMOD Version 11.0.1 for the proposed operation of the Project. Emissions source data, receptor locations and parameters, on-site buildings, terrain data, and meteorological data were the primary inputs into AERMOD to determine how emissions would be dispersed and the resulting GLCs. Most of these inputs varied depending the scenario being modeled. However, all modeled scenarios used the same receptor locations, terrain data, and meteorological data.

Terrain, meteorology, and buildings close to the emissions sources greatly influence the dispersion of pollutants. The presence of on-site buildings was modeled to account for the effect of the buildings by emissions sources to divert

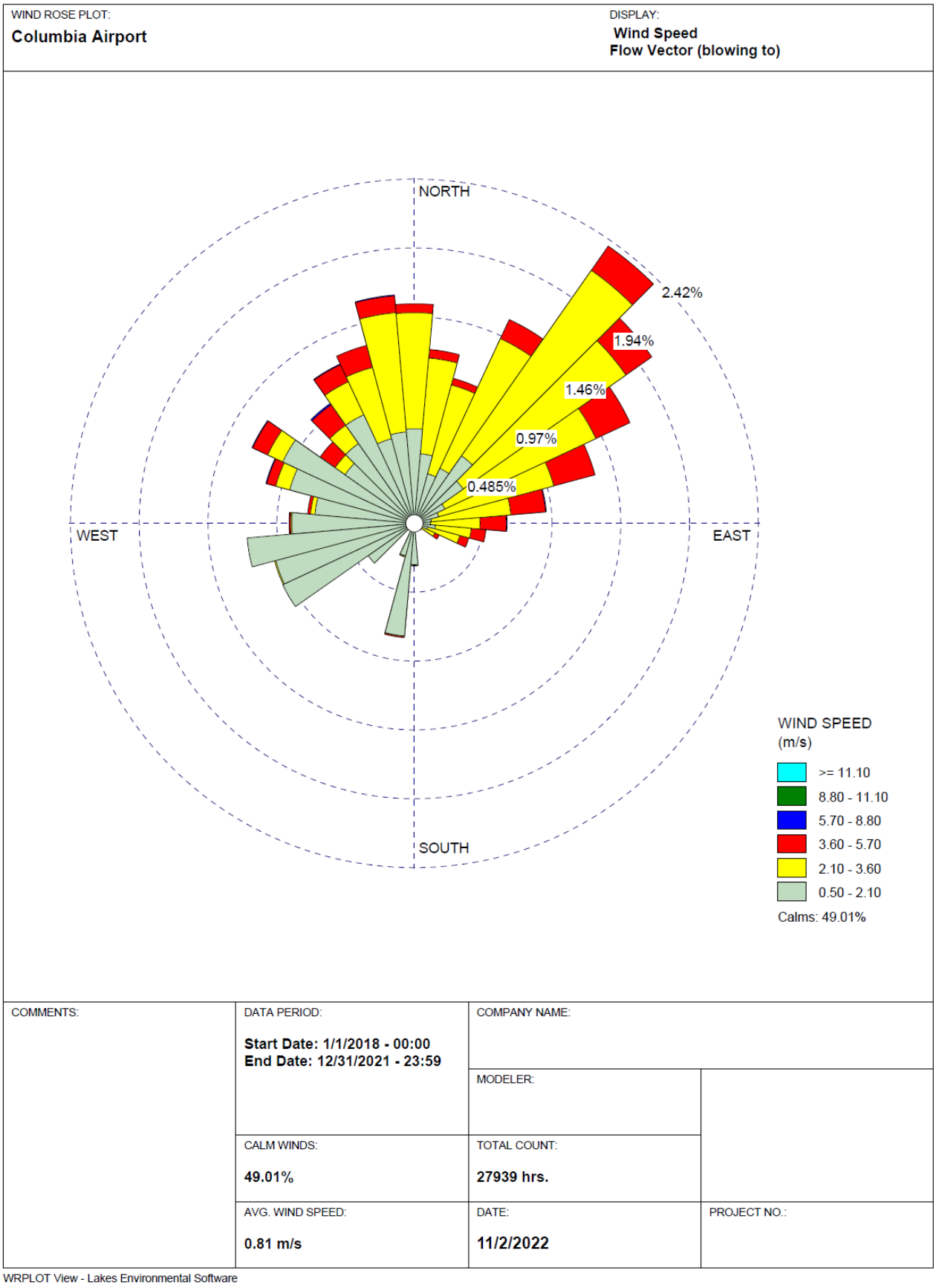
the dispersion of pollutants, also referred to as building downwash. Select buildings located on the premises of the Sierra Conservation Camp were also modeled, based on their proximity to the project site. Local terrain data were obtained from CARB's digital elevation files for the New Melones Dam Area (CARB 2015). Meteorology data were obtained from National Oceanic and Atmospheric Administration (NOAA) for Columbia Airport. The data received from NOAA were raw data files that included meteorological data (e.g., temperature, cloud cover, windspeed, wind direction, relative humidity) for every quarter hour (NOAA 2022). These data were compiled using AERMOD pre-processor AERMET to give surface and profile layer met data files. Per AERMOD's implementation guide, it was assumed that the surrounding area would have a general dispersion coefficient representative of rural areas, due to the population density around the project site. Modeling was conducted using the Universal Transverse Mercator coordinate system for zone 11 north and the geographic datum from the World Geodetic System in 1984. Relative concentrations were averaged over a 4-year period, based on the meteorological data available from 2018 through 2021.

Air dispersion modeling was conducted using a unit emission rate of 1.0 gram per second (g/s) for all modeled point and area sources. Area and volume sources were modeled as having an emission rate of 1.0 g/s for each building or construction area that was represented. This resulted in GLC values per unit emission rate (χ/Q) ([$\mu g/m^3$]/[g/s]), that were then multiplied in HARP2 by emission rates calculated for each source. This approach enabled the AERMOD output files to be assigned appropriate emission rates and cancer and non-cancer risk values to estimate concentrations and health risk levels from each individual source at each receptor location. Apart from these inputs and assumptions, AERMOD's default dispersion options were selected.

METEOROLOGICAL DATA

The Columbia Airport meteorological station was identified by Tuolumne County Air Pollution Control District (TCAPCD) staff to have the most representative data for the project site due to similar geography and meteorological conditions. Columbia Airport Station is just over 11.5 miles northeast of the project site.

Ascent obtained raw data from NOAA and preprocessed 4 years of meteorological data (2018-2021) using AERMET for the Columbia Airport station for use in the air dispersion modeling. A wind rose displaying the wind speed and wind direction is shown in Figure 1. The wind primarily blows towards the North-East. Dispersion modeling applied the time-averaged, simplified representation of turbulent, atmospheric transport to approximate how pollutants are carried, mixed, dispersed, and diluted by the local winds based on data from the Columbia Airport station.



Source: Figure created by Ascent Environmental in 2022 using WRPLOT View Version 8.0.2. Data obtained from NOAA in 2022.

Figure 1 Wind Rose for Columbia Airport Station (2018-2021)

RECEPTOR GRID

In accordance with TCAPCD guidance for conducting HRAs and air dispersion modeling, a fine receptor grid with a 50-meter (m) grid spacing was used. The grid extends 1.4 kilometer from the project boundary but excludes areas where no receptors are located (e.g., freeways, parks, parking lots). Each receptor was assumed to have a flagpole height of 6 ft (or 1.8 m) to represent the breathing height of a standing adult, consistent with OEHHA guidance (OEHHA 2015:4-22). The locations and identity of these receptors are shown in Table 1.

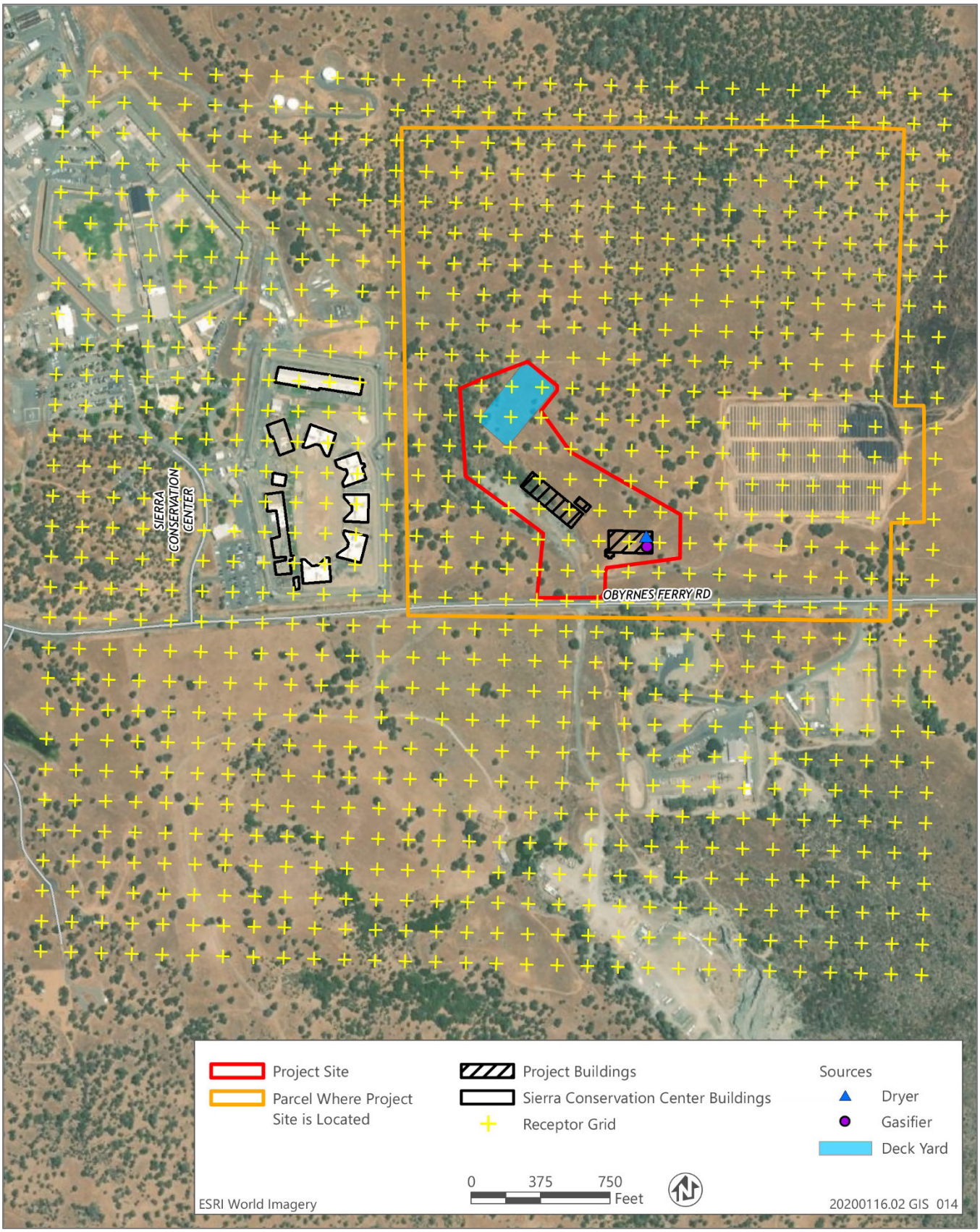
Table 1 Sensitive Receptors within 1,000 feet of the Project Site

Receptor	Location	Distance from Project Site (ft)	Distance from Project Site (m)
California Correctional Facility	37°53'23.47"N, 120°31'57.95"W	500-900	120-300

Note: ft = feet, m = meters

Source: Compiled by Ascent Environmental., Inc. in 2022

The receptor grid, modeled buildings, and sources used in this HRA are shown in Figure 2.



Source: Adapted by Ascent in 2022.

Figure 2 Buildings, Receptors, and Sources

2.4 CANCER AND NON-CANCER RISK CALCULATION

Cancer and non-cancer risks were modeled in HARP2 using relative GLC outputs from AERMOD and calculated emission rates from each source. HARP2 was used to calculate absolute GLCs from each source at each receptor and determine the cancer and non-cancer risks based on the pollutant. Receptor exposure rates and parameters varied depending on the scenario being analyzed.

CARB developed HARP2 as a tool to implement risk assessments and incorporates requirements from the OEHHA *Air Toxics Hot Spot Program Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2015). HARP2 uses the most current OEHHA potency factors for cancer and reference exposure levels for acute and chronic non-cancer risks.

The HRA follows the OEHHA Tier 1 level of evaluation to calculate the health risk impacts at all receptors. Risk modeling was performed in HARP2 to estimate cancer and non-cancer health risks for residential receptors types (sensitive receptors are analyzed as residential receptors types). The assessment of cancer risk and chronic non-cancer health indices use the long-term period (annual) average emissions, while the assessment of acute non-cancer health effects use the maximum short-term 1-hour emissions.

Based on OEHHA guidance, cancer risk is calculated by multiplying the daily inhalation or oral dose (i.e., to characterize non-inhalation risk) by a cancer potency factor, the age sensitivity factor, the frequency of time spent at home (for residents), and the exposure duration divided by averaging time, to yield the excess cancer risk. Then, excess cancer risk is calculated separately for each age grouping and summed to yield cancer risk at the receptor location.

Non-cancer risks are measured in terms of health hazard indices (HHI). Chronic and acute HHIs are the sum of the individual substance chronic and acute hazard indices for all TACs affecting the same target organ system, respectively. Individual substance indices are calculated as the ratio of the calculated ground-level concentration to the reference exposure levels (REL), which are regularly published by OEHHA (OEHHA 2015:6-7). If the reported concentration of a given chemical is less than its REL, then the hazard index would be less than 1.0. Acute risks were calculated from a 1-hour exposure using HARP2.

For all receptor locations, cancer and chronic risks were calculated based on a maximum exposure period of 52 years, which is consistent with the Sierra's Conservation Camp's minimum age of 18 and HARP's maximum age limit of 70. Note that 8-hour chronic risks were not analyzed because all chronic risks HHIs were found to be less than significant and chronic risks are lower under an 8-hour exposure duration than a long-term duration (See Section 3). For all risks, breathing rates were increased from a default of 73 percent of time "at home" to 100 percent "at home" due to the incarceration of inmates.

The point of maximum impact (PMI) at a sensitive receptor were calculated for cancer risk and non-cancer health indices. The PMI is a location within the modeling grid where the model calculates the highest (worst-case) health risk. The PMI may or may not be in a habitable location.

2.5 HEALTH RISK CEQA THRESHOLDS OF SIGNIFICANCE

According to TCAPCD, a project's impact on health risks would be considered significant under CEQA if the project-related increase in risks would exceed the following thresholds shown in Table 2. Results of this HRA are compared to the TCAPCD-adopted thresholds of significance.

Table 2 Significant Health Risk Levels

	Significant Risk Threshold
Maximum Incremental Cancer Risk[1]	10.0 in a million
Total Chronic Non-Cancer Health Hazard Index[2]	1.0
Total Acute Non-Cancer Health Hazard Index[3]	1.0

Notes:

1. Maximum Incremental Cancer Risk is the maximum lifetime excess cancer risk estimate (per million) at residential or worker receptor (whichever is greater). The maximum estimated risk generally is possible at only one location. All other locations show lower risks. Actual cancer risk would likely be less.
2. Total Chronic Health Hazard Index (THI) is the sum of the ratios of the average annual exposure level of each compound to the compound's Reference Exposure Level (REL). Actual chronic THI would likely be less.
3. Total Acute Health Hazard Index (THI) is the sum of the ratios of the maximum one-hour exposure level of each compound to the compound's REL. Actual acute THI would likely be less.

Source: TCAPCD 2017.

2.6 OPERATIONAL HEALTH RISK ASSESSMENT METHODS

The HRA evaluates health risks associated with sources that would occur under existing conditions and the buildout of the project. An inventory of existing and future TAC sources was conducted to identify all sources that are included in the HRA. Air dispersion modeling was conducted using specific or estimated source parameters for all sources identified in the inventory. For proposed sources in particular, there would be a gasifier, which was represented as a point source, a high heat dryer prior to gasifier, which is represented as an area source, a deck yard, which is represented as an area polygon source and gasifier maintenance, which is represented by a point source. The results of the air dispersion modeling were used to calculate health risk under project full buildout operational modeling scenario. Methods specific to operational risk sources are described below.

2.6.1 Source Inventory

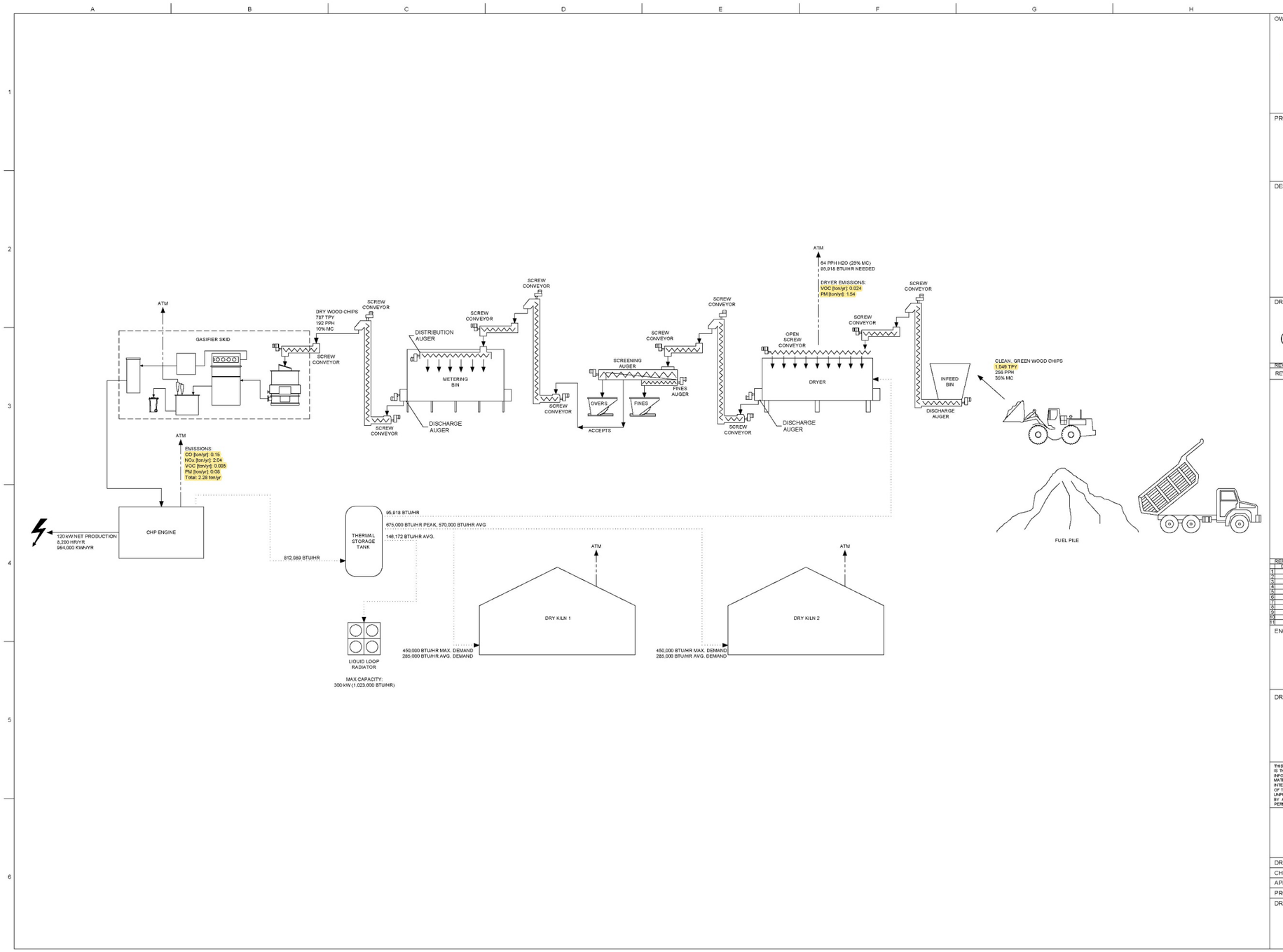
DECK YARD

The deck yard will be responsible for storing and processing the wood logs for distribution. The processing would include activities like chipping, handling, milling which would require the use of equipment like loaders, forklifts, skid steers, man lifts and other material handling equipment. These equipment usually use diesel as their fuel and hence the deck yard could be a source of DPM. However, the applicant stated that all operational off-road equipment would be Tier 4 compliant or utilize alternative fuel (electricity or natural gas). Operations-related off-road equipment emissions were estimated using the equipment list provided by the applicant and inputting this data into CalEEMod. Additional modeling information is available in Appendix B.

CHIP DRYER

The chip dryer, which utilizes heat to dry green woodchips to a low moisture content before being fed into the gasifier, is part of the gasifier combined heat and power (CHP) process and would result in emissions as part of its regular operation. While the entire gasifier CHP process would take place indoors, the chip drier features an exhaust system which directs emissions outside of the building it is housed in. Stack parameters for this exhaust were not readily available. For this reason, the chip drier was modeled as an outdoor area source to provide a conservative estimate of emissions that may contribute to health risks. This area source is shown as a point in Figure 1 due to the scaling of the map, but is modeled as a small area source to match the approximate dimensions of the top of the dryer (7 feet by 30 feet). Figure 3 shows the process flow diagram for the proposed gasifier system, which includes the chip dryer. According to the applicant, the chip dryer would emit methanol, formaldehyde, acetaldehyde, propionaldehyde, and acrolein. These emission factors were provided by the applicant and are show in Appendix C. The dryer is assumed to process 1,049 green tons of biomass per year for up to 8,200 hours per year and 24 hours per day.

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OWNER

HEARTWOOD BIOMASS LLC

SONORA, CA

PROJECT

BIOMASS ENERGY PLANT

DESIGN FIRM

WISEWOOD ENERGY

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DRAWING TITLE

PROCESS FLOW DIAGRAM (GASIFIER / CHP SCENARIO)

REVISIONS

REV	DESCRIPTION	DRAW DATE:	APPROVED DATE:

REFERENCE DRAWINGS

	DWG #	DWG TITLE
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2		
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ENGINEER'S STAMP

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0058-110-102.1

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Source: Heartwood Biomass 2022.

Figure 3 Gasifier CHP Process Flow Diagram

GASIFIER COMBINED HEAT AND POWER ENGINE

The gasifier CHP engine is a system comprised of two distinct pieces of equipment, the gasifier and the CHP engine. The gasifier is used to transform dried woodchips into syngas, which is then combusted in the CHP engine. During maintenance periods charcoal is combusted through the system temporarily. Similarly, to the chip dryer mentioned above, the gasifier CHP engine is housed indoors with an exhaust system directing emissions outside of the building. The stack parameters needed for dispersion modeling were provided by the client. The gasifier is assumed to combust 1,049 green tons of biomass per year for up to 8,200 hours per year and 24 hours per day.

2.6.2 Emission Rates

DECK YARD

Operations-related off-road equipment emissions were estimated using the equipment list provided by the applicant and inputting this data into CalEEMod. CalEEMod default emissions factors were used to estimate total annual emissions. Table 3 shows the emission factor used for estimating TAC from off-road equipment. Additional modeling information is available in Appendix A.

CHIP DRYER AND GASIFIER

The TAC annual and maximum hourly emission rates were estimated by adding emissions factors from different operational activities including wood chip dryer, deck yard, gasifier, and gasifier maintenance. The emission factors for estimating TAC from the gasifier were obtained from the climate registry. The maintenance of the gasifier would occur 6 times in a year and would last for 45 minutes per session. The maintenance of the gasifier was modeled separately, and the emission factors were obtained from studies done on estimating TAC emission factors from charcoal combustion (Kabir et al. 2010; Yu et al. 2020). The emission factors for estimating TAC from the dryer were obtained from LGA Emissions and Occupation Safety report 2013 (Appendix C). The emissions factors used for the analysis are shown in Table 3. The emission factors from the applicant and the LGA report can be found in Appendix C.

Table 3 Proposed Chip Dryer and Gasifier Emission Rates

TAC	Annual TAC Emission Rates per unit (lb/year)	Max Hourly TAC Emission Rates per unit (lb/hr)
Deck Yard		
Diesel PM	4.30E+01	NA[1]
Dryer		
Methanol	3.38E+01	4.13E-03
Formaldehyde	2.61E+00	3.18E-04
Acetaldehyde	9.17E+00	1.12E-03
Propionaldehyde	7.55E-01	9.20E-05
Acrolein	1.06E+00	1.29E-04
Gasifier		
Benzene	7.70E-01	9.39E-05
Formaldehyde	3.85E+00	4.70E-04

TAC	Annual TAC Emission Rates per unit (lb/year)	Max Hourly TAC Emission Rates per unit (lb/hr)
Gasifier Maintenance		
Formaldehyde	6.64E-04	1.11E-04
Acetaldehyde	2.47E-04	4.12E-05
Acrolein	2.15E-05	3.58E-06
Benzene	2.49E-04	4.14E-05
Chromium	1.43E-05	2.38E-06
Toluene	5.89E-04	9.81E-05
Ethyl Benzene	3.67E-05	6.12E-06
Meta para xylene	1.43E-05	2.38E-06
Styrene	5.36E-06	8.93E-07
Acetone	6.45E-05	1.07E-05

Notes: lb = pound; hr = hour; DPM = Diesel Particulate Matter, NA = Not Applicable, TAC = Toxic Air Contaminants.

[1] Diesel PM emissions do not have acute risk factors, which are based on hourly emissions, per CARB's recognized list of toxic air contaminants (CARB 2022).

Source: Climate Registry 2021; Yu et al. 2020; Kabir et al. 2010; LGA Emissions and Occupational Safety 2013.

2.6.3 Air Dispersion Modeling Input Parameters

SOURCE TYPE AND INPUT PARAMETERS

To represent site locations of the operations, emission sources were modeled as point and area sources. For the purposes of this analysis, the proposed project would include three types of operational activities that generate TACs: handling of raw biomass using Tier 4 diesel off-road equipment, drying of biomass, and combustion of fuel in the CHP system. The handling of raw biomass logs would occur at the deck yard, which was modeled as an area polygon source with release height of 3.9 m and emission rate as 0.00012 g/s per square meter (m^2). The dryer was modeled as area source with release height 10 m and emission rate 0.0638 g/s-m^2. The gasifier was modeled as a point source with a release height of 12.1 m and emission rate 1 g/s. Every year, the gasifier is expected to undergo maintenance and the emissions generated during maintenance are expected to exit through the same gasifier point source. These sources are shown in Figure 3.

2.6.4 Cancer and Non-Cancer Risk Assumptions

Table 4 summarizes the parameters and assumptions used to estimate health risks by receptor type for operation-related risks. These parameters are used for operation-related risks and for both existing and proposed scenarios.

Table 4 Risk Parameters for Cancer and Non-Cancer Risk for Operation-Related Risks[1]

Risk Parameters	Sensitive Receptors		
Analysis Type	Cancer Risk	Chronic Risk (Non-cancer)	Acute Risk (Non-cancer)
Receptor Type	Residential	Residential	Residential
Exposure Duration	52 years	N/A	N/A
Starting Age	18	N/A	N/A
Intake Rate Percentile	OEHHA Derived Method	OEHHA Derived Method	N/A
Risk Pathways Evaluated	Inhalation and Dermal	Inhalation and Dermal	Inhalation and Dermal
Deposition Rate	0.02 m/s	0.02 m/s	N/A
FAH[2]	100%	100%	100%
8-Hour Breathing Rates	Off	Off	Off
Climate	Mixed	Mixed	N/A

Notes: N/A = not applicable; OEHHA = Office of Environmental Health Hazard Assessment; RMP = Risk Management Policy; m/s = meters per second; FAH = fraction of time at home

[1] Analysis was prepared consistent with OEHHA Guidance (OEHHA 2015).

[2] For ages 18 years and older.

Source: Prepared by Ascent in 2022.

3 RESULTS

3.1 OPERATION

Table 5 shows the modeled change in cancer and non-cancer risks at the receptors associated with emissions resulting from the operation of the Tuolumne Biomass LLC facility. The PMIs for each risk were selected based on their occurrence under the proposed full buildout scenario. PMI at receptor locations for cancer risk is shown in Figure 4. For non-cancer chronic and acute risks, the PMI is shown in the contour maps in Figures 5 and 6.

Table 5 Project-Generated Health Risks from Operational Emissions Sources

	Carcinogenic	Non-Carcinogenic	
	Cancer Risk	Chronic Risk	Acute Risk
Location (Easting [m], Northing [m])	717076.65, 4196644.52	717276.65, 4196444.52	717076.65, 4196444.52
Project-Added Risk Value	3.2 in a million	0.006 HHI	0.028 HHI
TCAPCD Significance Threshold	10.0 in a million	1.0 HHI	1.0 HHI
Threshold Exceeded?	No	No	No

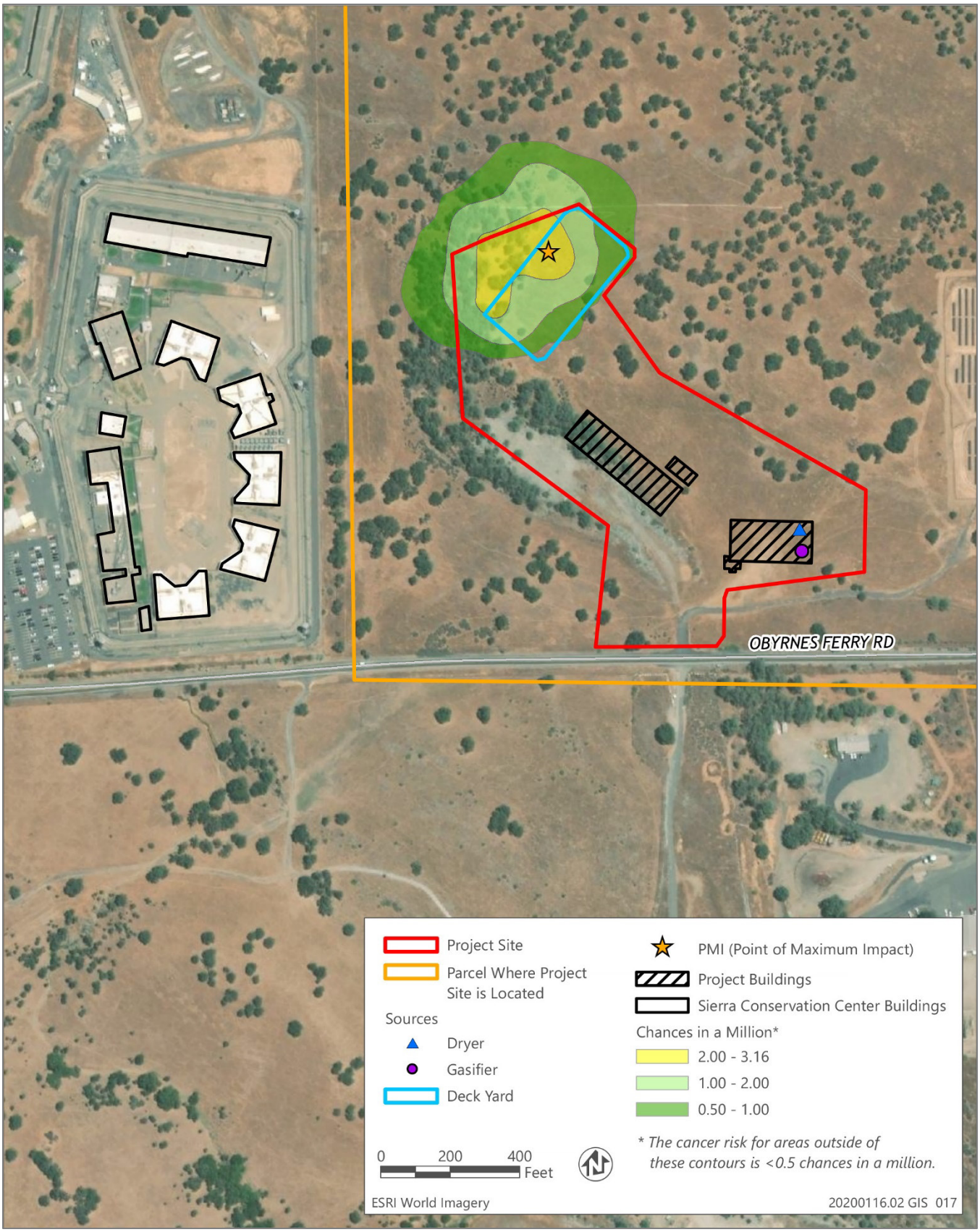
Notes: PMI = point of maximum impact; N/A = not applicable; HHI = health hazard index, TCPACD = Tuolumne County Air Pollution Control District

[1] Based on Universal Transverse Mercator coordinates.

Source: Modeling performed by Ascent in 2022.

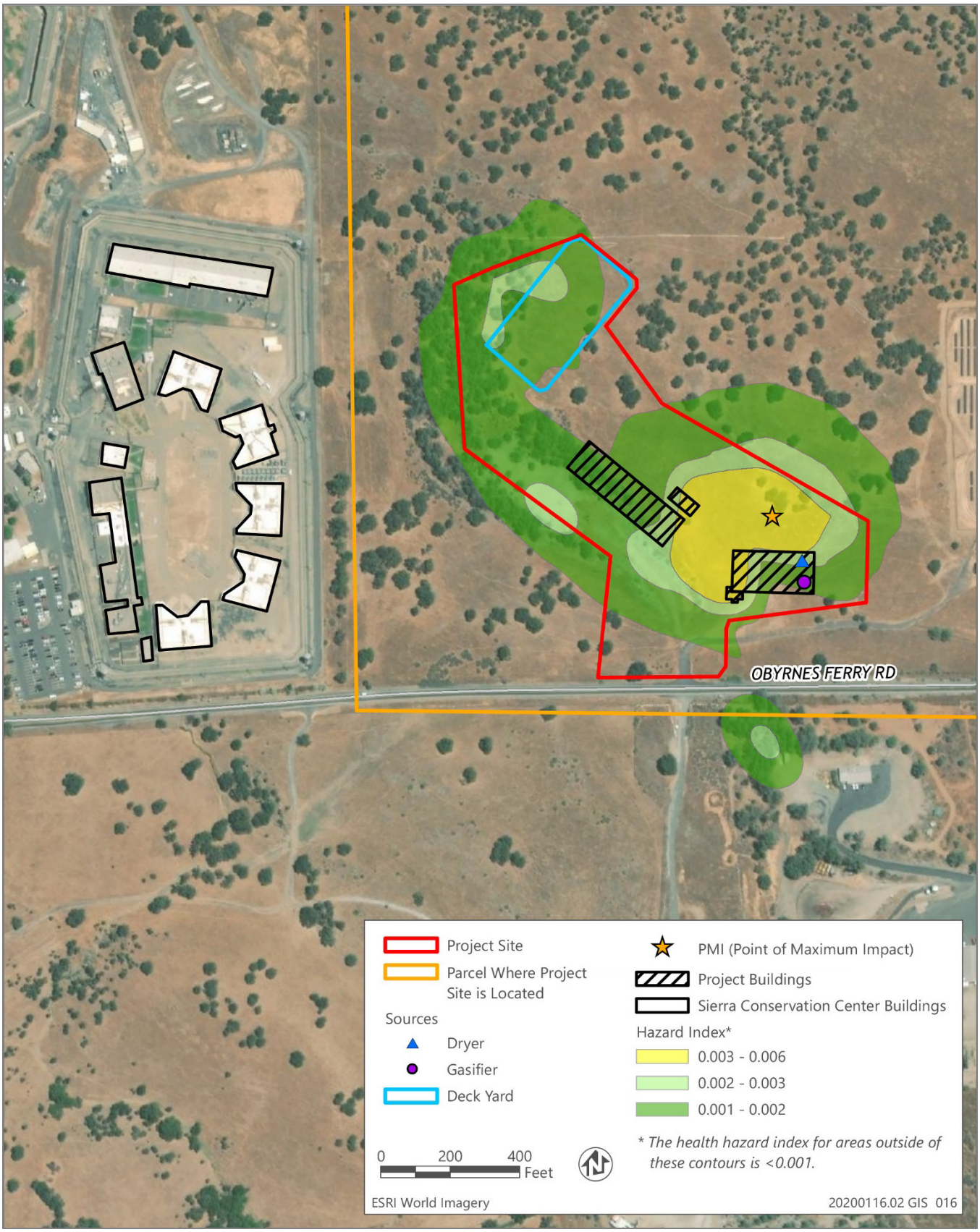
As shown in Table 5 and Figure 4, operation of the project would not result in an incremental increase in residential cancer risk that exceeds TCAPCD's significance threshold of 10.0 in a million at a receptor. At the PMI, the cancer risk from the project operations would be 3.2 in a million. Hence, the cancer risk would be less than significant.

As shown in Table 5 and Figure 5 and 6, based on the exposure and the operational emissions assumptions discussed in above, operations of the project would not result in an HHI for chronic and acute risk that exceeds the threshold of significance of 1.0 for both. At the PMI, the chronic and acute risk from project operations would have an HHI of 0.006 and 0.028 respectively, which would not exceed chronic as well as acute risk threshold of 1.0. Thus, all other receptors would not have an HHI that exceeds the chronic as well as acute risk threshold resulting from proposed operations.



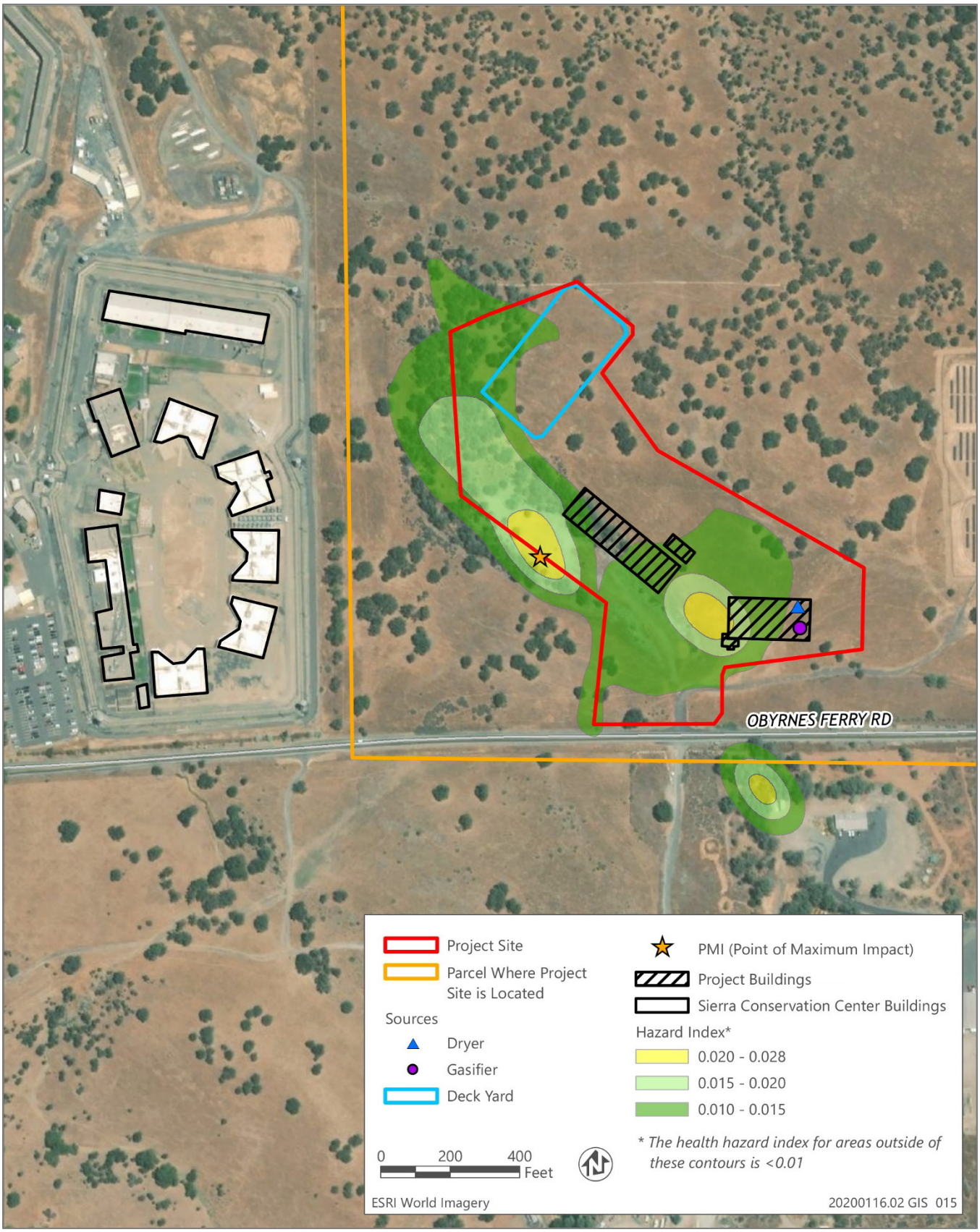
Source: Adapted by Ascent in 2022.

Figure 4 Cancer Risk Contour



Source: Adapted by Ascent in 2022.

Figure 5 Chronic Risk Contours



Source: Adapted by Ascent in 2022.

Figure 6 Acute Risk Contours

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Appendix A

TAC EMISSION CALCULATIONS

Input Assumptions

inputs/assumptions
calculations/links

Biomass Consumption Assumptions	Amount	Units	Source
Annual Biomass Delivered to Project	20,000	green tons/yr	Project Description [1]
Total Bone Dry Tons (Average annual)	12,000	bone dry tons/yr	Calculated
Biomass Used for Combustion	1,049	green tons/yr	Project Description
Green Biomass Moisture Content	40%	Percent	Project Description
Haul Trips From Field			
Annual Biomass	20,000	green tons/yr	Project Description [1]
Haul Work Days	260	days/yr	Project Description [2]
Daily Haul - Logs from Field	135.0	green tons/day	Project Description [3]
Chip Van Capacity	30	tons/truck	Project Description [4]
Daily Log Truck Trips	3.5	trips/day	Project Description [5]
Distance to Facility (from field)	40	miles	Project Description
Idling time at loading	5	minutes	
Idling time at unloading	5	minutes	
Daily Roundtrip Miles	280	miles/day	
Project site			
Working days per year	260	days/yr	Project Description [2]

Notes

[1] The expected volume of throughput at the TBLLC facility would grow from an estimated 10,000 tons to 20,000 tons of biomass (moisture content of 40 percent) per year over a 5-year period.

[2] Based on an assumption of haul trucks operating 5 days per week and 52 weeks per year.

[3] estimated 20-27 green tons per truck 5 trips/day27X5

[4] 28-30 ton trucks

[5]The facility would receive an estimated five log trucks per day

Construction Emission

CalEEMod Results - Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.3571	2.5711	3.1145	6.65E-03	0.4219	0.1032	0.5250	0.1635	0.0966	0.2601	0.0000	594.9510	594.9510	0.0903	0.0227	603.9720
2024	0.5971	0.7817	1.0907	2.26E-03	0.0728	0.0306	0.1034	0.0196	0.0287	0.0483	0.0000	201.5292	201.5292	0.0311	7.02E-03	204.3990
Maximum	0.5971	2.5711	3.1145	**6.65E-03**	0.4219	0.1032	0.5250	0.1635	0.0966	0.2601	0.0000	594.9510	594.9510	0.0903	0.0227	603.9720

Project Lifetime Assumpt 30 years
Amortized Construction (26.9 MTCO2/yr

CalEEMod Results - Daily

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	3.7098	34.4904	33.0033	0.0701	24.8012	1.5841	26.3853	12.6890	1.4574	14.1464	0.0000	6,924.25	6,924.25	1.4990	0.2763	7,029.49
2024	48.3181	22.9361	31.8922	0.0693	2.5289	0.8605	3.3894	0.6795	0.8085	1.4879	0.0000	6,839.31	6,839.31	0.9039	0.2667	6,941.38
Maximum	48.3181	34.4904	33.0033	0.0701	24.8012	1.5841	26.3853	12.6890	1.4574	14.1464	0.0000	**6,924.25**	**6,924.25**	1.4990	0.2763	**7,029.49**

See separate CalEEMod outputs for more details

Project Worker Trip Exhaust Emissions

Commute Trips by Workers on Field Crew

	value	units	source
Number of workers on crew			
Number of crews	1	crews/day	Tuolumne PD
Workers per crew	20	workers/day	Tuolumne PD
Trip rate for crew workers	2	trips/day	assumption
	520	trips/year	
Avg. worker commute trip length (1-way)	16.8	miles/trip	default worker trip length in construction module of CalEEMod

Daily VMT by crew workers per crew

Average daily	672	VMT/day	calculation
	174720		

Mix of passenger vehicles used in employee commutes

breakdown of passenger car VMT in Tuolomne County (EMFAC 2021 Average Distributions)

	value	units	source
light duty autos - gasoline	649,911	VMT/day	wksht: On-Rd Veh Emiss Rates
light duty autos - diesel	3,092	VMT/day	wksht: On-Rd Veh Emiss Rates
light duty autos - electricity	36,361	VMT/day	wksht: On-Rd Veh Emiss Rates
light duty autos - plug in hybrid	18,810	VMT/day	wksht: On-Rd Veh Emiss Rates
light duty trucks 1 - gasoline	124,075	VMT/day	wksht: On-Rd Veh Emiss Rates
light duty trucks 1 - diesel	20	VMT/day	wksht: On-Rd Veh Emiss Rates
light duty trucks 1 - electricity	94	VMT/day	wksht: On-Rd Veh Emiss Rates
light duty trucks 1 - plug in hybrid	99	VMT/day	wksht: On-Rd Veh Emiss Rates
light duty trucks 2 - gasoline	494,235	VMT/day	wksht: On-Rd Veh Emiss Rates
light duty trucks 2 - diesel	1,393	VMT/day	wksht: On-Rd Veh Emiss Rates
light duty trucks 2 - electricity	1,689	VMT/day	wksht: On-Rd Veh Emiss Rates
light duty trucks 2 - plug in hybrid	3,389	VMT/day	wksht: On-Rd Veh Emiss Rates
Total, all passenger vehicle types	1,333,168	VMT/day	summation

relative portion of passenger car VMT by veh type	value	units	source
light duty autos - gasoline	48.7%	%	calculation
light duty autos - diesel	0.2%	%	calculation
light duty autos - electricity	2.7%	%	calculation
light duty autos - plug in hybrid	1.4%	%	calculation
light duty trucks 1 - gasoline	9.3%	%	calculation
light duty trucks 1 - diesel	0.0%	%	calculation
light duty trucks 1 - electricity	0.0%	%	calculation
light duty trucks 1 - plug in hybrid	0.0%	%	calculation
light duty trucks 2 - gasoline	37.1%	%	calculation
light duty trucks 2 - diesel	0.1%	%	calculation
light duty trucks 2 - electricity	0.1%	%	calculation
light duty trucks 2 - plug in hybrid	0.3%	%	calculation
Total, all passenger vehicle types	100.0%	%	summation

Project Worker Trip Exhaust Emissions

Emission Rates (running exhaust)

	ROG	NOx	PM10	PM2.5	CO	CO2	CH4	N2O	CO2e	units	source	Fuel Use	units	source
light duty autos - gasoline	1.83E-02	5.73E-02	1.60E-03	1.47E-03	1.38E+00	318.8398	4.44E-03	5.58E-03	320.614	g/mile	wksht: On-Rd Veh Emiss Rates	0.0362	gal/mile	wksht: EMFAC(2023) Output Fuel Use
light duty autos - diesel	4.73E-02	3.93E-01	2.67E-02	2.56E-02	5.61E-01	249.6840	2.20E-03	3.93E-02	261.462	g/mile	wksht: On-Rd Veh Emiss Rates	0.0248	gal/mile	wksht: EMFAC(2023) Output Fuel Use
light duty autos - electricity	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0000	0.00E+00	0.00E+00	0.000	g/mile	wksht: On-Rd Veh Emiss Rates	0.0000	gal/mile	wksht: EMFAC(2023) Output Fuel Use
light duty autos - plug in hybrid	1.89E-03	3.07E-03	7.41E-04	6.81E-04	3.35E-01	164.8956	6.12E-04	5.81E-04	165.084	g/mile	wksht: On-Rd Veh Emiss Rates	0.0187	gal/mile	wksht: EMFAC(2023) Output Fuel Use
light duty trucks 1 - gasoline	8.01E-02	2.49E-01	3.57E-03	3.28E-03	3.94E+00	389.3782	1.71E-02	1.63E-02	394.656	g/mile	wksht: On-Rd Veh Emiss Rates	0.0444	gal/mile	wksht: EMFAC(2023) Output Fuel Use
light duty trucks 1 - diesel	2.81E-01	1.31E+00	2.46E-01	2.35E-01	1.78E+00	417.7508	1.30E-02	6.58E-02	437.690	g/mile	wksht: On-Rd Veh Emiss Rates	0.0412	gal/mile	wksht: EMFAC(2023) Output Fuel Use
light duty trucks 1 - electricity	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0000	0.00E+00	0.00E+00	0.000	g/mile	wksht: On-Rd Veh Emiss Rates	0.0000	gal/mile	wksht: EMFAC(2023) Output Fuel Use
light duty trucks 1 - plug in hybrid	1.72E-03	2.80E-03	4.95E-04	4.56E-04	3.09E-01	151.0744	5.63E-04	5.39E-04	151.249	g/mile	wksht: On-Rd Veh Emiss Rates	0.0172	gal/mile	wksht: EMFAC(2023) Output Fuel Use
light duty trucks 2 - gasoline	2.46E-02	1.09E-01	1.77E-03	1.63E-03	1.71E+00	397.1854	5.84E-03	8.14E-03	399.757	g/mile	wksht: On-Rd Veh Emiss Rates	0.0457	gal/mile	wksht: EMFAC(2023) Output Fuel Use
light duty trucks 2 - diesel	2.98E-02	1.87E-01	1.12E-02	1.08E-02	2.91E-01	328.1434	1.39E-03	5.17E-02	343.584	g/mile	wksht: On-Rd Veh Emiss Rates	0.0332	gal/mile	wksht: EMFAC(2023) Output Fuel Use
light duty trucks 2 - electricity	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0000	0.00E+00	0.00E+00	0.000	g/mile	wksht: On-Rd Veh Emiss Rates	0.0000	gal/mile	wksht: EMFAC(2023) Output Fuel Use
light duty trucks 2 - plug in hybrid	1.81E-03	2.95E-03	6.53E-04	6.01E-04	3.24E-01	158.9663	5.94E-04	5.69E-04	159.151	g/mile	wksht: On-Rd Veh Emiss Rates	0.0180	gal/mile	wksht: EMFAC(2023) Output Fuel Use
Composite emiss rates - all pass vehicles	**0.026**	**0.093**	**0.002**	**0.002**	**1.679**	**342.586**	**0.006**	**0.007**	**344.943**	**g/mile**	**Sumproduct calculation**	**0.039**	**gal/mile**	**Sumproduct calculation**

Composite Emissions Rates in lb/mi	ROG	NOx	PM10	CO
	lb/mi	lb/mi	lb/mi	lb/mi
	5.66E-05	2.04E-04	4.09E-06	3.70E-03

Worker Commute Emissions (exhaust)

Annual Emissions	ROG	NOx	PM10	PM2.5	CO	CO2e
	tons/year	tons/year	tons/year	tons/year	tons/year	MT/year
Emissions per year	**0.005**	**0.018**	**0.000**	**0.000**	**0.323**	**60.268**

Daily Emissions	ROG	NOx	PM10	PM2.5	CO
	lb/day	lb/day	lb/day	lb/day	lb/day
Emissions per day	**0.038**	**0.137**	**0.003**	**0.003**	**2.488**

CalEEMod Operational Emissions (On-Site Off-Road Equipment + Net Electricity Use)

CalEEMod Results - Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Source	tons/yr										MT/yr					
Off-Road Equipment	0.0473	0.3562	0.9228	0.0016	0.0000	0.0144	0.0144	0.0000	0.0134	0.0134	0.0000	136.2340	136.2340	0.0441	0.0000	137.3356
Electricity Use	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	13.1719	13.1719	3.2783	0.3860	210.1643
Total	**0.0473**	**0.3562**	**0.9228**	**0.0016**	**0.0000**	**0.0144**	**0.0144**	**0.0000**	**0.0134**	**0.0134**	**0.0000**	**149.4059**	**149.4059**	**3.3224**	**0.3860**	**347.4999**

CalEEMod Results - Daily

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5Total
Source	lb/day									
Off-Road Equipment	0.3636	2.7396	7.0984	0.0119	0.0000	0.1107	0.1107	0.0000	0.1030	0.1030
Electricity Use	0.0000	0.0000	0.0000	0.00E+00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.3636**	**2.7396**	**7.0984**	**0.0119**	**0.0000**	**0.1107**	**0.1107**	**0.0000**	**0.1030**	**0.1030**

See separate CalEEMod outputs for more details

Offsite-to-Project Haul Trip Emissions

Basic Information	value	units	Source	
Annual Haul Tonnage	20,000	green tons/yr	Project Description	
Work Days	260	days/yr	See Input Assumptions	
Daily Haul Tonnage	76.9	green tons/day	Calculation	
Usable Biomass Fuel	46.2	BDT/day	Calculation	12000 BDT/yr

Haul Trips to Project	value	units	
Truck Capacity	30	tons/truck	See Input Assumptions
Daily Truck Trips	3.5	trips/day	See Input Assumptions
Annual Truck Trips	910	trips/year	See Input Assumptions
Distance to Facility	40	miles/trip	See Input Assumptions
Daily Roundtrip Miles	280	miles/day	Calculation
Annual Round Trip Miles	72,800	miles/year	Calculation

Idling Assumptions	value	units
Idling time at unloading per trip	5	minutes
Idling time per day	8.75	minutes
Idling time per year	2275	minutes

Water Trips			
trips per week	2	trips/wk	
delivery miles per trip	20	miles/trip	note: one way
trips per yr	104	trips/yr	
miles per yr	2,080	miles/yr	
trips per day	0.4	trips.day	
miles per day	8.0	miles/day	

Idling Assumptions per water truck trip	value	units
Idling time at unloading	5	minutes
Max idling time per day	5	minutes
Average Idling time per day	1.0	minutes
Idling time per year	260	minutes

Haul Truck Emission Rates (Diesel)		ROG	NOx	PM10	PM2.5	CO	CO2	CH4	N2O	CO2e	units
T6 instate heavy	running exhaust	1.69E-02	1.26E+00	8.36E-03	8.00E-03	9.68E-02	1.10E+03	7.83E-04	1.73E-01	1,146.60	g/mile
T6 instate heavy	idling	2.15E-04	7.63E-03	2.68E-05	2.56E-05	5.20E-03	1.58E+00	1.00E-05	2.49E-04	1.65	g/min
LHD1	running exhaust	2.92E-01	3.35E+00	6.75E-02	6.46E-02	9.04E-01	6.28E+02	1.36E-02	9.90E-02	658.20	g/mile
LHD1	idling	7.62E-05	1.67E-03	1.92E-05	1.84E-05	6.32E-04	9.64E-02	3.54E-06	1.52E-05	0.10	g/min

Source: wksht: 2023 On-Rd Veh Emiss Rates

Hauling trucks by VMT	value	unit
T6 instate heavy	2477.236916	VMT/day
LHD1	85005.81407	VMT/day
Total	87483.05099	VMT/day

relative proportion	value
T6 instate heavy	3%
LHD1	97%

Exhaust Composite emissions rates		ROG	NOx	PM10	PM2.5	CO	CO2	CH4	N2O	CO2e	
T6 instate heavy	running exhaust	1.69E-02	1.26E+00	8.36E-03	8.00E-03	9.68E-02	1.10E+03	7.83E-04	1.73E-01	1146.6	g/mile
LHD1	running exhaust	2.92E-01	3.35E+00	6.75E-02	6.46E-02	9.04E-01	6.28E+02	1.36E-02	9.90E-02	658.197	g/mile

	ROG	Nox	PM10	PM2.5	CO	CO2	CH4	N2O	CO2e	
Composite emissions rates	**2.85E-01**	**3.29E+00**	**6.59E-02**	**6.30E-02**	**8.81E-01**	**6.42E+02**	**1.32E-02**	**1.01E-01**	672.027	**g/mile**

Offsite-to-Project Haul Trip Emissions

Biomass Delivery Trips

Annual Emissions

Haul Truck Emissions	ROG	NOx	PM10	PM2.5	CO	CO2	CH4	N2O	CO2e
Raw biomass fuel	tons/year	tons/year	tons/year	tons/year	tons/year	MT/year	MT/year	MT/year	MT/year
Trip emissions in MCAB	0.001	0.101	0.001	0.001	0.008	79.728	0.000	0.013	83.472
Loading/Unloading	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.004
Total Hauling	**0.001**	**0.102**	**0.001**	**0.001**	**0.008**	**79.732**	**0.000**	**0.013**	**83.476**

Daily Emissions

Haul Truck Emissions	ROG	NOx	PM10	PM2.5	CO
Raw biomass fuel	lb/day	lb/day	lb/day	lb/day	lb/day
Trip emissions in MCAB	0.010	0.781	0.005	0.005	0.060
Loading/Unloading	0.000	0.000	0.000	0.000	0.000
Total Hauling	**0.010**	**0.781**	**0.005**	**0.005**	**0.060**

Water Truck Delivery Emissions

Annual Emissions

Haul Truck Emissions	ROG	NOx	PM10	PM2.5	CO	CO2	CH4	N2O	CO2e
Raw biomass fuel	tons/year	tons/year	tons/year	tons/year	tons/year	MT/year	MT/year	MT/year	MT/year
Trip emissions	0.001	0.008	0.000	0.000	0.002	1.441	0.000	0.000	1.509
Loading/Unloading	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Water Truck Delivery	**0.001**	**0.008**	**0.000**	**0.000**	**0.002**	**1.441**	**0.000**	**0.000**	**1.509**

Daily Emissions

Haul Truck Emissions	ROG	NOx	PM10	PM2.5	CO
Raw biomass fuel	lb/day	lb/day	lb/day	lb/day	lb/day
Trip emissions	0.005	0.059	0.001	0.001	0.016
Loading/Unloading	0.000	0.000	0.000	0.000	0.000
Total Water Truck Delivery	**0.005**	**0.059**	**0.001**	**0.001**	**0.016**

Gasifier CHP Emissions

Gasifier CHP Input Specifications

	value	units	source/notes
		Green tons combusted	
	1,049	per year	Project description
	359	Days/year	operational days per year minus 6 maintenance calls per year (assumption)
	8,200	hours/year	Wisewood Energy Gasified CHP System [1]
	24	hours/day	24 hr/day operation noted in PD

Exhaust Flow Rate	426	m3/hr	Wisewood Energy Gasified CHP System [1]

Maintenance Assumptions	value	units	source/notes
	50	lbs of charcoal/session maintenance	charcoal used for warm/cold start ups after maintenance periods [Email from Matt King (10/4/22)
	6	sessions/year	Email from Matt King (10/4/22)
	45	minutes per session	Email from Matt King (10/4/22)

Charcoal Emissions

	Unit	Value	lb/lb	Source	lb/ton
PM2.5	mg/kg	500	5.00E-04		1.00
HC	mg/kg	1122	1.12E-03		2.24
CO	g/kg	157.5	1.58E-01	[7]	315.00
CO2	g/kg	2022	2.02E+00		4044.00
NOx	mg/kg	220.6	2.21E-04		0.44

Criteria Pollutant Emission Rates

	ROG tons/year	NOx tons/year	PM10 [3] tons/year	PM2.5 [3] tons/year	CO tons/year
Dryer	0.024	0	1.54	1.54	0
CHP Engine	0.005	2.04	0.08	0.08	0.15
CHP Engine (maintenance)					

Source: Wisewood Energy Process Flow Diagram

TAC Emission Factors

Wood Chip Dryer Emissions	value	units	source/notes
Methanol	0.048	lb/BDT	Wisewood Energy Gasified CHP System [1]
Formaldehyde	0.0037	lb/BDT	Wisewood Energy Gasified CHP System [1]
Acetaldehyde	0.013	lb/BDT	Wisewood Energy Gasified CHP System [1]
Propionaldehyde	0.00107	lb/BDT	Wisewood Energy Gasified CHP System [1]
Acrolein	0.0015	lb/BDT	Wisewood Energy Gasified CHP System [1]
Wood Chip Demand	0.086	BDT/hr	Wisewood Energy Gasified CHP System [1]

Gasifier Emissions			
Benzene	0.1	mg/m3	2013 LGA Emissions and Occupational Safety (Gasifer Emissions Report - in German)
Formaldehyde	0.5	mg/m3	2013 LGA Emissions and Occupational Safety (Gasifer Emissions Report - in German)

Maintenance Emissions (TAC Charcoal Emissions)

	Unit	Value	lb/lb	Source
Chromium	ug/kg	47.53	4.75E-08	[7]
Benzene	ppb	752	8.28937E-07	[8]
Toluene	ppb	1780	1.96211E-06	[8]
Ethyl Benzene	ppb	111	1.22356E-07	[8]
Meta para xylene	ppb	43.1	4.75096E-08	[8]
Styrene	ppb	16.2	1.78574E-08	[8]
Formaldehyde	ppb	2008	2.21344E-06	[8]
Acetaldehyde	ppb	747	8.23426E-07	[8]
Acrolein	ppb	65	7.16502E-08	[8]
Acetone	ppb	195	2.1495E-07	[8]

GHG Emission Factors (biomass gasification)	value	units	source/notes
Syngas production from gasification of forest biomass	2.4	kg syngas per kg wood biomass	[4]
Density of biomass-based syngas	0.95	kg/m3	[4]
Energy density of biomass-based syngas	4.45	MJ/Nm3	[6]
Fuel carbon content of biomass-based syngas used in CHP engines			
CO2 emissions per C from syngas	3.4	lb/MMBTU	based on average carbon content of other syngas types
CO2 emissions per C from syngas	0.0015	kg CO2/MJ	Calculated
CO2 emissions per C (syngas from natural gas)	*3.4*	*lb/MMBTU*	[5]
CO2 emissions per C (syngas from oil)	*3.3*	*lb/MMBTU*	[5]
CO2 emissions per C (syngas from coal)	*3.4*	*lb/MMBTU*	[5]
Biomass Gasifier CO2 Emissions Factor	0.016	kg CO2/kg wood biomass	Calculated
Biomass Gasifier CO2 Emissions Factor	14.906	kg CO2/ton wood biomass	Calculated
Biomass Gasifier CO2 Emissions Factor	32.862	lb CO2/ton wood biomass	Calculated
	value	units	source/notes
CO2 emissions - syngas	15.6	MT/year	Calculated
CO2 emissions - charcoal	0.3	MT/year	Calculated
CO2 emissions - Total	**16**	MT/year	Calculated

Emissions Results

Annual Emissions	ROG	NOx	PM10 [3]	PM2.5 [3]	CO
	tons/year	tons/year	tons/year	tons/year	tons/year
Dryer Emissions	0.02	0.00	1.54	1.54	0.00
Gasifier Maintenace	0.00	0.00	0.00	0.00	0.02
CHP Emissions	0.01	2.04	0.08	0.08	0.15
Total Emissions from Gasifier System	**0.029**	**2.040**	**1.620**	**1.620**	**0.174**
lbs/ton of green fuel	*0.056*	*3.889*	*3.089*	*3.089*	*0.331*

Daily Emissions	ROG	NOx	PM10 [3]	PM2.5 [3]	CO
	lb/day	lb/day	lb/day	lb/day	lb/day
Dryer Emissions	0.13	0.00	8.58	8.58	0.00
CHP Emissions	0.03	11.36	0.45	0.45	0.84
Gasifier Maintenace	0.06	0.01	0.03	0.03	7.88
Emissions per day	**0.22**	**11.38**	**9.05**	**9.050**	**8.71**

TAC Emissions (On-Site Diesel Operations)	lb/year	lb/hr
Diesel PM	28.80036	1.38E-02

TAC Emissions (Dryer)	lb/year	lb/hr
Methanol	3.38E+01	4.13E-03
Formaldehyde	2.61E+00	3.18E-04
Acetaldehyde	9.17E+00	1.12E-03
Propionaldehyde	7.55E-01	9.20E-05
Acrolein	1.06E+00	1.29E-04

TAC Emissions (Gasifier)	lb/year	lb/hr
Benzene	7.70E-01	9.39E-05
Formaldehyde	3.85E+00	4.70E-04

TAC Emissions (Gasifier-Maintenance)	lb/year	lb/hr
Formaldehyde	6.64E-04	1.11E-04
Acetaldehyde	2.47E-04	4.12E-05
Acrolein	2.15E-05	3.58E-06
Benzene	2.49E-04	4.14E-05
Chromium	1.43E-05	2.38E-06
Toluene	5.89E-04	9.81E-05
Ethyl Benzene	3.67E-05	6.12E-06
Meta para xylene	1.43E-05	2.38E-06
Styrene	5.36E-06	8.93E-07
Acetone	6.45E-05	1.07E-05

TAC Emissions	lb/year	lb/hr
Methanol	3.38E+01	4.13E-03
Formaldehyde	6.46E+00	7.88E-04
Acetaldehyde	9.17E+00	1.12E-03
Acrolein	1.06E+00	1.29E-04
Benzene	7.70E-01	1.35E-04
Toluene	5.89E-04	9.81E-05
Ethyl Benzene	3.67E-05	6.12E-06
Meta para xylene	1.43E-05	2.38E-06
Styrene	5.36E-06	8.93E-07

Notes

[1] Climate Registry Default Emission Factors 2021

[2] Provided by Matt King (June 9, 2022)

[3] No distinction was provided for the PM emissions factors. To be conservative. PM was assumed to be both PM10 and PM2.5

[4] Mustafa et. al. 2017 "A Techno-Economic Study of a Biomass Gasification Plant for the Production of Transport Biofuel for Small Communities "

[5] EPA 2017. "Catalog of CHP technologies" https://www.epa.gov/sites/default/files/2015-07/documents/catalog_of_chp_technologies.pdf

[6] Havilah et. al. "Biomass Gasification in Downdraft Gasifiers: A Technical Review on Production, Up-Gradation and Application of Synthesis Gas" https://www.google.com/url?sa=i&rct=j&q=&esrc=s&source=web&cd=&ved=0CAQQw7AJahcKEwiYsvG_sfL6AhUAAAAAHQAAAAQAw&url=https%3A%2F%2Fwww.mdpi.com%2F1996-1073%2F15%2F11%2F3938%2Fpdf&psig=AOvVaw18XxNgI8EP7-n2lDsEYU2n&ust=1666478276071337

[7] Yu et. al. 2020. "Effects of Oil Drops and the Charcoal's Proximate Composition on the Air Pollution Emitted from Charcoal Barbecues" Control Techniques and Strategy Volume 20, Issue 6, June 2020 (https://aaqr.org/articles/aaqr-19-01-oa-0042)

[8] Kabir et. al. 2010 "Barbecue charcoal combustion as a potential source of aromatic volatile organic compounds and carbonyls" Journal of Hazardous Materials Volume 174, Issues 1–3, 15 February 2010, Pages 492-499 (https://www.sciencedirect.com/science/article/abs/pii/S0304389409015404)

Project-to-Offsite Haul Trips

Wood Product Retail Delivery	value	units	Source
Total Biomass Delivered from Field	20,000	tons/yr (estimated maximum for project)	Project Description
Green Tons Burned	1,049	tons/yr	Project Description
Green tons sold to Chinese Station	2,000	tons/yr	Project Description
Remaining Wood to be Manufactured	16,951	tons/yr	Calculated
Number of Delivery Destinations	5	destinations	Project Description
Tons per truck	30	tons/trip	Project Description
Retail trip distance within Tuolumne County	40	mi	Distances based on assumed retail destinations (see below), as provided by the applicant. Distribution of retail deliveries by destination were not provided. Conservative estimate of travel occuring within the MCAB.
Trips per Year	565	trips/year	Calculated
Retail VMT per Year	45,203	VMT/year	Calculated. Assuming round trips
Work days per year	260	days per year	See input assumptions
Retail VMT per Day	174	VMT/day	Calculated. Assuming round trips
Idling Assumptions per truck trip	value	units	
Idling time at loading	5	minutes	Conservative Assumption. Trucks will likely be shut off while loading.
Idling time per year	2,825	minutes	
Max idling time per day	11	minutes	

Retail Delivery Destinations	Miles (from site to destination)	notes
Riverbank	31.7	source: google earth
Sacramento	94.5	source: google earth
Modesto	42.5	source: google earth
LA	323	source: google earth
Sierra Pacific Power Company	1.3	Assumed to be Sierra Electric

Hog Fuel Delivery to Chinese Power Station	value	units	Source
Green tons sold to Chinese Station	2,000	tons/yr	Project Description
Tons per truck	30	tons/trip	Project Description
Hog Fuel Trips per Year (Chip Van Trips)	70.0	trips/yr	Project Description
Max Hog Fuel Trips per Day	2.0	trips/day	round trip (pick up and drop off)
Driving Distance to Chinese Power Station	6.2	miles	Google Maps
Hog Fuel VMT per Year	434.0	VMT/year	Calculated
Max Hog Fuel VMT per Day	12.4	VMT/day	Calculated
Idling Assumptions per truck trip	value	units	
Idling time at loading	5	minutes	Conservative Assumption. Trucks will likely be shut off while loading.
Idling time per year	175	minutes	Calculated
Max idling time per day	5	minutes	Calculated

Solid Waste Collection Trips	value	units	Source
trips per week	2	trips/wk	Assumption for weekly solid waste pick ups
delivery miles per trip	16	miles/trip	note: one way to Cal Sierra Transfer Station
trips per yr.	104	trips/yr	Calculated
miles per yr	1,664	miles/yr	Calculated
trips per day	0.4	trips.day	Calculated
miles pday	6.4	miles/day	Calculated
Idling Assumptions per truck trip	value	units	
Idling time at unloading	5	minutes	Assumption
Idling time per day	5	minutes	Assumption
Idling time per year	520	minutes	Assumption

Haul Truck Emission Rates (Diesel)											
		ROG	NOx	PM10	PM2.5	CO	CO2	CH4	N2O	CO2e	units
T6 instate heavy	running exhaust	1.69E-02	1.26E+00	8.36E-03	8.00E-03	9.68E-02	1.10E+03	7.83E-04	1.73E-01	1146.6	g/mile
T6 instate heavy	idling	2.15E-04	7.63E-03	2.68E-05	2.56E-05	5.20E-03	1.58E+00	1.00E-05	2.49E-04	1.655	g/min
T7 SWCV	running exhaust	3.03E-02	6.39E+00	1.49E-02	1.43E-02	8.09E-02	3.92E+03	1.41E-03	6.17E-01	4103.273	g/mile
T7 SWCV	idling	8.52E-04	2.17E-02	2.93E-05	2.80E-05	7.54E-03	2.59E+00	3.96E-05	4.08E-04	2.714	g/min

Source: wksht: 2024 On-Rd Veh Emiss Rates

Annual Emissions

Haul Truck Emissions (exhaust)	ROG	NOx	PM10	PM2.5	CO	CO2	CH4	N2O	CO2e
	tons/year	tons/year	tons/year	tons/year	tons/year	MT/year	MT/year	MT/year	MT/year
Wood Products Loading/Idling	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.005
Wood Products Delivery	0.001	0.063	0.000	0.000	0.005	49.504	0.000	0.008	51.829
Hog Fuel Loading/Idling	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Hog Fuel Delivery	0.000	0.001	0.000	0.000	0.000	0.475	0.000	0.000	0.498
T7 SWCV Loading/Idling	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.002
T7 SWVC Delivery	0.000	0.012	0.000	0.000	0.000	7.189	0.000	0.001	7.526
Total Annual Emissions	**0.001**	**0.075**	**0.000**	**0.000**	**0.005**	**57.174**	**0.000**	**0.009**	**59.860**

Daily Emissions	ROG	NOx	PM10	PM2.5	CO	CO2	CH4	N2O	CO2e
	lb/day	lb/day	lb/day	lb/day	lb/day	g/day	g/day	g/day	g/day
Wood Products Loading/Idling	0.000	0.000	0.000	0.000	0.000	17.173	0.000	0.003	17.982
Wood Products Delivery	0.006	0.485	0.003	0.003	0.037	190400.726	0.136	29.998	199343.449
Hog Fuel Loading/Idling	0.000	0.000	0.000	0.000	0.000	7.902	0.000	0.001	8.274
Hog Fuel Delivery	0.000	0.035	0.000	0.000	0.003	13579.994	0.010	2.140	14217.818
T7 SWCV Loading/Idling	0.000	0.001	0.000	0.000	0.000	0.071	0.000	0.000	0.074
T7 SWCV Delivery	0.000	0.090	0.000	0.000	0.001	55.299	0.000	0.009	57.895
Total Daily Emissions	**0.007**	**0.610**	**0.004**	**0.003**	**0.041**	**204061.164**	**0.146**	**32.150**	**213645.493**

idling totals	**0.000**	**0.090**	**0.000**	**0.000**	**0.001**

	value	units	source
mass conversion rate	2000	lb/ton	wksht: Unit Conversions
mass conversion rate	1,000,000	g/MT	wksht: Unit Conversions
mass conversion rate	453.59	g/lb	wksht: Unit Conversions

Pile Burning Emissions

GHG Emissions

			CO2-eq
	Source	Tons of biomass per year (BDT)	MT/year
	Pile Burning	12,000	20,202
	Total	12,000	**20,202**

Fire Average Emissions Factors (Flaming and Smoldering Average)

Prescribed Burn Vegetation Type	Pollutant Emission Factors (lb of emissions/ton of fuel consumed)			
	CO2	CH4	N2O	CO2e
Pile and Burn (slash)	3,207	16.6	0.3	3,711

Source: Urbanski, S. Wildland fire emissions, carbon, and climate: Emission factors. *Forest Ecology and Management* . 317: 51–60 (as presented in NWCG 2018, Table 4.1.1) https://www.nwcg.gov/sites/default/files/publications/pms420-3.pdf

mass conversions:	value	units
	1,000	kg/MT
	1,000,000	g/MT
	2,000	lb/ton
	2,204.62	lb/MT

Criteria Air Pollutants

Assumed number of days of pile burning per year 100 [2]

Fire Average Emissions Factors (Flaming and Smoldering Average)

Prescribed Burn Vegetation Type	Pollutant Emission Factors (lb of emissions/ton of fuel consumed)				
	ROG	NOx	PM10 [1]	PM2.5	CO
Pile and Burn (slash)	11.6	4.1	18.9	17.1	169.0

Source: Urbanski, S. Wildland fire emissions, carbon, and climate: Emission factors. *Forest Ecology and Management* . 317: 51–60 (as presented in NWCG 2018, Table 4.1.1) https://www.nwcg.gov/sites/default/files/publications/pms420-3.pdf

Derived PM10 Emissions Factor

Pile and Burn (slash) Average Pile PM2.5 (kg/Mg)	8.6
Pile and Burn (slash) Average Pile PM10 (kg/Mg)	9.5
Ratio of PM10 to PM2.5 (calculated)	1.10

Source: Battye W., and Battye R. 2002. Development of Emissions Inventory Methods for Wildland Fire. Table 22. Prepared for U.S. EPA. https://www.epa.gov/sites/default/files/2020-10/documents/development_of_emissions_inventory_methods_for_wildland_fire.pdf

Source	ROG	NOx	PM10	PM2.5	CO
Total Daily (lb/day)	**1,392**	**492**	**2,267**	**2,052**	**20,280**
Total Annual (tons/year)	**70**	**25**	**113**	**103**	**1,014**

[1] Note: No emission factor for PM 10 given in Urbanski article. Used the ratio of PM10 to PM2.5 in average pile burning to derive a PM10

[2] Based on assumptions used for the Tuolomne BioEnergy Inc Woody Biomass Project 2021

Net Emissions Analysis

Total Annual Emissions

Source	ROG	NOx	PM10	CO	**MTCO2e**
	tons/year	tons/year	tons/year	tons/year	**MT/year**
Construction Emissions	**0.60**	**2.57**	**0.53**	**3.11**	**26.95**
Pile Burning Emissions	**70**	**25**	**113**	**1,014**	**20,201.55**
Project Emissions					
Project Worker Trips	0.00	0.02	0.00	0.32	60
Offsite-to-Project Haul Trips	0.00	0.11	0.00	0.01	85
Dryer Emissions	0.02	-	1.54	-	-
CHP Emissions	0.01	2.04	0.08	0.17	16
Off-Road Equipment	0.05	0.36	0.01	0.92	137
Net Electricity Use	-	-	-	-	210
Project-to-Offsite Haul Trips	0.00	0.08	0.00	0.01	60
TOTAL	**0.08**	**2.60**	**1.64**	**1.43**	**569**
Difference in Operational Emissions	**-70**	**-22**	**-112**	**-1,013**	**(19,633)**

Total Daily Emissions

Source	ROG	NOx	PM10	CO
	lb/day	lb/day	lb/day	lb/day
Construction Emissions	**48.32**	**34.49**	**26.39**	**33.00**
Pile Burning Emissions	**1,392**	**492**	**2,267**	**20,280**
Project Emissions				
Offsite-to-Project Haul Trips	0.01	0.78	0.01	0.06
Project Worker Trips	0.04	0.14	0.00	2.49
Dryer Emissions	0.13	0.00	8.58	0.00
CHP Emissions	0.08	11.38	0.47	8.71
Off-Road Equipment	0.36	2.74	0.11	7.10
Net Electricity Use	0.00	0.00	0.00	0.00
Project-to-Offsite Haul Trips	0.01	0.61	0.00	0.041
TOTAL	**0.64**	**15.64**	**9.17**	**18.40**
Difference in Operational Emissions	**-1,391**	**-476**	**-2,258**	**-20,262**

Appendix B

CALEEMOD MODEL OUTPUTS

Tuolumne Biomass Project - Tuolumne County, Annual

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

Tuolumne Biomass Project

Tuolumne County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1.80	1000sqft	0.04	1,800.00	0
Manufacturing	3.20	1000sqft	0.07	3,200.00	0
Unrefrigerated Warehouse-No Rail	30.00	1000sqft	0.69	30,000.00	0
Other Asphalt Surfaces	3.50	Acre	3.50	152,460.00	0
Other Asphalt Surfaces	32.20	1000sqft	0.74	32,200.00	0
Other Asphalt Surfaces	42.00	1000sqft	0.96	42,000.00	0
Other Non-Asphalt Surfaces	2.50	Acre	2.50	108,900.00	0
Other Non-Asphalt Surfaces	10.80	1000sqft	0.25	10,800.00	0
Parking Lot	31.00	Space	0.28	12,400.00	0
City Park	0.12	Acre	0.12	5,227.20	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	66
Climate Zone	1			**Operational Year**	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	134.44	**CH4 Intensity (lb/MWhr)**	33.46	**N2O Intensity (lb/MWhr)**	3.94

1.3 User Entered Comments & Non-Default Data

Project Characteristics - interpolated from The Climate Registry's Utility-Specific Emission Factors

Land Use - landscaping=city park. unrefigerated WH #2 = shop. Merch line paving sf conservativley est. at 42,000. Gravel surfaces modeled as non-asphalt.

Construction Phase - demolition phase removed - no demolition planned in PD. Site prep start date changed to construction start date from PD "spring 2023"

Tuolumne Biomass Project - Tuolumne County, Annual

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

Off-road Equipment - PD states construction is 10hr/day

Off-road Equipment - PD states construction is 10hr/day

Off-road Equipment - extra excavator added to CalEEMod default of 3 for retention pond shown in PD. Cosntruction hours based on statement in PD

Off-road Equipment - PD states construction is 10hr/day. additional excavator added to account for proposed retention pond

Off-road Equipment - PD states construction is 10hr/day

Off-road Equipment - PD states construction is 10hr/day

Trips and VMT - building construction hauling trips: client estimated 25/30 total truck deliveries, left as CalEEMod default as conservative est.

Grading - PD states site is 17 acres, with 2 acres having been graded previously for previous land use

Architectural Coating - adjusted to parking area size

Vehicle Trips -

Vehicle Emission Factors - EMFAC 2021 Vehicle Emissions Data

Vehicle Emission Factors - EMFAC 2021 Vehicle Emissions Data

Vehicle Emission Factors - EMFAC 2021 Vehicle Emisisons data

Energy Use - input used = total project energy demand from grid divided by land use subtype building size

Water And Wastewater -

Solid Waste -

Operational Off-Road Equipment - Sourced from client list of equipment / example machines given

Stationary Sources - Emergency Generators and Fire Pumps -

Stationary Sources - User Defined -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	21,526.00	12,400.00
tblEnergyUse	LightingElect	3.45	0.00
tblEnergyUse	LightingElect	1.81	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	NT24E	3.98	0.00
tblEnergyUse	NT24E	1.85	0.00
tblEnergyUse	NT24E	0.00	7.20
tblEnergyUse	NT24NG	0.31	0.00

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

tblEnergyUse	T24E	3.25	0.00
tblEnergyUse	T24E	0.56	0.00
tblEnergyUse	T24NG	19.34	0.00
tblEnergyUse	T24NG	3.17	0.00
tblGrading	AcresOfGrading	25.00	15.00
tblOffRoadEquipment	UsageHours	6.00	10.00
tblOffRoadEquipment	UsageHours	7.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	7.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOperationalOffRoadEquipment	OperFuelType	Diesel	Electrical
tblOperationalOffRoadEquipment	OperFuelType	Diesel	Electrical
tblOperationalOffRoadEquipment	OperHorsePower	63.00	82.00
tblOperationalOffRoadEquipment	OperHorsePower	89.00	62.00
tblOperationalOffRoadEquipment	OperHorsePower	168.00	225.00
tblOperationalOffRoadEquipment	OperHorsePower	168.00	74.00
tblOperationalOffRoadEquipment	OperHorsePower	203.00	172.00
tblOperationalOffRoadEquipment	OperHorsePower	65.00	51.00
tblOperationalOffRoadEquipment	OperHorsePower	97.00	55.00

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

tblOperationalOffRoadEquipment	OperHorsePower	97.00	48.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	0.50
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	2.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	0.50
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	6.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	2.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	2.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	0.50
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	6.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	6.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	2.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	33.46
tblProjectCharacteristics	CO2IntensityFactor	203.98	134.44
tblProjectCharacteristics	N2OIntensityFactor	0.004	3.94
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleEF	HHD	919.08	919.08
tblVehicleEF	LDA	0.73	0.73
tblVehicleEF	LDA	2.47	2.48
tblVehicleEF	LDA	255.49	260.73
tblVehicleEF	LDA	53.00	54.10
tblVehicleEF	LDA	0.05	0.05

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

tblVehicleEF	LDA	0.21	0.21
tblVehicleEF	LDA	1.6990e-003	1.7070e-003
tblVehicleEF	LDA	1.9760e-003	1.9860e-003
tblVehicleEF	LDA	1.5670e-003	1.5740e-003
tblVehicleEF	LDA	1.8170e-003	1.8260e-003
tblVehicleEF	LDA	0.06	0.06
tblVehicleEF	LDA	0.16	0.16
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.29	0.29
tblVehicleEF	LDA	0.06	0.06
tblVehicleEF	LDA	0.16	0.16
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.32	0.32
tblVehicleEF	LDA	0.85	0.86
tblVehicleEF	LDA	1.76	1.77
tblVehicleEF	LDA	275.54	281.19
tblVehicleEF	LDA	51.65	52.71
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.18	0.18
tblVehicleEF	LDA	1.6990e-003	1.7070e-003
tblVehicleEF	LDA	1.9760e-003	1.9860e-003
tblVehicleEF	LDA	1.5670e-003	1.5740e-003
tblVehicleEF	LDA	1.8170e-003	1.8260e-003
tblVehicleEF	LDA	0.15	0.15
tblVehicleEF	LDA	0.19	0.19

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

tblVehicleEF	LDA	0.15	0.15
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.23	0.23
tblVehicleEF	LDA	0.15	0.15
tblVehicleEF	LDA	0.19	0.19
tblVehicleEF	LDA	0.15	0.15
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.25	0.25
tblVehicleEF	LDA	0.71	0.71
tblVehicleEF	LDA	2.94	2.95
tblVehicleEF	LDA	251.14	256.29
tblVehicleEF	LDA	53.90	55.02
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.23	0.23
tblVehicleEF	LDA	1.6990e-003	1.7070e-003
tblVehicleEF	LDA	1.9760e-003	1.9860e-003
tblVehicleEF	LDA	1.5670e-003	1.5740e-003
tblVehicleEF	LDA	1.8170e-003	1.8260e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.17	0.17
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.34	0.34
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.17	0.17
tblVehicleEF	LDA	0.01	0.01

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

tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.37	0.37
tblVehicleEF	LDT1	2.08	2.09
tblVehicleEF	LDT1	3.12	3.14
tblVehicleEF	LDT1	325.34	332.07
tblVehicleEF	LDT1	70.80	72.27
tblVehicleEF	LDT1	0.21	0.21
tblVehicleEF	LDT1	0.45	0.45
tblVehicleEF	LDT1	2.9960e-003	3.0110e-003
tblVehicleEF	LDT1	3.8360e-003	3.8560e-003
tblVehicleEF	LDT1	2.7570e-003	2.7710e-003
tblVehicleEF	LDT1	3.5270e-003	3.5450e-003
tblVehicleEF	LDT1	0.23	0.23
tblVehicleEF	LDT1	0.54	0.54
tblVehicleEF	LDT1	0.18	0.18
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.29	0.29
tblVehicleEF	LDT1	0.76	0.76
tblVehicleEF	LDT1	0.23	0.23
tblVehicleEF	LDT1	0.54	0.54
tblVehicleEF	LDT1	0.18	0.18
tblVehicleEF	LDT1	0.08	0.08
tblVehicleEF	LDT1	0.29	0.29
tblVehicleEF	LDT1	0.83	0.83
tblVehicleEF	LDT1	2.39	2.40
tblVehicleEF	LDT1	2.18	2.19
tblVehicleEF	LDT1	347.43	354.61
tblVehicleEF	LDT1	68.68	70.10

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

tblVehicleEF	LDT1	0.17	0.17
tblVehicleEF	LDT1	0.39	0.39
tblVehicleEF	LDT1	2.9960e-003	3.0110e-003
tblVehicleEF	LDT1	3.8360e-003	3.8560e-003
tblVehicleEF	LDT1	2.7570e-003	2.7710e-003
tblVehicleEF	LDT1	3.5270e-003	3.5450e-003
tblVehicleEF	LDT1	0.63	0.63
tblVehicleEF	LDT1	0.64	0.65
tblVehicleEF	LDT1	0.53	0.53
tblVehicleEF	LDT1	0.06	0.06
tblVehicleEF	LDT1	0.27	0.27
tblVehicleEF	LDT1	0.57	0.57
tblVehicleEF	LDT1	0.63	0.63
tblVehicleEF	LDT1	0.64	0.65
tblVehicleEF	LDT1	0.53	0.53
tblVehicleEF	LDT1	0.09	0.09
tblVehicleEF	LDT1	0.27	0.27
tblVehicleEF	LDT1	0.62	0.63
tblVehicleEF	LDT1	2.04	2.05
tblVehicleEF	LDT1	3.75	3.77
tblVehicleEF	LDT1	320.57	327.21
tblVehicleEF	LDT1	72.22	73.71
tblVehicleEF	LDT1	0.23	0.23
tblVehicleEF	LDT1	0.50	0.50
tblVehicleEF	LDT1	2.9960e-003	3.0110e-003
tblVehicleEF	LDT1	3.8360e-003	3.8560e-003
tblVehicleEF	LDT1	2.7570e-003	2.7710e-003
tblVehicleEF	LDT1	3.5270e-003	3.5450e-003
tblVehicleEF	LDT1	0.05	0.05

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

tblVehicleEF	LDT1	0.57	0.57
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.35	0.35
tblVehicleEF	LDT1	0.89	0.89
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.57	0.57
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.08	0.08
tblVehicleEF	LDT1	0.35	0.35
tblVehicleEF	LDT1	0.97	0.97
tblVehicleEF	LDT2	1.34	1.34
tblVehicleEF	LDT2	3.38	3.40
tblVehicleEF	LDT2	346.81	353.95
tblVehicleEF	LDT2	75.15	76.70
tblVehicleEF	LDT2	0.15	0.15
tblVehicleEF	LDT2	0.45	0.45
tblVehicleEF	LDT2	1.9100e-003	1.9200e-003
tblVehicleEF	LDT2	2.2850e-003	2.2970e-003
tblVehicleEF	LDT2	1.7580e-003	1.7670e-003
tblVehicleEF	LDT2	2.1010e-003	2.1120e-003
tblVehicleEF	LDT2	0.12	0.12
tblVehicleEF	LDT2	0.31	0.31
tblVehicleEF	LDT2	0.11	0.11
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.15	0.15
tblVehicleEF	LDT2	0.56	0.56
tblVehicleEF	LDT2	0.12	0.12
tblVehicleEF	LDT2	0.31	0.31

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

tblVehicleEF	LDT2	0.11	0.11
tblVehicleEF	LDT2	0.04	0.05
tblVehicleEF	LDT2	0.15	0.15
tblVehicleEF	LDT2	0.61	0.61
tblVehicleEF	LDT2	1.55	1.56
tblVehicleEF	LDT2	2.40	2.41
tblVehicleEF	LDT2	368.56	376.15
tblVehicleEF	LDT2	73.14	74.66
tblVehicleEF	LDT2	0.13	0.13
tblVehicleEF	LDT2	0.39	0.39
tblVehicleEF	LDT2	1.9100e-003	1.9200e-003
tblVehicleEF	LDT2	2.2850e-003	2.2970e-003
tblVehicleEF	LDT2	1.7580e-003	1.7670e-003
tblVehicleEF	LDT2	2.1010e-003	2.1120e-003
tblVehicleEF	LDT2	0.32	0.32
tblVehicleEF	LDT2	0.35	0.35
tblVehicleEF	LDT2	0.31	0.31
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.14	0.14
tblVehicleEF	LDT2	0.43	0.43
tblVehicleEF	LDT2	0.32	0.32
tblVehicleEF	LDT2	0.35	0.35
tblVehicleEF	LDT2	0.31	0.31
tblVehicleEF	LDT2	0.05	0.05
tblVehicleEF	LDT2	0.14	0.14
tblVehicleEF	LDT2	0.47	0.47
tblVehicleEF	LDT2	1.31	1.31
tblVehicleEF	LDT2	4.04	4.06
tblVehicleEF	LDT2	342.10	349.15

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

tblVehicleEF	LDT2	76.49	78.07
tblVehicleEF	LDT2	0.17	0.17
tblVehicleEF	LDT2	0.50	0.50
tblVehicleEF	LDT2	1.9100e-003	1.9200e-003
tblVehicleEF	LDT2	2.2850e-003	2.2970e-003
tblVehicleEF	LDT2	1.7580e-003	1.7670e-003
tblVehicleEF	LDT2	2.1010e-003	2.1120e-003
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.32	0.32
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.18	0.18
tblVehicleEF	LDT2	0.65	0.65
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.32	0.32
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.18	0.18
tblVehicleEF	LDT2	0.71	0.71
tblVehicleEF	LHD2	739.26	739.26
tblVehicleEF	MDV	1.56	1.56
tblVehicleEF	MDV	4.19	4.21
tblVehicleEF	MDV	426.55	435.14
tblVehicleEF	MDV	91.00	92.88
tblVehicleEF	MDV	0.19	0.19
tblVehicleEF	MDV	0.53	0.53
tblVehicleEF	MDV	2.2300e-003	2.2400e-003
tblVehicleEF	MDV	2.6450e-003	2.6580e-003
tblVehicleEF	MDV	2.0610e-003	2.0700e-003

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

tblVehicleEF	MDV	2.4320e-003	2.4440e-003
tblVehicleEF	MDV	0.14	0.14
tblVehicleEF	MDV	0.36	0.36
tblVehicleEF	MDV	0.13	0.13
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.18	0.18
tblVehicleEF	MDV	0.71	0.71
tblVehicleEF	MDV	0.14	0.14
tblVehicleEF	MDV	0.36	0.36
tblVehicleEF	MDV	0.13	0.13
tblVehicleEF	MDV	0.06	0.06
tblVehicleEF	MDV	0.18	0.18
tblVehicleEF	MDV	0.78	0.78
tblVehicleEF	MDV	1.79	1.80
tblVehicleEF	MDV	2.95	2.96
tblVehicleEF	MDV	449.44	458.51
tblVehicleEF	MDV	88.45	90.28
tblVehicleEF	MDV	0.16	0.16
tblVehicleEF	MDV	0.45	0.45
tblVehicleEF	MDV	2.2300e-003	2.2400e-003
tblVehicleEF	MDV	2.6450e-003	2.6580e-003
tblVehicleEF	MDV	2.0610e-003	2.0700e-003
tblVehicleEF	MDV	2.4320e-003	2.4440e-003
tblVehicleEF	MDV	0.37	0.37
tblVehicleEF	MDV	0.41	0.41
tblVehicleEF	MDV	0.37	0.37
tblVehicleEF	MDV	0.05	0.05
tblVehicleEF	MDV	0.16	0.16
tblVehicleEF	MDV	0.54	0.54

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

tblVehicleEF	MDV	0.37	0.37
tblVehicleEF	MDV	0.41	0.41
tblVehicleEF	MDV	0.37	0.37
tblVehicleEF	MDV	0.07	0.07
tblVehicleEF	MDV	0.16	0.16
tblVehicleEF	MDV	0.59	0.59
tblVehicleEF	MDV	1.53	1.54
tblVehicleEF	MDV	5.03	5.05
tblVehicleEF	MDV	421.60	430.10
tblVehicleEF	MDV	92.71	94.63
tblVehicleEF	MDV	0.21	0.21
tblVehicleEF	MDV	0.58	0.58
tblVehicleEF	MDV	2.2300e-003	2.2400e-003
tblVehicleEF	MDV	2.6450e-003	2.6580e-003
tblVehicleEF	MDV	2.0610e-003	2.0700e-003
tblVehicleEF	MDV	2.4320e-003	2.4440e-003
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.37	0.37
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.22	0.22
tblVehicleEF	MDV	0.83	0.83
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.37	0.37
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.06	0.06
tblVehicleEF	MDV	0.22	0.22
tblVehicleEF	MDV	0.90	0.90
tblVehicleEF	SBUS	3.1000e-003	3.0990e-003

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

tblVehicleEF	SBUS	339.91	339.91

2.0 Emissions Summary

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

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.3571	2.5711	3.1145	6.6500e-003	0.4219	0.1032	0.5250	0.1635	0.0966	0.2601	0.0000	594.9510	594.9510	0.0903	0.0227	603.9720
2024	0.5971	0.7817	1.0907	2.2600e-003	0.0728	0.0306	0.1034	0.0196	0.0287	0.0483	0.0000	201.5292	201.5292	0.0311	7.0200e-003	204.3990
Maximum	**0.5971**	**2.5711**	**3.1145**	**6.6500e-003**	**0.4219**	**0.1032**	**0.5250**	**0.1635**	**0.0966**	**0.2601**	**0.0000**	**594.9510**	**594.9510**	**0.0903**	**0.0227**	**603.9720**

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					
2023	0.3571	2.5711	3.1145	6.6500e-003	0.4219	0.1032	0.5250	0.1635	0.0966	0.2601	0.0000	594.9506	594.9506	0.0903	0.0227	603.9716
2024	0.5971	0.7817	1.0907	2.2600e-003	0.0728	0.0306	0.1034	0.0196	0.0287	0.0483	0.0000	201.5291	201.5291	0.0311	7.0200e-003	204.3988
Maximum	**0.5971**	**2.5711**	**3.1145**	**6.6500e-003**	**0.4219**	**0.1032**	**0.5250**	**0.1635**	**0.0966**	**0.2601**	**0.0000**	**594.9506**	**594.9506**	**0.0903**	**0.0227**	**603.9716**

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

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**3-20-2023**	**6-19-2023**	0.9341	0.9341
2	**6-20-2023**	**9-19-2023**	0.9262	0.9262
3	**9-20-2023**	**12-19-2023**	0.9326	0.9326
4	**12-20-2023**	**3-19-2024**	0.8652	0.8652
5	**3-20-2024**	**6-19-2024**	0.6254	0.6254
		Highest	0.9341	0.9341

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2131	1.0000e-005	1.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8100e-003	2.8100e-003	1.0000e-005	0.0000	2.9900e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	13.1719	13.1719	3.2783	0.3860	210.1643
Mobile	0.0937	0.1470	0.8286	1.2000e-003	0.1089	1.5600e-003	0.1105	0.0292	1.4700e-003	0.0307	0.0000	112.3612	112.3612	9.8700e-003	6.6400e-003	114.5856
Offroad	0.0577	0.5298	0.5352	1.3200e-003		0.0207	0.0207		0.0190	0.0190	0.0000	115.9219	115.9219	0.0375	0.0000	116.8591
Waste						0.0000	0.0000		0.0000	0.0000	6.8712	0.0000	6.8712	0.4061	0.0000	17.0232
Water						0.0000	0.0000		0.0000	0.0000	2.5372	2.7113	5.2485	0.9354	0.0856	54.1453
Total	**0.3646**	**0.6768**	**1.3652**	**2.5200e-003**	**0.1089**	**0.0222**	**0.1311**	**0.0292**	**0.0205**	**0.0497**	**9.4085**	**244.1690**	**253.5775**	**4.6671**	**0.4783**	**512.7806**

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

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2131	1.0000e-005	1.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8100e-003	2.8100e-003	1.0000e-005	0.0000	2.9900e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	13.1719	13.1719	3.2783	0.3860	210.1643
Mobile	0.0937	0.1470	0.8286	1.2000e-003	0.1089	1.5600e-003	0.1105	0.0292	1.4700e-003	0.0307	0.0000	112.3612	112.3612	9.8700e-003	6.6400e-003	114.5856
Offroad	0.0577	0.5298	0.5352	1.3200e-003		0.0207	0.0207		0.0190	0.0190	0.0000	115.9219	115.9219	0.0375	0.0000	116.8591
Waste						0.0000	0.0000		0.0000	0.0000	6.8712	0.0000	6.8712	0.4061	0.0000	17.0232
Water						0.0000	0.0000		0.0000	0.0000	2.5372	2.7113	5.2485	0.9354	0.0856	54.1453
Total	**0.3646**	**0.6768**	**1.3652**	**2.5200e-003**	**0.1089**	**0.0222**	**0.1311**	**0.0292**	**0.0205**	**0.0497**	**9.4085**	**244.1690**	**253.5775**	**4.6671**	**0.4783**	**512.7806**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/20/2023	3/31/2023	5	10	
2	Grading	Grading	4/1/2023	4/28/2023	5	20	

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

3	Building Construction	Building Construction	4/29/2023	3/15/2024	5	230	
4	Paving	Paving	3/16/2024	4/12/2024	5	20	
5	Architectural Coating	Architectural Coating	4/13/2024	5/10/2024	5	20	

Acres of Grading (Site Preparation Phase): 18.75

Acres of Grading (Grading Phase): 15

Acres of Paving: 8.23

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 52,500; Non-Residential Outdoor: 17,500; Striped Parking Area: 12,400 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	10.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	10.00	97	0.37
Grading	Excavators	1	10.00	158	0.38
Grading	Graders	1	10.00	187	0.41
Grading	Rubber Tired Dozers	1	10.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	10.00	97	0.37
Building Construction	Cranes	1	10.00	231	0.29
Building Construction	Forklifts	3	10.00	89	0.20
Building Construction	Generator Sets	1	10.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	10.00	97	0.37
Building Construction	Welders	1	10.00	46	0.45
Paving	Pavers	2	10.00	130	0.42
Paving	Paving Equipment	2	10.00	132	0.36
Paving	Rollers	2	10.00	80	0.38
Architectural Coating	Air Compressors	1	10.00	78	0.48

Trips and VMT

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

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	167.00	65.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	33.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 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					0.1229	0.0000	0.1229	0.0631	0.0000	0.0631	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0166	0.1720	0.1140	2.4000e-004		7.9100e-003	7.9100e-003		7.2800e-003	7.2800e-003	0.0000	20.9067	20.9067	6.7600e-003	0.0000	21.0757
Total	**0.0166**	**0.1720**	**0.1140**	**2.4000e-004**	**0.1229**	**7.9100e-003**	**0.1308**	**0.0631**	**7.2800e-003**	**0.0704**	**0.0000**	**20.9067**	**20.9067**	**6.7600e-003**	**0.0000**	**21.0757**

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

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.6000e-004	5.1000e-004	5.1200e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.9401	0.9401	4.0000e-005	4.0000e-005	0.9516
Total	**7.6000e-004**	**5.1000e-004**	**5.1200e-003**	**1.0000e-005**	**1.1000e-003**	**1.0000e-005**	**1.1100e-003**	**2.9000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**0.9401**	**0.9401**	**4.0000e-005**	**4.0000e-005**	**0.9516**

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					0.1229	0.0000	0.1229	0.0631	0.0000	0.0631	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0166	0.1720	0.1140	2.4000e-004		7.9100e-003	7.9100e-003		7.2800e-003	7.2800e-003	0.0000	20.9067	20.9067	6.7600e-003	0.0000	21.0757
Total	**0.0166**	**0.1720**	**0.1140**	**2.4000e-004**	**0.1229**	**7.9100e-003**	**0.1308**	**0.0631**	**7.2800e-003**	**0.0704**	**0.0000**	**20.9067**	**20.9067**	**6.7600e-003**	**0.0000**	**21.0757**

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

3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.6000e-004	5.1000e-004	5.1200e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.9401	0.9401	4.0000e-005	4.0000e-005	0.9516
Total	**7.6000e-004**	**5.1000e-004**	**5.1200e-003**	**1.0000e-005**	**1.1000e-003**	**1.0000e-005**	**1.1100e-003**	**2.9000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**0.9401**	**0.9401**	**4.0000e-005**	**4.0000e-005**	**0.9516**

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					0.0832	0.0000	0.0832	0.0422	0.0000	0.0422	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0214	0.2242	0.1844	3.7000e-004		9.6900e-003	9.6900e-003		8.9100e-003	8.9100e-003	0.0000	32.5758	32.5758	0.0105	0.0000	32.8392
Total	**0.0214**	**0.2242**	**0.1844**	**3.7000e-004**	**0.0832**	**9.6900e-003**	**0.0929**	**0.0422**	**8.9100e-003**	**0.0512**	**0.0000**	**32.5758**	**32.5758**	**0.0105**	**0.0000**	**32.8392**

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

3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2600e-003	8.5000e-004	8.5400e-003	2.0000e-005	1.8400e-003	1.0000e-005	1.8500e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.5668	1.5668	6.0000e-005	6.0000e-005	1.5860
Total	**1.2600e-003**	**8.5000e-004**	**8.5400e-003**	**2.0000e-005**	**1.8400e-003**	**1.0000e-005**	**1.8500e-003**	**4.9000e-004**	**1.0000e-005**	**5.0000e-004**	**0.0000**	**1.5668**	**1.5668**	**6.0000e-005**	**6.0000e-005**	**1.5860**

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					0.0832	0.0000	0.0832	0.0422	0.0000	0.0422	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0214	0.2242	0.1844	3.7000e-004		9.6900e-003	9.6900e-003		8.9100e-003	8.9100e-003	0.0000	32.5757	32.5757	0.0105	0.0000	32.8391
Total	**0.0214**	**0.2242**	**0.1844**	**3.7000e-004**	**0.0832**	**9.6900e-003**	**0.0929**	**0.0422**	**8.9100e-003**	**0.0512**	**0.0000**	**32.5757**	**32.5757**	**0.0105**	**0.0000**	**32.8391**

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

3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2600e-003	8.5000e-004	8.5400e-003	2.0000e-005	1.8400e-003	1.0000e-005	1.8500e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.5668	1.5668	6.0000e-005	6.0000e-005	1.5860
Total	**1.2600e-003**	**8.5000e-004**	**8.5400e-003**	**2.0000e-005**	**1.8400e-003**	**1.0000e-005**	**1.8500e-003**	**4.9000e-004**	**1.0000e-005**	**5.0000e-004**	**0.0000**	**1.5668**	**1.5668**	**6.0000e-005**	**6.0000e-005**	**1.5860**

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	0.1830	1.6885	1.8933	3.1500e-003		0.0818	0.0818		0.0769	0.0769	0.0000	271.6887	271.6887	0.0662	0.0000	273.3433
Total	**0.1830**	**1.6885**	**1.8933**	**3.1500e-003**		**0.0818**	**0.0818**		**0.0769**	**0.0769**	**0.0000**	**271.6887**	**271.6887**	**0.0662**	**0.0000**	**273.3433**

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

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0109	0.4024	0.0775	1.2000e-003	0.0335	2.4100e-003	0.0359	9.6800e-003	2.3100e-003	0.0120	0.0000	114.6417	114.6417	4.7000e-004	0.0168	119.6728
Worker	0.1232	0.0826	0.8317	1.6600e-003	0.1793	1.3000e-003	0.1806	0.0477	1.2000e-003	0.0489	0.0000	152.6313	152.6313	6.2900e-003	5.7500e-003	154.5034
Total	**0.1341**	**0.4850**	**0.9091**	**2.8600e-003**	**0.2128**	**3.7100e-003**	**0.2165**	**0.0574**	**3.5100e-003**	**0.0609**	**0.0000**	**267.2729**	**267.2729**	**6.7600e-003**	**0.0226**	**274.1762**

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	0.1830	1.6885	1.8933	3.1500e-003		0.0818	0.0818		0.0769	0.0769	0.0000	271.6884	271.6884	0.0662	0.0000	273.3430
Total	**0.1830**	**1.6885**	**1.8933**	**3.1500e-003**		**0.0818**	**0.0818**		**0.0769**	**0.0769**	**0.0000**	**271.6884**	**271.6884**	**0.0662**	**0.0000**	**273.3430**

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

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0109	0.4024	0.0775	1.2000e-003	0.0335	2.4100e-003	0.0359	9.6800e-003	2.3100e-003	0.0120	0.0000	114.6417	114.6417	4.7000e-004	0.0168	119.6728
Worker	0.1232	0.0826	0.8317	1.6600e-003	0.1793	1.3000e-003	0.1806	0.0477	1.2000e-003	0.0489	0.0000	152.6313	152.6313	6.2900e-003	5.7500e-003	154.5034
Total	**0.1341**	**0.4850**	**0.9091**	**2.8600e-003**	**0.2128**	**3.7100e-003**	**0.2165**	**0.0574**	**3.5100e-003**	**0.0609**	**0.0000**	**267.2729**	**267.2729**	**6.7600e-003**	**0.0226**	**274.1762**

3.4 Building Construction - 2024

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	0.0539	0.4959	0.5922	9.9000e-004		0.0226	0.0226		0.0212	0.0212	0.0000	85.4053	85.4053	0.0207	0.0000	85.9226
Total	**0.0539**	**0.4959**	**0.5922**	**9.9000e-004**		**0.0226**	**0.0226**		**0.0212**	**0.0212**	**0.0000**	**85.4053**	**85.4053**	**0.0207**	**0.0000**	**85.9226**

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

3.4 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2100e-003	0.1210	0.0234	3.7000e-004	0.0105	7.2000e-004	0.0113	3.0400e-003	6.9000e-004	3.7300e-003	0.0000	35.4844	35.4844	1.4000e-004	5.1900e-003	37.0336
Worker	0.0363	0.0230	0.2373	5.1000e-004	0.0564	3.8000e-004	0.0567	0.0150	3.5000e-004	0.0153	0.0000	46.4917	46.4917	1.7800e-003	1.6600e-003	47.0303
Total	**0.0395**	**0.1440**	**0.2607**	**8.8000e-004**	**0.0669**	**1.1000e-003**	**0.0680**	**0.0180**	**1.0400e-003**	**0.0191**	**0.0000**	**81.9761**	**81.9761**	**1.9200e-003**	**6.8500e-003**	**84.0639**

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	0.0539	0.4959	0.5922	9.9000e-004		0.0226	0.0226		0.0212	0.0212	0.0000	85.4052	85.4052	0.0207	0.0000	85.9225
Total	**0.0539**	**0.4959**	**0.5922**	**9.9000e-004**		**0.0226**	**0.0226**		**0.0212**	**0.0212**	**0.0000**	**85.4052**	**85.4052**	**0.0207**	**0.0000**	**85.9225**

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

3.4 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2100e-003	0.1210	0.0234	3.7000e-004	0.0105	7.2000e-004	0.0113	3.0400e-003	6.9000e-004	3.7300e-003	0.0000	35.4844	35.4844	1.4000e-004	5.1900e-003	37.0336
Worker	0.0363	0.0230	0.2373	5.1000e-004	0.0564	3.8000e-004	0.0567	0.0150	3.5000e-004	0.0153	0.0000	46.4917	46.4917	1.7800e-003	1.6600e-003	47.0303
Total	**0.0395**	**0.1440**	**0.2607**	**8.8000e-004**	**0.0669**	**1.1000e-003**	**0.0680**	**0.0180**	**1.0400e-003**	**0.0191**	**0.0000**	**81.9761**	**81.9761**	**1.9200e-003**	**6.8500e-003**	**84.0639**

3.5 Paving - 2024

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	0.0124	0.1191	0.1828	2.9000e-004		5.8600e-003	5.8600e-003		5.3900e-003	5.3900e-003	0.0000	25.0332	25.0332	8.1000e-003	0.0000	25.2356
Paving	7.1800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0195**	**0.1191**	**0.1828**	**2.9000e-004**		**5.8600e-003**	**5.8600e-003**		**5.3900e-003**	**5.3900e-003**	**0.0000**	**25.0332**	**25.0332**	**8.1000e-003**	**0.0000**	**25.2356**

Tuolumne Biomass Project - Tuolumne County, Annual

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

3.5 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1900e-003	7.5000e-004	7.7500e-003	2.0000e-005	1.8400e-003	1.0000e-005	1.8500e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.5185	1.5185	6.0000e-005	5.0000e-005	1.5361
Total	**1.1900e-003**	**7.5000e-004**	**7.7500e-003**	**2.0000e-005**	**1.8400e-003**	**1.0000e-005**	**1.8500e-003**	**4.9000e-004**	**1.0000e-005**	**5.0000e-004**	**0.0000**	**1.5185**	**1.5185**	**6.0000e-005**	**5.0000e-005**	**1.5361**

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	0.0124	0.1191	0.1828	2.9000e-004		5.8600e-003	5.8600e-003		5.3900e-003	5.3900e-003	0.0000	25.0331	25.0331	8.1000e-003	0.0000	25.2355
Paving	7.1800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0195**	**0.1191**	**0.1828**	**2.9000e-004**		**5.8600e-003**	**5.8600e-003**		**5.3900e-003**	**5.3900e-003**	**0.0000**	**25.0331**	**25.0331**	**8.1000e-003**	**0.0000**	**25.2355**

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

3.5 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1900e-003	7.5000e-004	7.7500e-003	2.0000e-005	1.8400e-003	1.0000e-005	1.8500e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.5185	1.5185	6.0000e-005	5.0000e-005	1.5361
Total	**1.1900e-003**	**7.5000e-004**	**7.7500e-003**	**2.0000e-005**	**1.8400e-003**	**1.0000e-005**	**1.8500e-003**	**4.9000e-004**	**1.0000e-005**	**5.0000e-004**	**0.0000**	**1.5185**	**1.5185**	**6.0000e-005**	**5.0000e-005**	**1.5361**

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4774					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0100e-003	0.0203	0.0302	5.0000e-005		1.0200e-003	1.0200e-003		1.0200e-003	1.0200e-003	0.0000	4.2554	4.2554	2.4000e-004	0.0000	4.2614
Total	**0.4804**	**0.0203**	**0.0302**	**5.0000e-005**		**1.0200e-003**	**1.0200e-003**		**1.0200e-003**	**1.0200e-003**	**0.0000**	**4.2554**	**4.2554**	**2.4000e-004**	**0.0000**	**4.2614**

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

3.6 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6100e-003	1.6500e-003	0.0171	4.0000e-005	4.0500e-003	3.0000e-005	4.0800e-003	1.0800e-003	3.0000e-005	1.1000e-003	0.0000	3.3407	3.3407	1.3000e-004	1.2000e-004	3.3794
Total	**2.6100e-003**	**1.6500e-003**	**0.0171**	**4.0000e-005**	**4.0500e-003**	**3.0000e-005**	**4.0800e-003**	**1.0800e-003**	**3.0000e-005**	**1.1000e-003**	**0.0000**	**3.3407**	**3.3407**	**1.3000e-004**	**1.2000e-004**	**3.3794**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4774					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0100e-003	0.0203	0.0302	5.0000e-005		1.0200e-003	1.0200e-003		1.0200e-003	1.0200e-003	0.0000	4.2554	4.2554	2.4000e-004	0.0000	4.2614
Total	**0.4804**	**0.0203**	**0.0302**	**5.0000e-005**		**1.0200e-003**	**1.0200e-003**		**1.0200e-003**	**1.0200e-003**	**0.0000**	**4.2554**	**4.2554**	**2.4000e-004**	**0.0000**	**4.2614**

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

3.6 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6100e-003	1.6500e-003	0.0171	4.0000e-005	4.0500e-003	3.0000e-005	4.0800e-003	1.0800e-003	3.0000e-005	1.1000e-003	0.0000	3.3407	3.3407	1.3000e-004	1.2000e-004	3.3794
Total	**2.6100e-003**	**1.6500e-003**	**0.0171**	**4.0000e-005**	**4.0500e-003**	**3.0000e-005**	**4.0800e-003**	**1.0800e-003**	**3.0000e-005**	**1.1000e-003**	**0.0000**	**3.3407**	**3.3407**	**1.3000e-004**	**1.2000e-004**	**3.3794**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Tuolumne Biomass Project - Tuolumne County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0937	0.1470	0.8286	1.2000e-003	0.1089	1.5600e-003	0.1105	0.0292	1.4700e-003	0.0307	0.0000	112.3612	112.3612	9.8700e-003	6.6400e-003	114.5856
Unmitigated	0.0937	0.1470	0.8286	1.2000e-003	0.1089	1.5600e-003	0.1105	0.0292	1.4700e-003	0.0307	0.0000	112.3612	112.3612	9.8700e-003	6.6400e-003	114.5856

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.09	0.24	0.26	340	340
General Office Building	17.53	3.98	1.26	36,639	36,639
Manufacturing	12.58	20.54	16.29	55,033	55,033
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	52.20	52.20	52.20	201,673	201,673
Total	82.40	76.96	70.01	293,686	293,686

4.3 Trip Type Information

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

	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
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6
General Office Building	14.70	6.60	6.60	33.00	48.00	19.00	77	19	4
Manufacturing	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Parking Lot	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	14.70	6.60	6.60	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462
General Office Building	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462
Manufacturing	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462
Other Asphalt Surfaces	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462
Other Non-Asphalt Surfaces	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462
Parking Lot	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462
Unrefrigerated Warehouse-No Rail	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	13.1719	13.1719	3.2783	0.3860	210.1643
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	13.1719	13.1719	3.2783	0.3860	210.1643
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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

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					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	216000	13.1719	3.2783	0.3860	210.1643
Total		**13.1719**	**3.2783**	**0.3860**	**210.1643**

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

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	216000	13.1719	3.2783	0.3860	210.1643
Total		**13.1719**	**3.2783**	**0.3860**	**210.1643**

6.0 Area Detail

6.1 Mitigation Measures Area

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2131	1.0000e-005	1.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8100e-003	2.8100e-003	1.0000e-005	0.0000	2.9900e-003
Unmitigated	0.2131	1.0000e-005	1.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8100e-003	2.8100e-003	1.0000e-005	0.0000	2.9900e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0530					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1599					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.3000e-004	1.0000e-005	1.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8100e-003	2.8100e-003	1.0000e-005	0.0000	2.9900e-003
Total	**0.2131**	**1.0000e-005**	**1.4400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**2.8100e-003**	**2.8100e-003**	**1.0000e-005**	**0.0000**	**2.9900e-003**

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0530					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1599					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.3000e-004	1.0000e-005	1.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8100e-003	2.8100e-003	1.0000e-005	0.0000	2.9900e-003
Total	**0.2131**	**1.0000e-005**	**1.4400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**2.8100e-003**	**2.8100e-003**	**1.0000e-005**	**0.0000**	**2.9900e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Tuolumne Biomass Project - Tuolumne County, Annual

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

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5.2485	0.9354	0.0856	54.1453
Unmitigated	5.2485	0.9354	0.0856	54.1453

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

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.142978	0.0305	7.6000e-003	8.9000e-004	0.4869
General Office Building	0.319921 / 0.19608	0.2489	0.0471	4.5700e-003	2.7875
Manufacturing	0.74 / 0	0.4789	0.0849	7.7300e-003	4.9032
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	6.9375 / 0	4.4901	0.7958	0.0724	45.9677
Total		**5.2485**	**0.9354**	**0.0856**	**54.1453**

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

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.142978	0.0305	7.6000e-003	8.9000e-004	0.4869
General Office Building	0.319921 / 0.19608	0.2489	0.0471	4.5700e-003	2.7875
Manufacturing	0.74 / 0	0.4789	0.0849	7.7300e-003	4.9032
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	6.9375 / 0	4.4901	0.7958	0.0724	45.9677
Total		**5.2485**	**0.9354**	**0.0856**	**54.1453**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Tuolumne Biomass Project - Tuolumne County, Annual

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

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	6.8712	0.4061	0.0000	17.0232
Unmitigated	6.8712	0.4061	0.0000	17.0232

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

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.01	2.0300e-003	1.2000e-004	0.0000	5.0300e-003
General Office Building	1.67	0.3390	0.0200	0.0000	0.8399
Manufacturing	3.97	0.8059	0.0476	0.0000	1.9965
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	28.2	5.7244	0.3383	0.0000	14.1818
Total		**6.8712**	**0.4061**	**0.0000**	**17.0232**

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

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.01	2.0300e-003	1.2000e-004	0.0000	5.0300e-003
General Office Building	1.67	0.3390	0.0200	0.0000	0.8399
Manufacturing	3.97	0.8059	0.0476	0.0000	1.9965
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	28.2	5.7244	0.3383	0.0000	14.1818
Total		**6.8712**	**0.4061**	**0.0000**	**17.0232**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Aerial Lifts	1	0.50	260	82	0.31	Diesel
Forklifts	2	2.00	260	62	0.20	Electrical
Off-Highway Trucks	1	0.50	260	402	0.38	Diesel
Other Material Handling Equipment	1	6.00	260	225	0.40	Diesel
Other Material Handling Equipment	1	2.00	260	74	0.40	Diesel

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

Rubber Tired Loaders	1	2.00	260	172	0.36	Diesel
Skid Steer Loaders	1	0.50	260	51	0.37	Diesel
Tractors/Loaders/Backhoes	1	6.00	260	55	0.37	Diesel
Tractors/Loaders/Backhoes	1	6.00	260	48	0.37	Electrical

UnMitigated/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
Equipment Type	tons/yr										MT/yr					
Aerial Lifts	3.7000e-004	5.5700e-003	0.0116	2.0000e-005		1.0000e-004	1.0000e-004		9.0000e-005	9.0000e-005	0.0000	1.5602	1.5602	5.0000e-004	0.0000	1.5728
Forklifts	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Highway Trucks	4.0400e-003	0.0270	0.0264	1.1000e-004		9.7000e-004	9.7000e-004		9.0000e-004	9.0000e-004	0.0000	9.4373	9.4373	3.0500e-003	0.0000	9.5136
Other Material Handling Equipment	0.0363	0.3450	0.2481	8.4000e-004		0.0122	0.0122		0.0112	0.0112	0.0000	73.4855	73.4855	0.0238	0.0000	74.0796
Rubber Tired Loaders	8.7300e-003	0.0669	0.1167	1.7000e-004		3.5700e-003	3.5700e-003		3.2800e-003	3.2800e-003	0.0000	15.1447	15.1447	4.9000e-003	0.0000	15.2672
Skid Steer Loaders	4.0000e-004	5.2700e-003	8.8300e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.6000e-004	1.6000e-004	0.0000	1.1599	1.1599	3.8000e-004	0.0000	1.1693
Tractors/Loaders/Backhoes	7.9600e-003	0.0801	0.1236	1.7000e-004		3.6700e-003	3.6700e-003		3.3800e-003	3.3800e-003	0.0000	15.1343	15.1343	4.8900e-003	0.0000	15.2567
Total	**0.0578**	**0.5298**	**0.5352**	**1.3200e-003**		**0.0207**	**0.0207**		**0.0190**	**0.0190**	**0.0000**	**115.9218**	**115.9218**	**0.0375**	**0.0000**	**116.8591**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Tuolumne Biomass Project - Tuolumne County, Winter

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

Tuolumne Biomass Project

Tuolumne County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1.80	1000sqft	0.04	1,800.00	0
Manufacturing	3.20	1000sqft	0.07	3,200.00	0
Unrefrigerated Warehouse-No Rail	30.00	1000sqft	0.69	30,000.00	0
Other Asphalt Surfaces	3.50	Acre	3.50	152,460.00	0
Other Asphalt Surfaces	32.20	1000sqft	0.74	32,200.00	0
Other Asphalt Surfaces	42.00	1000sqft	0.96	42,000.00	0
Other Non-Asphalt Surfaces	2.50	Acre	2.50	108,900.00	0
Other Non-Asphalt Surfaces	10.80	1000sqft	0.25	10,800.00	0
Parking Lot	31.00	Space	0.28	12,400.00	0
City Park	0.12	Acre	0.12	5,227.20	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	66
Climate Zone	1			**Operational Year**	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	134.44	**CH4 Intensity (lb/MWhr)**	33.46	**N2O Intensity (lb/MWhr)**	3.94

1.3 User Entered Comments & Non-Default Data

Project Characteristics - interpolated from The Climate Registry's Utility-Specific Emission Factors

Land Use - landscaping=city park. unrefigerated WH #2 = shop. Merch line paving sf conservativley est. at 42,000. Gravel surfaces modeled as non-asphalt.

Construction Phase - demolition phase removed - no demolition planned in PD. Site prep start date changed to construction start date from PD "spring 2023"

Tuolumne Biomass Project - Tuolumne County, Winter

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

Off-road Equipment - PD states construction is 10hr/day

Off-road Equipment - PD states construction is 10hr/day

Off-road Equipment - extra excavator added to CalEEMod default of 3 for retention pond shown in PD. Cosntruction hours based on statement in PD

Off-road Equipment - PD states construction is 10hr/day. additional excavator added to account for proposed retention pond

Off-road Equipment - PD states construction is 10hr/day

Off-road Equipment - PD states construction is 10hr/day

Trips and VMT - building construction hauling trips: client estimated 25/30 total truck deliveries, left as CalEEMod default as conservative est.

Grading - PD states site is 17 acres, with 2 acres having been graded previously for previous land use

Architectural Coating - adjusted to parking area size

Vehicle Trips -

Vehicle Emission Factors - EMFAC 2021 Vehicle Emissions Data

Vehicle Emission Factors - EMFAC 2021 Vehicle Emissions Data

Vehicle Emission Factors - EMFAC 2021 Vehicle Emisisons data

Energy Use - input used = total project energy demand from grid divided by land use subtype building size

Water And Wastewater -

Solid Waste -

Operational Off-Road Equipment - Sourced from client list of equipment / example machines given

Stationary Sources - Emergency Generators and Fire Pumps -

Stationary Sources - User Defined -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	21,526.00	12,400.00
tblEnergyUse	LightingElect	3.45	0.00
tblEnergyUse	LightingElect	1.81	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	NT24E	3.98	0.00
tblEnergyUse	NT24E	1.85	0.00
tblEnergyUse	NT24E	0.00	7.20
tblEnergyUse	NT24NG	0.31	0.00

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

tblEnergyUse	T24E	3.25	0.00
tblEnergyUse	T24E	0.56	0.00
tblEnergyUse	T24NG	19.34	0.00
tblEnergyUse	T24NG	3.17	0.00
tblGrading	AcresOfGrading	25.00	15.00
tblOffRoadEquipment	UsageHours	6.00	10.00
tblOffRoadEquipment	UsageHours	7.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	7.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOperationalOffRoadEquipment	OperFuelType	Diesel	Electrical
tblOperationalOffRoadEquipment	OperFuelType	Diesel	Electrical
tblOperationalOffRoadEquipment	OperHorsePower	63.00	82.00
tblOperationalOffRoadEquipment	OperHorsePower	89.00	62.00
tblOperationalOffRoadEquipment	OperHorsePower	168.00	225.00
tblOperationalOffRoadEquipment	OperHorsePower	168.00	74.00
tblOperationalOffRoadEquipment	OperHorsePower	203.00	172.00
tblOperationalOffRoadEquipment	OperHorsePower	65.00	51.00
tblOperationalOffRoadEquipment	OperHorsePower	97.00	55.00

Tuolumne Biomass Project - Tuolumne County, Winter

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

tblOperationalOffRoadEquipment	OperHorsePower	97.00	48.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	0.50
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	2.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	0.50
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	6.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	2.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	2.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	0.50
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	6.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	6.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	2.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	33.46
tblProjectCharacteristics	CO2IntensityFactor	203.98	134.44
tblProjectCharacteristics	N2OIntensityFactor	0.004	3.94
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleEF	HHD	919.08	919.08
tblVehicleEF	LDA	0.73	0.73
tblVehicleEF	LDA	2.47	2.48
tblVehicleEF	LDA	255.49	260.73
tblVehicleEF	LDA	53.00	54.10
tblVehicleEF	LDA	0.05	0.05

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

tblVehicleEF	LDA	0.21	0.21
tblVehicleEF	LDA	1.6990e-003	1.7070e-003
tblVehicleEF	LDA	1.9760e-003	1.9860e-003
tblVehicleEF	LDA	1.5670e-003	1.5740e-003
tblVehicleEF	LDA	1.8170e-003	1.8260e-003
tblVehicleEF	LDA	0.06	0.06
tblVehicleEF	LDA	0.16	0.16
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.29	0.29
tblVehicleEF	LDA	0.06	0.06
tblVehicleEF	LDA	0.16	0.16
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.32	0.32
tblVehicleEF	LDA	0.85	0.86
tblVehicleEF	LDA	1.76	1.77
tblVehicleEF	LDA	275.54	281.19
tblVehicleEF	LDA	51.65	52.71
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.18	0.18
tblVehicleEF	LDA	1.6990e-003	1.7070e-003
tblVehicleEF	LDA	1.9760e-003	1.9860e-003
tblVehicleEF	LDA	1.5670e-003	1.5740e-003
tblVehicleEF	LDA	1.8170e-003	1.8260e-003
tblVehicleEF	LDA	0.15	0.15
tblVehicleEF	LDA	0.19	0.19

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

tblVehicleEF	LDA	0.15	0.15
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.23	0.23
tblVehicleEF	LDA	0.15	0.15
tblVehicleEF	LDA	0.19	0.19
tblVehicleEF	LDA	0.15	0.15
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.25	0.25
tblVehicleEF	LDA	0.71	0.71
tblVehicleEF	LDA	2.94	2.95
tblVehicleEF	LDA	251.14	256.29
tblVehicleEF	LDA	53.90	55.02
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.23	0.23
tblVehicleEF	LDA	1.6990e-003	1.7070e-003
tblVehicleEF	LDA	1.9760e-003	1.9860e-003
tblVehicleEF	LDA	1.5670e-003	1.5740e-003
tblVehicleEF	LDA	1.8170e-003	1.8260e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.17	0.17
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.34	0.34
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.17	0.17
tblVehicleEF	LDA	0.01	0.01

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

tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.37	0.37
tblVehicleEF	LDT1	2.08	2.09
tblVehicleEF	LDT1	3.12	3.14
tblVehicleEF	LDT1	325.34	332.07
tblVehicleEF	LDT1	70.80	72.27
tblVehicleEF	LDT1	0.21	0.21
tblVehicleEF	LDT1	0.45	0.45
tblVehicleEF	LDT1	2.9960e-003	3.0110e-003
tblVehicleEF	LDT1	3.8360e-003	3.8560e-003
tblVehicleEF	LDT1	2.7570e-003	2.7710e-003
tblVehicleEF	LDT1	3.5270e-003	3.5450e-003
tblVehicleEF	LDT1	0.23	0.23
tblVehicleEF	LDT1	0.54	0.54
tblVehicleEF	LDT1	0.18	0.18
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.29	0.29
tblVehicleEF	LDT1	0.76	0.76
tblVehicleEF	LDT1	0.23	0.23
tblVehicleEF	LDT1	0.54	0.54
tblVehicleEF	LDT1	0.18	0.18
tblVehicleEF	LDT1	0.08	0.08
tblVehicleEF	LDT1	0.29	0.29
tblVehicleEF	LDT1	0.83	0.83
tblVehicleEF	LDT1	2.39	2.40
tblVehicleEF	LDT1	2.18	2.19
tblVehicleEF	LDT1	347.43	354.61
tblVehicleEF	LDT1	68.68	70.10

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

tblVehicleEF	LDT1	0.17	0.17
tblVehicleEF	LDT1	0.39	0.39
tblVehicleEF	LDT1	2.9960e-003	3.0110e-003
tblVehicleEF	LDT1	3.8360e-003	3.8560e-003
tblVehicleEF	LDT1	2.7570e-003	2.7710e-003
tblVehicleEF	LDT1	3.5270e-003	3.5450e-003
tblVehicleEF	LDT1	0.63	0.63
tblVehicleEF	LDT1	0.64	0.65
tblVehicleEF	LDT1	0.53	0.53
tblVehicleEF	LDT1	0.06	0.06
tblVehicleEF	LDT1	0.27	0.27
tblVehicleEF	LDT1	0.57	0.57
tblVehicleEF	LDT1	0.63	0.63
tblVehicleEF	LDT1	0.64	0.65
tblVehicleEF	LDT1	0.53	0.53
tblVehicleEF	LDT1	0.09	0.09
tblVehicleEF	LDT1	0.27	0.27
tblVehicleEF	LDT1	0.62	0.63
tblVehicleEF	LDT1	2.04	2.05
tblVehicleEF	LDT1	3.75	3.77
tblVehicleEF	LDT1	320.57	327.21
tblVehicleEF	LDT1	72.22	73.71
tblVehicleEF	LDT1	0.23	0.23
tblVehicleEF	LDT1	0.50	0.50
tblVehicleEF	LDT1	2.9960e-003	3.0110e-003
tblVehicleEF	LDT1	3.8360e-003	3.8560e-003
tblVehicleEF	LDT1	2.7570e-003	2.7710e-003
tblVehicleEF	LDT1	3.5270e-003	3.5450e-003
tblVehicleEF	LDT1	0.05	0.05

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

tblVehicleEF	LDT1	0.57	0.57
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.35	0.35
tblVehicleEF	LDT1	0.89	0.89
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.57	0.57
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.08	0.08
tblVehicleEF	LDT1	0.35	0.35
tblVehicleEF	LDT1	0.97	0.97
tblVehicleEF	LDT2	1.34	1.34
tblVehicleEF	LDT2	3.38	3.40
tblVehicleEF	LDT2	346.81	353.95
tblVehicleEF	LDT2	75.15	76.70
tblVehicleEF	LDT2	0.15	0.15
tblVehicleEF	LDT2	0.45	0.45
tblVehicleEF	LDT2	1.9100e-003	1.9200e-003
tblVehicleEF	LDT2	2.2850e-003	2.2970e-003
tblVehicleEF	LDT2	1.7580e-003	1.7670e-003
tblVehicleEF	LDT2	2.1010e-003	2.1120e-003
tblVehicleEF	LDT2	0.12	0.12
tblVehicleEF	LDT2	0.31	0.31
tblVehicleEF	LDT2	0.11	0.11
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.15	0.15
tblVehicleEF	LDT2	0.56	0.56
tblVehicleEF	LDT2	0.12	0.12
tblVehicleEF	LDT2	0.31	0.31

Tuolumne Biomass Project - Tuolumne County, Winter

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

tblVehicleEF	LDT2	0.11	0.11
tblVehicleEF	LDT2	0.04	0.05
tblVehicleEF	LDT2	0.15	0.15
tblVehicleEF	LDT2	0.61	0.61
tblVehicleEF	LDT2	1.55	1.56
tblVehicleEF	LDT2	2.40	2.41
tblVehicleEF	LDT2	368.56	376.15
tblVehicleEF	LDT2	73.14	74.66
tblVehicleEF	LDT2	0.13	0.13
tblVehicleEF	LDT2	0.39	0.39
tblVehicleEF	LDT2	1.9100e-003	1.9200e-003
tblVehicleEF	LDT2	2.2850e-003	2.2970e-003
tblVehicleEF	LDT2	1.7580e-003	1.7670e-003
tblVehicleEF	LDT2	2.1010e-003	2.1120e-003
tblVehicleEF	LDT2	0.32	0.32
tblVehicleEF	LDT2	0.35	0.35
tblVehicleEF	LDT2	0.31	0.31
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.14	0.14
tblVehicleEF	LDT2	0.43	0.43
tblVehicleEF	LDT2	0.32	0.32
tblVehicleEF	LDT2	0.35	0.35
tblVehicleEF	LDT2	0.31	0.31
tblVehicleEF	LDT2	0.05	0.05
tblVehicleEF	LDT2	0.14	0.14
tblVehicleEF	LDT2	0.47	0.47
tblVehicleEF	LDT2	1.31	1.31
tblVehicleEF	LDT2	4.04	4.06
tblVehicleEF	LDT2	342.10	349.15

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

tblVehicleEF	LDT2	76.49	78.07
tblVehicleEF	LDT2	0.17	0.17
tblVehicleEF	LDT2	0.50	0.50
tblVehicleEF	LDT2	1.9100e-003	1.9200e-003
tblVehicleEF	LDT2	2.2850e-003	2.2970e-003
tblVehicleEF	LDT2	1.7580e-003	1.7670e-003
tblVehicleEF	LDT2	2.1010e-003	2.1120e-003
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.32	0.32
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.18	0.18
tblVehicleEF	LDT2	0.65	0.65
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.32	0.32
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.18	0.18
tblVehicleEF	LDT2	0.71	0.71
tblVehicleEF	LHD2	739.26	739.26
tblVehicleEF	MDV	1.56	1.56
tblVehicleEF	MDV	4.19	4.21
tblVehicleEF	MDV	426.55	435.14
tblVehicleEF	MDV	91.00	92.88
tblVehicleEF	MDV	0.19	0.19
tblVehicleEF	MDV	0.53	0.53
tblVehicleEF	MDV	2.2300e-003	2.2400e-003
tblVehicleEF	MDV	2.6450e-003	2.6580e-003
tblVehicleEF	MDV	2.0610e-003	2.0700e-003

Tuolumne Biomass Project - Tuolumne County, Winter

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

tblVehicleEF	MDV	2.4320e-003	2.4440e-003
tblVehicleEF	MDV	0.14	0.14
tblVehicleEF	MDV	0.36	0.36
tblVehicleEF	MDV	0.13	0.13
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.18	0.18
tblVehicleEF	MDV	0.71	0.71
tblVehicleEF	MDV	0.14	0.14
tblVehicleEF	MDV	0.36	0.36
tblVehicleEF	MDV	0.13	0.13
tblVehicleEF	MDV	0.06	0.06
tblVehicleEF	MDV	0.18	0.18
tblVehicleEF	MDV	0.78	0.78
tblVehicleEF	MDV	1.79	1.80
tblVehicleEF	MDV	2.95	2.96
tblVehicleEF	MDV	449.44	458.51
tblVehicleEF	MDV	88.45	90.28
tblVehicleEF	MDV	0.16	0.16
tblVehicleEF	MDV	0.45	0.45
tblVehicleEF	MDV	2.2300e-003	2.2400e-003
tblVehicleEF	MDV	2.6450e-003	2.6580e-003
tblVehicleEF	MDV	2.0610e-003	2.0700e-003
tblVehicleEF	MDV	2.4320e-003	2.4440e-003
tblVehicleEF	MDV	0.37	0.37
tblVehicleEF	MDV	0.41	0.41
tblVehicleEF	MDV	0.37	0.37
tblVehicleEF	MDV	0.05	0.05
tblVehicleEF	MDV	0.16	0.16
tblVehicleEF	MDV	0.54	0.54

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

tblVehicleEF	MDV	0.37	0.37
tblVehicleEF	MDV	0.41	0.41
tblVehicleEF	MDV	0.37	0.37
tblVehicleEF	MDV	0.07	0.07
tblVehicleEF	MDV	0.16	0.16
tblVehicleEF	MDV	0.59	0.59
tblVehicleEF	MDV	1.53	1.54
tblVehicleEF	MDV	5.03	5.05
tblVehicleEF	MDV	421.60	430.10
tblVehicleEF	MDV	92.71	94.63
tblVehicleEF	MDV	0.21	0.21
tblVehicleEF	MDV	0.58	0.58
tblVehicleEF	MDV	2.2300e-003	2.2400e-003
tblVehicleEF	MDV	2.6450e-003	2.6580e-003
tblVehicleEF	MDV	2.0610e-003	2.0700e-003
tblVehicleEF	MDV	2.4320e-003	2.4440e-003
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.37	0.37
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.22	0.22
tblVehicleEF	MDV	0.83	0.83
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.37	0.37
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.06	0.06
tblVehicleEF	MDV	0.22	0.22
tblVehicleEF	MDV	0.90	0.90
tblVehicleEF	SBUS	3.1000e-003	3.0990e-003

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

tblVehicleEF	SBUS	339.91	339.91

2.0 Emissions Summary

Tuolumne Biomass Project - Tuolumne County, Winter

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

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	3.7730	34.5169	32.0902	0.0685	24.8012	1.5841	26.3853	12.6890	1.4574	14.1464	0.0000	6,760.8095	6,760.8095	1.4996	0.2895	6,870.1434
2024	48.3300	23.4092	31.0768	0.0677	2.5289	0.8608	3.3897	0.6795	0.8087	1.4882	0.0000	6,681.4037	6,681.4037	0.9095	0.2788	6,787.2239
Maximum	**48.3300**	**34.5169**	**32.0902**	**0.0685**	**24.8012**	**1.5841**	**26.3853**	**12.6890**	**1.4574**	**14.1464**	**0.0000**	**6,760.8095**	**6,760.8095**	**1.4996**	**0.2895**	**6,870.1434**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	3.7730	34.5169	32.0902	0.0685	24.8012	1.5841	26.3853	12.6890	1.4574	14.1464	0.0000	6,760.8095	6,760.8095	1.4996	0.2895	6,870.1434
2024	48.3300	23.4092	31.0768	0.0677	2.5289	0.8608	3.3897	0.6795	0.8087	1.4882	0.0000	6,681.4037	6,681.4037	0.9095	0.2788	6,787.2239
Maximum	**48.3300**	**34.5169**	**32.0902**	**0.0685**	**24.8012**	**1.5841**	**26.3853**	**12.6890**	**1.4574**	**14.1464**	**0.0000**	**6,760.8095**	**6,760.8095**	**1.4996**	**0.2895**	**6,870.1434**

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

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.1684	1.5000e-004	0.0160	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0344	0.0344	9.0000e-005		0.0366
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.5829	0.9528	5.4032	7.3500e-003	0.6996	9.6300e-003	0.7093	0.1871	9.0700e-003	0.1962		758.5026	758.5026	0.0713	0.0471	774.3235
Offroad	0.4442	4.0753	4.1168	0.0102		0.1590	0.1590		0.1463	0.1463	0.0000	982.9393	982.9393	0.3179		990.8869
Total	**2.1955**	**5.0282**	**9.5360**	**0.0175**	**0.6996**	**0.1687**	**0.8683**	**0.1871**	**0.1554**	**0.3425**	**0.0000**	**1,741.4763**	**1,741.4763**	**0.3893**	**0.0471**	**1,765.2470**

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

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.1684	1.5000e-004	0.0160	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0344	0.0344	9.0000e-005		0.0366
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.5829	0.9528	5.4032	7.3500e-003	0.6996	9.6300e-003	0.7093	0.1871	9.0700e-003	0.1962		758.5026	758.5026	0.0713	0.0471	774.3235
Offroad	0.4442	4.0753	4.1168	0.0102		0.1590	0.1590		0.1463	0.1463	0.0000	982.9393	982.9393	0.3179		990.8869
Total	**2.1955**	**5.0282**	**9.5360**	**0.0175**	**0.6996**	**0.1687**	**0.8683**	**0.1871**	**0.1554**	**0.3425**	**0.0000**	**1,741.4763**	**1,741.4763**	**0.3893**	**0.0471**	**1,765.2470**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/20/2023	3/31/2023	5	10	
2	Grading	Grading	4/1/2023	4/28/2023	5	20	
3	Building Construction	Building Construction	4/29/2023	3/15/2024	5	230	
4	Paving	Paving	3/16/2024	4/12/2024	5	20	

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

5	Architectural Coating	Architectural Coating	4/13/2024	5/10/2024	5	20	

Acres of Grading (Site Preparation Phase): 18.75

Acres of Grading (Grading Phase): 15

Acres of Paving: 8.23

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 52,500; Non-Residential Outdoor: 17,500; Striped Parking Area: 12,400 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	10.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	10.00	97	0.37
Grading	Excavators	1	10.00	158	0.38
Grading	Graders	1	10.00	187	0.41
Grading	Rubber Tired Dozers	1	10.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	10.00	97	0.37
Building Construction	Cranes	1	10.00	231	0.29
Building Construction	Forklifts	3	10.00	89	0.20
Building Construction	Generator Sets	1	10.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	10.00	97	0.37
Building Construction	Welders	1	10.00	46	0.45
Paving	Pavers	2	10.00	130	0.42
Paving	Paving Equipment	2	10.00	132	0.36
Paving	Rollers	2	10.00	80	0.38
Architectural Coating	Air Compressors	1	10.00	78	0.48

Trips and VMT

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

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	167.00	65.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	33.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					24.5713	0.0000	24.5713	12.6281	0.0000	12.6281			0.0000			0.0000
Off-Road	3.3243	34.4052	22.8054	0.0476		1.5825	1.5825		1.4559	1.4559		4,609.1351	4,609.1351	1.4907		4,646.4023
Total	**3.3243**	**34.4052**	**22.8054**	**0.0476**	**24.5713**	**1.5825**	**26.1538**	**12.6281**	**1.4559**	**14.0840**		**4,609.1351**	**4,609.1351**	**1.4907**		**4,646.4023**

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

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1675	0.1116	1.0290	2.0200e-003	0.2299	1.6000e-003	0.2315	0.0610	1.4800e-003	0.0625		204.1502	204.1502	8.9100e-003	8.3200e-003	206.8537
Total	**0.1675**	**0.1116**	**1.0290**	**2.0200e-003**	**0.2299**	**1.6000e-003**	**0.2315**	**0.0610**	**1.4800e-003**	**0.0625**		**204.1502**	**204.1502**	**8.9100e-003**	**8.3200e-003**	**206.8537**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					24.5713	0.0000	24.5713	12.6281	0.0000	12.6281			0.0000			0.0000
Off-Road	3.3243	34.4052	22.8054	0.0476		1.5825	1.5825		1.4559	1.4559	0.0000	4,609.1351	4,609.1351	1.4907		4,646.4023
Total	**3.3243**	**34.4052**	**22.8054**	**0.0476**	**24.5713**	**1.5825**	**26.1538**	**12.6281**	**1.4559**	**14.0840**	**0.0000**	**4,609.1351**	**4,609.1351**	**1.4907**		**4,646.4023**

Tuolumne Biomass Project - Tuolumne County, Winter

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

3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1675	0.1116	1.0290	2.0200e-003	0.2299	1.6000e-003	0.2315	0.0610	1.4800e-003	0.0625		204.1502	204.1502	8.9100e-003	8.3200e-003	206.8537
Total	**0.1675**	**0.1116**	**1.0290**	**2.0200e-003**	**0.2299**	**1.6000e-003**	**0.2315**	**0.0610**	**1.4800e-003**	**0.0625**		**204.1502**	**204.1502**	**8.9100e-003**	**8.3200e-003**	**206.8537**

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	lb/day										lb/day					
Fugitive Dust					8.3230	0.0000	8.3230	4.2237	0.0000	4.2237			0.0000			0.0000
Off-Road	2.1386	22.4198	18.4384	0.0371		0.9687	0.9687		0.8912	0.8912		3,590.8637	3,590.8637	1.1614		3,619.8977
Total	**2.1386**	**22.4198**	**18.4384**	**0.0371**	**8.3230**	**0.9687**	**9.2916**	**4.2237**	**0.8912**	**5.1148**		**3,590.8637**	**3,590.8637**	**1.1614**		**3,619.8977**

Tuolumne Biomass Project - Tuolumne County, Winter

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

3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1396	0.0930	0.8575	1.6800e-003	0.1916	1.3400e-003	0.1929	0.0508	1.2300e-003	0.0520		170.1252	170.1252	7.4300e-003	6.9400e-003	172.3781
Total	**0.1396**	**0.0930**	**0.8575**	**1.6800e-003**	**0.1916**	**1.3400e-003**	**0.1929**	**0.0508**	**1.2300e-003**	**0.0520**		**170.1252**	**170.1252**	**7.4300e-003**	**6.9400e-003**	**172.3781**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.3230	0.0000	8.3230	4.2237	0.0000	4.2237			0.0000			0.0000
Off-Road	2.1386	22.4198	18.4384	0.0371		0.9687	0.9687		0.8912	0.8912	0.0000	3,590.8637	3,590.8637	1.1614		3,619.8977
Total	**2.1386**	**22.4198**	**18.4384**	**0.0371**	**8.3230**	**0.9687**	**9.2916**	**4.2237**	**0.8912**	**5.1148**	**0.0000**	**3,590.8637**	**3,590.8637**	**1.1614**		**3,619.8977**

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

3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1396	0.0930	0.8575	1.6800e-003	0.1916	1.3400e-003	0.1929	0.0508	1.2300e-003	0.0520		170.1252	170.1252	7.4300e-003	6.9400e-003	172.3781
Total	**0.1396**	**0.0930**	**0.8575**	**1.6800e-003**	**0.1916**	**1.3400e-003**	**0.1929**	**0.0508**	**1.2300e-003**	**0.0520**		**170.1252**	**170.1252**	**7.4300e-003**	**6.9400e-003**	**172.3781**

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	lb/day										lb/day					
Off-Road	2.0918	19.2971	21.6376	0.0360		0.9351	0.9351		0.8786	0.8786		3,422.6919	3,422.6919	0.8338		3,443.5361
Total	**2.0918**	**19.2971**	**21.6376**	**0.0360**		**0.9351**	**0.9351**		**0.8786**	**0.8786**		**3,422.6919**	**3,422.6919**	**0.8338**		**3,443.5361**

Tuolumne Biomass Project - Tuolumne County, Winter

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

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1269	4.6598	0.9059	0.0137	0.3958	0.0277	0.4235	0.1138	0.0265	0.1403		1,444.0571	1,444.0571	5.8300e-003	0.2123	1,507.4651
Worker	1.5543	1.0358	9.5468	0.0187	2.1331	0.0149	2.1480	0.5657	0.0137	0.5794		1,894.0605	1,894.0605	0.0827	0.0772	1,919.1423
Total	**1.6812**	**5.6956**	**10.4526**	**0.0324**	**2.5289**	**0.0426**	**2.5715**	**0.6795**	**0.0402**	**0.7197**		**3,338.1176**	**3,338.1176**	**0.0885**	**0.2895**	**3,426.6074**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0918	19.2971	21.6376	0.0360		0.9351	0.9351		0.8786	0.8786	0.0000	3,422.6919	3,422.6919	0.8338		3,443.5361
Total	**2.0918**	**19.2971**	**21.6376**	**0.0360**		**0.9351**	**0.9351**		**0.8786**	**0.8786**	**0.0000**	**3,422.6919**	**3,422.6919**	**0.8338**		**3,443.5361**

Tuolumne Biomass Project - Tuolumne County, Winter

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

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1269	4.6598	0.9059	0.0137	0.3958	0.0277	0.4235	0.1138	0.0265	0.1403		1,444.0571	1,444.0571	5.8300e-003	0.2123	1,507.4651
Worker	1.5543	1.0358	9.5468	0.0187	2.1331	0.0149	2.1480	0.5657	0.0137	0.5794		1,894.0605	1,894.0605	0.0827	0.0772	1,919.1423
Total	**1.6812**	**5.6956**	**10.4526**	**0.0324**	**2.5289**	**0.0426**	**2.5715**	**0.6795**	**0.0402**	**0.7197**		**3,338.1176**	**3,338.1176**	**0.0885**	**0.2895**	**3,426.6074**

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9588	18.0311	21.5338	0.0361		0.8206	0.8206		0.7708	0.7708		3,423.3904	3,423.3904	0.8294		3,444.1261
Total	**1.9588**	**18.0311**	**21.5338**	**0.0361**		**0.8206**	**0.8206**		**0.7708**	**0.7708**		**3,423.3904**	**3,423.3904**	**0.8294**		**3,444.1261**

Tuolumne Biomass Project - Tuolumne County, Winter

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

3.4 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1192	4.4606	0.8736	0.0135	0.3958	0.0264	0.4222	0.1138	0.0252	0.1390		1,422.2821	1,422.2821	5.5000e-003	0.2080	1,484.4077
Worker	1.4588	0.9175	8.6694	0.0182	2.1331	0.0138	2.1469	0.5657	0.0128	0.5784		1,835.7312	1,835.7312	0.0746	0.0708	1,858.6902
Total	**1.5780**	**5.3781**	**9.5430**	**0.0317**	**2.5289**	**0.0402**	**2.5691**	**0.6795**	**0.0380**	**0.7174**		**3,258.0133**	**3,258.0133**	**0.0801**	**0.2788**	**3,343.0979**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9588	18.0311	21.5338	0.0361		0.8206	0.8206		0.7708	0.7708	0.0000	3,423.3904	3,423.3904	0.8294		3,444.1261
Total	**1.9588**	**18.0311**	**21.5338**	**0.0361**		**0.8206**	**0.8206**		**0.7708**	**0.7708**	**0.0000**	**3,423.3904**	**3,423.3904**	**0.8294**		**3,444.1261**

Tuolumne Biomass Project - Tuolumne County, Winter

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

3.4 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1192	4.4606	0.8736	0.0135	0.3958	0.0264	0.4222	0.1138	0.0252	0.1390		1,422.2821	1,422.2821	5.5000e-003	0.2080	1,484.4077
Worker	1.4588	0.9175	8.6694	0.0182	2.1331	0.0138	2.1469	0.5657	0.0128	0.5784		1,835.7312	1,835.7312	0.0746	0.0708	1,858.6902
Total	**1.5780**	**5.3781**	**9.5430**	**0.0317**	**2.5289**	**0.0402**	**2.5691**	**0.6795**	**0.0380**	**0.7174**		**3,258.0133**	**3,258.0133**	**0.0801**	**0.2788**	**3,343.0979**

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2352	11.9057	18.2822	0.0285		0.5857	0.5857		0.5388	0.5388		2,759.4340	2,759.4340	0.8925		2,781.7454
Paving	0.7179					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.9531**	**11.9057**	**18.2822**	**0.0285**		**0.5857**	**0.5857**		**0.5388**	**0.5388**		**2,759.4340**	**2,759.4340**	**0.8925**		**2,781.7454**

Tuolumne Biomass Project - Tuolumne County, Winter

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

3.5 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1310	0.0824	0.7787	1.6300e-003	0.1916	1.2400e-003	0.1928	0.0508	1.1500e-003	0.0520		164.8860	164.8860	6.7000e-003	6.3600e-003	166.9482
Total	**0.1310**	**0.0824**	**0.7787**	**1.6300e-003**	**0.1916**	**1.2400e-003**	**0.1928**	**0.0508**	**1.1500e-003**	**0.0520**		**164.8860**	**164.8860**	**6.7000e-003**	**6.3600e-003**	**166.9482**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2352	11.9057	18.2822	0.0285		0.5857	0.5857		0.5388	0.5388	0.0000	2,759.4340	2,759.4340	0.8925		2,781.7454
Paving	0.7179					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.9531**	**11.9057**	**18.2822**	**0.0285**		**0.5857**	**0.5857**		**0.5388**	**0.5388**	**0.0000**	**2,759.4340**	**2,759.4340**	**0.8925**		**2,781.7454**

Tuolumne Biomass Project - Tuolumne County, Winter

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

3.5 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1310	0.0824	0.7787	1.6300e-003	0.1916	1.2400e-003	0.1928	0.0508	1.1500e-003	0.0520		164.8860	164.8860	6.7000e-003	6.3600e-003	166.9482
Total	**0.1310**	**0.0824**	**0.7787**	**1.6300e-003**	**0.1916**	**1.2400e-003**	**0.1928**	**0.0508**	**1.1500e-003**	**0.0520**		**164.8860**	**164.8860**	**6.7000e-003**	**6.3600e-003**	**166.9482**

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	47.7405					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3013	2.0313	3.0169	4.9500e-003		0.1015	0.1015		0.1015	0.1015		469.0801	469.0801	0.0264		469.7404
Total	**48.0418**	**2.0313**	**3.0169**	**4.9500e-003**		**0.1015**	**0.1015**		**0.1015**	**0.1015**		**469.0801**	**469.0801**	**0.0264**		**469.7404**

Tuolumne Biomass Project - Tuolumne County, Winter

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

3.6 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.2883	0.1813	1.7131	3.5900e-003	0.4215	2.7400e-003	0.4243	0.1118	2.5200e-003	0.1143		362.7493	362.7493	0.0147	0.0140	367.2861
Total	**0.2883**	**0.1813**	**1.7131**	**3.5900e-003**	**0.4215**	**2.7400e-003**	**0.4243**	**0.1118**	**2.5200e-003**	**0.1143**		**362.7493**	**362.7493**	**0.0147**	**0.0140**	**367.2861**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	47.7405					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3013	2.0313	3.0169	4.9500e-003		0.1015	0.1015		0.1015	0.1015	0.0000	469.0801	469.0801	0.0264		469.7404
Total	**48.0418**	**2.0313**	**3.0169**	**4.9500e-003**		**0.1015**	**0.1015**		**0.1015**	**0.1015**	**0.0000**	**469.0801**	**469.0801**	**0.0264**		**469.7404**

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

3.6 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.2883	0.1813	1.7131	3.5900e-003	0.4215	2.7400e-003	0.4243	0.1118	2.5200e-003	0.1143		362.7493	362.7493	0.0147	0.0140	367.2861
Total	**0.2883**	**0.1813**	**1.7131**	**3.5900e-003**	**0.4215**	**2.7400e-003**	**0.4243**	**0.1118**	**2.5200e-003**	**0.1143**		**362.7493**	**362.7493**	**0.0147**	**0.0140**	**367.2861**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Tuolumne Biomass Project - Tuolumne County, Winter

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5829	0.9528	5.4032	7.3500e-003	0.6996	9.6300e-003	0.7093	0.1871	9.0700e-003	0.1962		758.5026	758.5026	0.0713	0.0471	774.3235
Unmitigated	0.5829	0.9528	5.4032	7.3500e-003	0.6996	9.6300e-003	0.7093	0.1871	9.0700e-003	0.1962		758.5026	758.5026	0.0713	0.0471	774.3235

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.09	0.24	0.26	340	340
General Office Building	17.53	3.98	1.26	36,639	36,639
Manufacturing	12.58	20.54	16.29	55,033	55,033
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	52.20	52.20	52.20	201,673	201,673
Total	82.40	76.96	70.01	293,686	293,686

4.3 Trip Type Information

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

	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
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6
General Office Building	14.70	6.60	6.60	33.00	48.00	19.00	77	19	4
Manufacturing	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Parking Lot	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	14.70	6.60	6.60	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462
General Office Building	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462
Manufacturing	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462
Other Asphalt Surfaces	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462
Other Non-Asphalt Surfaces	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462
Parking Lot	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462
Unrefrigerated Warehouse-No Rail	0.409773	0.074310	0.207884	0.166228	0.063246	0.011231	0.007472	0.003645	0.001136	0.000418	0.044154	0.002041	0.008462

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Tuolumne Biomass Project - Tuolumne County, Winter

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Tuolumne Biomass Project - Tuolumne County, Winter

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.1684	1.5000e-004	0.0160	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0344	0.0344	9.0000e-005		0.0366
Unmitigated	1.1684	1.5000e-004	0.0160	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0344	0.0344	9.0000e-005		0.0366

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2906					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.8763					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.4800e-003	1.5000e-004	0.0160	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0344	0.0344	9.0000e-005		0.0366
Total	**1.1684**	**1.5000e-004**	**0.0160**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**		**0.0344**	**0.0344**	**9.0000e-005**		**0.0366**

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2906					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.8763					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.4800e-003	1.5000e-004	0.0160	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0344	0.0344	9.0000e-005		0.0366
Total	**1.1684**	**1.5000e-004**	**0.0160**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**		**0.0344**	**0.0344**	**9.0000e-005**		**0.0366**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Aerial Lifts	1	0.50	260	82	0.31	Diesel
Forklifts	2	2.00	260	62	0.20	Electrical
Off-Highway Trucks	1	0.50	260	402	0.38	Diesel

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

Other Material Handling Equipment	1	6.00	260	225	0.40	Diesel
Other Material Handling Equipment	1	2.00	260	74	0.40	Diesel
Rubber Tired Loaders	1	2.00	260	172	0.36	Diesel
Skid Steer Loaders	1	0.50	260	51	0.37	Diesel
Tractors/Loaders/Backhoes	1	6.00	260	55	0.37	Diesel
Tractors/Loaders/Backhoes	1	6.00	260	48	0.37	Electrical

UnMitigated/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
Equipment Type	lb/day										lb/day					
Aerial Lifts	2.8200e-003	0.0428	0.0889	1.4000e-004		7.4000e-004	7.4000e-004		6.8000e-004	6.8000e-004	0.0000	13.2290	13.2290	4.2800e-003		13.3360
Forklifts	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Off-Highway Trucks	0.0311	0.2080	0.2031	8.3000e-004		7.4900e-003	7.4900e-003		6.8900e-003	6.8900e-003	0.0000	80.0219	80.0219	0.0259		80.6689
Other Material Handling Equipment	0.2789	2.6538	1.9084	6.4400e-003		0.0938	0.0938		0.0863	0.0863	0.0000	623.1073	623.1073	0.2015		628.1454
Rubber Tired Loaders	0.0672	0.5143	0.8978	1.3300e-003		0.0274	0.0274		0.0252	0.0252	0.0000	128.4170	128.4170	0.0415		129.4553
Skid Steer Loaders	3.0600e-003	0.0405	0.0679	1.0000e-004		1.3000e-003	1.3000e-003		1.2000e-003	1.2000e-003	0.0000	9.8355	9.8355	3.1800e-003		9.9150
Tractors/Loaders/Backhoes	0.0612	0.6159	0.9507	1.3300e-003		0.0283	0.0283		0.0260	0.0260	0.0000	128.3286	128.3286	0.0415		129.3662
Total	**0.4442**	**4.0753**	**4.1168**	**0.0102**		**0.1590**	**0.1590**		**0.1463**	**0.1463**	**0.0000**	**982.9393**	**982.9393**	**0.3179**		**990.8869**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

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

TBLLC Tier 4 Operational Equipment - Tuolumne County, Annual

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

TBLLC Tier 4 Operational Equipment

Tuolumne County, Annual

1.0 Project Characteristics

1.1 Land Usage

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

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	66
Climate Zone	1			**Operational Year**	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	136.49	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2e IF calculated using data from the Climate Registry and eGRID

Land Use - Left blank - operational run

Construction Phase - .

Off-road Equipment - Unit amount, hours/day and HP sourced from client-provided equipment list

Energy Use - based on client provided data

Construction Off-road Equipment Mitigation - Client confirmed all operational equipment will be Tier 4

Operational Off-Road Equipment - .

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblAreaCoating	Area_Nonresidential_Exterior	500	0
tblAreaCoating	Area_Nonresidential_Interior	1500	0

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

tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintResidentialExteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintResidentialInteriorValue	250	0
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	1.00	260.00
tblEnergyUse	LightingElect	1.81	0.00
tblEnergyUse	NT24E	1.85	0.00
tblEnergyUse	NT24NG	0.31	0.00
tblEnergyUse	T24E	0.56	216.00
tblEnergyUse	T24NG	3.17	0.00
tblFleetMix	HHD	3.6450e-003	0.00
tblFleetMix	LDA	0.41	0.00
tblFleetMix	LDT1	0.07	0.00
tblFleetMix	LDT2	0.21	0.00
tblFleetMix	LHD1	0.06	0.00
tblFleetMix	LHD2	0.01	0.00

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

tblFleetMix	MCY	0.04	0.00
tblFleetMix	MDV	0.17	0.00
tblFleetMix	MH	8.4620e-003	0.00
tblFleetMix	MHD	7.4720e-003	0.00
tblFleetMix	OBUS	1.1360e-003	0.00
tblFleetMix	SBUS	2.0410e-003	0.00
tblFleetMix	UBUS	4.1800e-004	0.00
tblOffRoadEquipment	HorsePower	63.00	82.00
tblOffRoadEquipment	HorsePower	89.00	62.00
tblOffRoadEquipment	HorsePower	168.00	225.00
tblOffRoadEquipment	HorsePower	168.00	74.00
tblOffRoadEquipment	HorsePower	203.00	172.00
tblOffRoadEquipment	HorsePower	65.00	51.00
tblOffRoadEquipment	HorsePower	97.00	55.00
tblOffRoadEquipment	HorsePower	97.00	48.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	203.98	136.49
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural

2.0 Emissions Summary

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

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.1097	0.7317	0.9123	1.9200e-003	0.0399	0.0308	0.0706	0.0106	0.0283	0.0389	0.0000	170.1813	170.1813	0.0455	1.2800e-003	171.6992
Maximum	**0.1097**	**0.7317**	**0.9123**	**1.9200e-003**	**0.0399**	**0.0308**	**0.0706**	**0.0106**	**0.0283**	**0.0389**	**0.0000**	**170.1813**	**170.1813**	**0.0455**	**1.2800e-003**	**171.6992**

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					
2023	0.0747	0.3745	1.1078	1.9200e-003	0.0399	0.0147	0.0546	0.0106	0.0137	0.0243	0.0000	170.1811	170.1811	0.0455	1.2800e-003	171.6990
Maximum	**0.0747**	**0.3745**	**1.1078**	**1.9200e-003**	**0.0399**	**0.0147**	**0.0546**	**0.0106**	**0.0137**	**0.0243**	**0.0000**	**170.1811**	**170.1811**	**0.0455**	**1.2800e-003**	**171.6990**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**31.89**	**48.81**	**-21.43**	**0.00**	**0.00**	**52.23**	**22.74**	**0.00**	**51.71**	**37.61**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	3-20-2023	6-19-2023	0.2125	0.1134
2	6-20-2023	9-19-2023	0.2123	0.1132
3	9-20-2023	9-30-2023	0.0254	0.0135
		Highest	0.2125	0.1134

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	3.9100e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	13.3727	13.3727	0.0000	0.0000	13.3727
Mobile	0.0000	0.0000	0.0000	0.0000	5.4300e-003	0.0000	5.4300e-003	1.3300e-003	0.0000	1.3300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.2517	0.0000	0.2517	0.0149	0.0000	0.6236
Water						0.0000	0.0000		0.0000	0.0000	0.0734	0.0775	0.1508	7.5400e-003	1.8000e-004	0.3922
Total	**3.9100e-003**	**0.0000**	**1.0000e-005**	**0.0000**	**5.4300e-003**	**0.0000**	**5.4300e-003**	**1.3300e-003**	**0.0000**	**1.3300e-003**	**0.3251**	**13.4502**	**13.7753**	**0.0224**	**1.8000e-004**	**14.3886**

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

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.9100e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	13.3727	13.3727	0.0000	0.0000	13.3727
Mobile	0.0000	0.0000	0.0000	0.0000	5.4300e-003	0.0000	5.4300e-003	1.3300e-003	0.0000	1.3300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.2517	0.0000	0.2517	0.0149	0.0000	0.6236
Water						0.0000	0.0000		0.0000	0.0000	0.0734	0.0775	0.1508	7.5400e-003	1.8000e-004	0.3922
Total	**3.9100e-003**	**0.0000**	**1.0000e-005**	**0.0000**	**5.4300e-003**	**0.0000**	**5.4300e-003**	**1.3300e-003**	**0.0000**	**1.3300e-003**	**0.3251**	**13.4502**	**13.7753**	**0.0224**	**1.8000e-004**	**14.3886**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2023	12/29/2023	5	260	

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

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation		0			
Site Preparation	Aerial Lifts	1	0.50	82	0.31
Site Preparation	Forklifts	2	2.00	62	0.20
Site Preparation	Off-Highway Trucks	1	0.50	402	0.38
Site Preparation	Other Material Handling Equipment	1	6.00	225	0.40
Site Preparation	Other Material Handling Equipment	1	2.00	74	0.40
Site Preparation	Rubber Tired Loaders	1	2.00	172	0.36
Site Preparation	Skid Steer Loaders	1	0.50	51	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	6.00	55	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	6.00	48	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	10	25.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Alternative Fuel for Construction Equipment

Use Cleaner Engines for Construction Equipment

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

3.2 Site Preparation - 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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0822	0.7133	0.7273	1.5500e-003		0.0305	0.0305		0.0280	0.0280	0.0000	136.2342	136.2342	0.0441	0.0000	137.3357
Total	**0.0822**	**0.7133**	**0.7273**	**1.5500e-003**	**0.0000**	**0.0305**	**0.0305**	**0.0000**	**0.0280**	**0.0280**	**0.0000**	**136.2342**	**136.2342**	**0.0441**	**0.0000**	**137.3357**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0274	0.0184	0.1850	3.7000e-004	0.0399	2.9000e-004	0.0402	0.0106	2.7000e-004	0.0109	0.0000	33.9471	33.9471	1.4000e-003	1.2800e-003	34.3635
Total	**0.0274**	**0.0184**	**0.1850**	**3.7000e-004**	**0.0399**	**2.9000e-004**	**0.0402**	**0.0106**	**2.7000e-004**	**0.0109**	**0.0000**	**33.9471**	**33.9471**	**1.4000e-003**	**1.2800e-003**	**34.3635**

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

3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0473	0.3562	0.9228	1.5500e-003		0.0144	0.0144		0.0134	0.0134	0.0000	136.2340	136.2340	0.0441	0.0000	137.3356
Total	**0.0473**	**0.3562**	**0.9228**	**1.5500e-003**	**0.0000**	**0.0144**	**0.0144**	**0.0000**	**0.0134**	**0.0134**	**0.0000**	**136.2340**	**136.2340**	**0.0441**	**0.0000**	**137.3356**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0274	0.0184	0.1850	3.7000e-004	0.0399	2.9000e-004	0.0402	0.0106	2.7000e-004	0.0109	0.0000	33.9471	33.9471	1.4000e-003	1.2800e-003	34.3635
Total	**0.0274**	**0.0184**	**0.1850**	**3.7000e-004**	**0.0399**	**2.9000e-004**	**0.0402**	**0.0106**	**2.7000e-004**	**0.0109**	**0.0000**	**33.9471**	**33.9471**	**1.4000e-003**	**1.2800e-003**	**34.3635**

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	5.4300e-003	0.0000	5.4300e-003	1.3300e-003	0.0000	1.3300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	5.4300e-003	0.0000	5.4300e-003	1.3300e-003	0.0000	1.3300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Manufacturing	3.93	6.42	5.09	17,198	17,198
Total	3.93	6.42	5.09	17,198	17,198

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
Manufacturing	14.70	6.60	6.60	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
Manufacturing	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

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

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	13.3727	13.3727	0.0000	0.0000	13.3727
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	13.3727	13.3727	0.0000	0.0000	13.3727
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	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					
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Manufacturing	216000	13.3727	0.0000	0.0000	13.3727
Total		**13.3727**	**0.0000**	**0.0000**	**13.3727**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Manufacturing	216000	13.3727	0.0000	0.0000	13.3727
Total		**13.3727**	**0.0000**	**0.0000**	**13.3727**

6.0 Area Detail

6.1 Mitigation Measures Area

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.9100e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated	3.9100e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.9100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**3.9100e-003**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

TBLLC Tier 4 Operational Equipment - Tuolumne County, Annual

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.9100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**3.9100e-003**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

TBLLC Tier 4 Operational Equipment - Tuolumne County, Annual

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

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.1508	7.5400e-003	1.8000e-004	0.3922
Unmitigated	0.1508	7.5400e-003	1.8000e-004	0.3922

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Manufacturing	0.23125 / 0	0.1508	7.5400e-003	1.8000e-004	0.3922
Total		**0.1508**	**7.5400e-003**	**1.8000e-004**	**0.3922**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Manufacturing	0.23125 / 0	0.1508	7.5400e-003	1.8000e-004	0.3922
Total		**0.1508**	**7.5400e-003**	**1.8000e-004**	**0.3922**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.2517	0.0149	0.0000	0.6236
Unmitigated	0.2517	0.0149	0.0000	0.6236

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

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Manufacturing	1.24	0.2517	0.0149	0.0000	0.6236
Total		**0.2517**	**0.0149**	**0.0000**	**0.6236**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Manufacturing	1.24	0.2517	0.0149	0.0000	0.6236
Total		**0.2517**	**0.0149**	**0.0000**	**0.6236**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Aerial Lifts	0	8.00	260	63	0.31	Diesel

TBLLC Tier 4 Operational Equipment - Tuolumne County, Annual

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

Forklifts	0	8.00	260	89	0.20	Diesel
Off-Highway Trucks	0	8.00	260	402	0.38	Diesel
Other Material Handling Equipment	0	8.00	260	168	0.40	Diesel
Other Material Handling Equipment	0	8.00	260	168	0.40	Diesel
Rubber Tired Loaders	0	8.00	260	203	0.36	Diesel
Skid Steer Loaders	0	8.00	260	65	0.37	Diesel
Tractors/Loaders/Backhoes	0	8.00	260	97	0.37	Diesel
Tractors/Loaders/Backhoes	0	8.00	260	97	0.37	Diesel

UnMitigated/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
Equipment Type	tons/yr										MT/yr					
Aerial Lifts	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Forklifts	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Highway Trucks	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Material Handling Equipment	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Rubber Tired Loaders	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Skid Steer Loaders	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tractors/Loaders/Backhoes	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

TBLLC Tier 4 Operational Equipment - Tuolumne County, Annual

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

TBLLC Tier 4 Operational Equipment - Tuolumne County, Winter

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

TBLLC Tier 4 Operational Equipment

Tuolumne County, Winter

1.0 Project Characteristics

1.1 Land Usage

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

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	66
Climate Zone	1			**Operational Year**	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	136.49	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2e IF calculated using data from the Climate Registry and eGRID

Land Use - Left blank - operational run

Construction Phase - .

Off-road Equipment - Unit amount, hours/day and HP sourced from client-provided equipment list

Energy Use - based on client provided data

Construction Off-road Equipment Mitigation - Client confirmed all operational equipment will be Tier 4

Operational Off-Road Equipment - .

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblAreaCoating	Area_Nonresidential_Exterior	500	0
tblAreaCoating	Area_Nonresidential_Interior	1500	0

TBLLC Tier 4 Operational Equipment - Tuolumne County, Winter

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

tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintResidentialExteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintResidentialInteriorValue	250	0
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	1.00	260.00
tblEnergyUse	LightingElect	1.81	0.00
tblEnergyUse	NT24E	1.85	0.00
tblEnergyUse	NT24NG	0.31	0.00
tblEnergyUse	T24E	0.56	216.00
tblEnergyUse	T24NG	3.17	0.00
tblFleetMix	HHD	3.6450e-003	0.00
tblFleetMix	LDA	0.41	0.00
tblFleetMix	LDT1	0.07	0.00
tblFleetMix	LDT2	0.21	0.00
tblFleetMix	LHD1	0.06	0.00
tblFleetMix	LHD2	0.01	0.00

TBLLC Tier 4 Operational Equipment - Tuolumne County, Winter

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

tblFleetMix	MCY	0.04	0.00
tblFleetMix	MDV	0.17	0.00
tblFleetMix	MH	8.4620e-003	0.00
tblFleetMix	MHD	7.4720e-003	0.00
tblFleetMix	OBUS	1.1360e-003	0.00
tblFleetMix	SBUS	2.0410e-003	0.00
tblFleetMix	UBUS	4.1800e-004	0.00
tblOffRoadEquipment	HorsePower	63.00	82.00
tblOffRoadEquipment	HorsePower	89.00	62.00
tblOffRoadEquipment	HorsePower	168.00	225.00
tblOffRoadEquipment	HorsePower	168.00	74.00
tblOffRoadEquipment	HorsePower	203.00	172.00
tblOffRoadEquipment	HorsePower	65.00	51.00
tblOffRoadEquipment	HorsePower	97.00	55.00
tblOffRoadEquipment	HorsePower	97.00	48.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	203.98	136.49
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural

2.0 Emissions Summary

TBLLC Tier 4 Operational Equipment - Tuolumne County, Winter

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

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	0.8653	5.6420	7.0237	0.0147	0.3193	0.2365	0.5559	0.0847	0.2176	0.3023	0.0000	1,438.7151	1,438.7151	0.3860	0.0116	1,451.8100
Maximum	**0.8653**	**5.6420**	**7.0237**	**0.0147**	**0.3193**	**0.2365**	**0.5559**	**0.0847**	**0.2176**	**0.3023**	**0.0000**	**1,438.7151**	**1,438.7151**	**0.3860**	**0.0116**	**1,451.8100**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	0.5963	2.8947	8.5276	0.0147	0.3193	0.1130	0.4323	0.0847	0.1051	0.1898	0.0000	1,438.7151	1,438.7151	0.3860	0.0116	1,451.8100
Maximum	**0.5963**	**2.8947**	**8.5276**	**0.0147**	**0.3193**	**0.1130**	**0.4323**	**0.0847**	**0.1051**	**0.1898**	**0.0000**	**1,438.7151**	**1,438.7151**	**0.3860**	**0.0116**	**1,451.8100**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**31.08**	**48.69**	**-21.41**	**0.00**	**0.00**	**52.24**	**22.23**	**0.00**	**51.71**	**37.22**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

TBLLC Tier 4 Operational Equipment - Tuolumne County, Winter

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0214	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0451	0.0000	0.0451	0.0111	0.0000	0.0111		0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0214**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0451**	**0.0000**	**0.0451**	**0.0111**	**0.0000**	**0.0111**	**0.0000**	**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

TBLLC Tier 4 Operational Equipment - Tuolumne County, Winter

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

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0214	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0451	0.0000	0.0451	0.0111	0.0000	0.0111		0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0214**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0451**	**0.0000**	**0.0451**	**0.0111**	**0.0000**	**0.0111**	**0.0000**	**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2023	12/29/2023	5	260	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

TBLLC Tier 4 Operational Equipment - Tuolumne County, Winter

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

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation		0			
Site Preparation	Aerial Lifts	1	0.50	82	0.31
Site Preparation	Forklifts	2	2.00	62	0.20
Site Preparation	Off-Highway Trucks	1	0.50	402	0.38
Site Preparation	Other Material Handling Equipment	1	6.00	225	0.40
Site Preparation	Other Material Handling Equipment	1	2.00	74	0.40
Site Preparation	Rubber Tired Loaders	1	2.00	172	0.36
Site Preparation	Skid Steer Loaders	1	0.50	51	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	6.00	55	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	6.00	48	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	10	25.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Alternative Fuel for Construction Equipment

Use Cleaner Engines for Construction Equipment

TBLLC Tier 4 Operational Equipment - Tuolumne County, Winter

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

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6326	5.4870	5.5946	0.0119		0.2343	0.2343		0.2156	0.2156		1,155.1731	1,155.1731	0.3736		1,164.5133
Total	**0.6326**	**5.4870**	**5.5946**	**0.0119**	**0.0000**	**0.2343**	**0.2343**	**0.0000**	**0.2156**	**0.2156**		**1,155.1731**	**1,155.1731**	**0.3736**		**1,164.5133**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.2327	0.1551	1.4292	2.8100e-003	0.3193	2.2300e-003	0.3216	0.0847	2.0500e-003	0.0867		283.5420	283.5420	0.0124	0.0116	287.2968
Total	**0.2327**	**0.1551**	**1.4292**	**2.8100e-003**	**0.3193**	**2.2300e-003**	**0.3216**	**0.0847**	**2.0500e-003**	**0.0867**		**283.5420**	**283.5420**	**0.0124**	**0.0116**	**287.2968**

TBLLC Tier 4 Operational Equipment - Tuolumne County, Winter

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

3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.3636	2.7396	7.0984	0.0119		0.1107	0.1107		0.1030	0.1030	0.0000	1,155.1731	1,155.1731	0.3736		1,164.5133
Total	**0.3636**	**2.7396**	**7.0984**	**0.0119**	**0.0000**	**0.1107**	**0.1107**	**0.0000**	**0.1030**	**0.1030**	**0.0000**	**1,155.1731**	**1,155.1731**	**0.3736**		**1,164.5133**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.2327	0.1551	1.4292	2.8100e-003	0.3193	2.2300e-003	0.3216	0.0847	2.0500e-003	0.0867		283.5420	283.5420	0.0124	0.0116	287.2968
Total	**0.2327**	**0.1551**	**1.4292**	**2.8100e-003**	**0.3193**	**2.2300e-003**	**0.3216**	**0.0847**	**2.0500e-003**	**0.0867**		**283.5420**	**283.5420**	**0.0124**	**0.0116**	**287.2968**

TBLLC Tier 4 Operational Equipment - Tuolumne County, Winter

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0451	0.0000	0.0451	0.0111	0.0000	0.0111		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0451	0.0000	0.0451	0.0111	0.0000	0.0111		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Manufacturing	3.93	6.42	5.09	17,198	17,198
Total	3.93	6.42	5.09	17,198	17,198

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
Manufacturing	14.70	6.60	6.60	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
Manufacturing	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

TBLLC Tier 4 Operational Equipment - Tuolumne County, Winter

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

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

TBLLC Tier 4 Operational Equipment - Tuolumne County, Winter

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

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**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	lb/day										lb/day					
Mitigated	0.0214	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	0.0214	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

TBLLC Tier 4 Operational Equipment - Tuolumne County, Winter

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

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0214					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.0214**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

TBLLC Tier 4 Operational Equipment - Tuolumne County, Winter

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0214					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.0214**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Aerial Lifts	0	8.00	260	63	0.31	Diesel
Forklifts	0	8.00	260	89	0.20	Diesel
Off-Highway Trucks	0	8.00	260	402	0.38	Diesel

TBLLC Tier 4 Operational Equipment - Tuolumne County, Winter

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

Other Material Handling Equipment	0	8.00	260	168	0.40	Diesel
Other Material Handling Equipment	0	8.00	260	168	0.40	Diesel
Rubber Tired Loaders	0	8.00	260	203	0.36	Diesel
Skid Steer Loaders	0	8.00	260	65	0.37	Diesel
Tractors/Loaders/Backhoes	0	8.00	260	97	0.37	Diesel
Tractors/Loaders/Backhoes	0	8.00	260	97	0.37	Diesel

UnMitigated/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
Equipment Type	lb/day										lb/day					
Aerial Lifts	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Forklifts	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Off-Highway Trucks	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Other Material Handling Equipment	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Rubber Tired Loaders	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Skid Steer Loaders	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Tractors/Loaders/ Backhoes	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

TBLLC Tier 4 Operational Equipment - Tuolumne County, Winter

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

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 C

GASIFIER EMISSION FACTORS

Heartwood Biomass LLC

WISEWOOD ENERGY

Tuolumne Integrated Wood Yard Energy System Technology Evaluation

Energy Model - Biomass CHP

Location: Sonora, CA
Client Contact: Matt King
Date Last Modified: 2022-07-15

Proposed Scenario: Biomass CHP
Proposed System Output: 125 kW-el / 238 kW-th
Proposed Biomass Fuel: Wood Chips

Energy Demand	
Dry Kilns [Avg. Btu/hr]	570,000
Dry Kilns [Peak Btu/hr]	675,000
Electricity usage [kWh/yr]	1,000,000

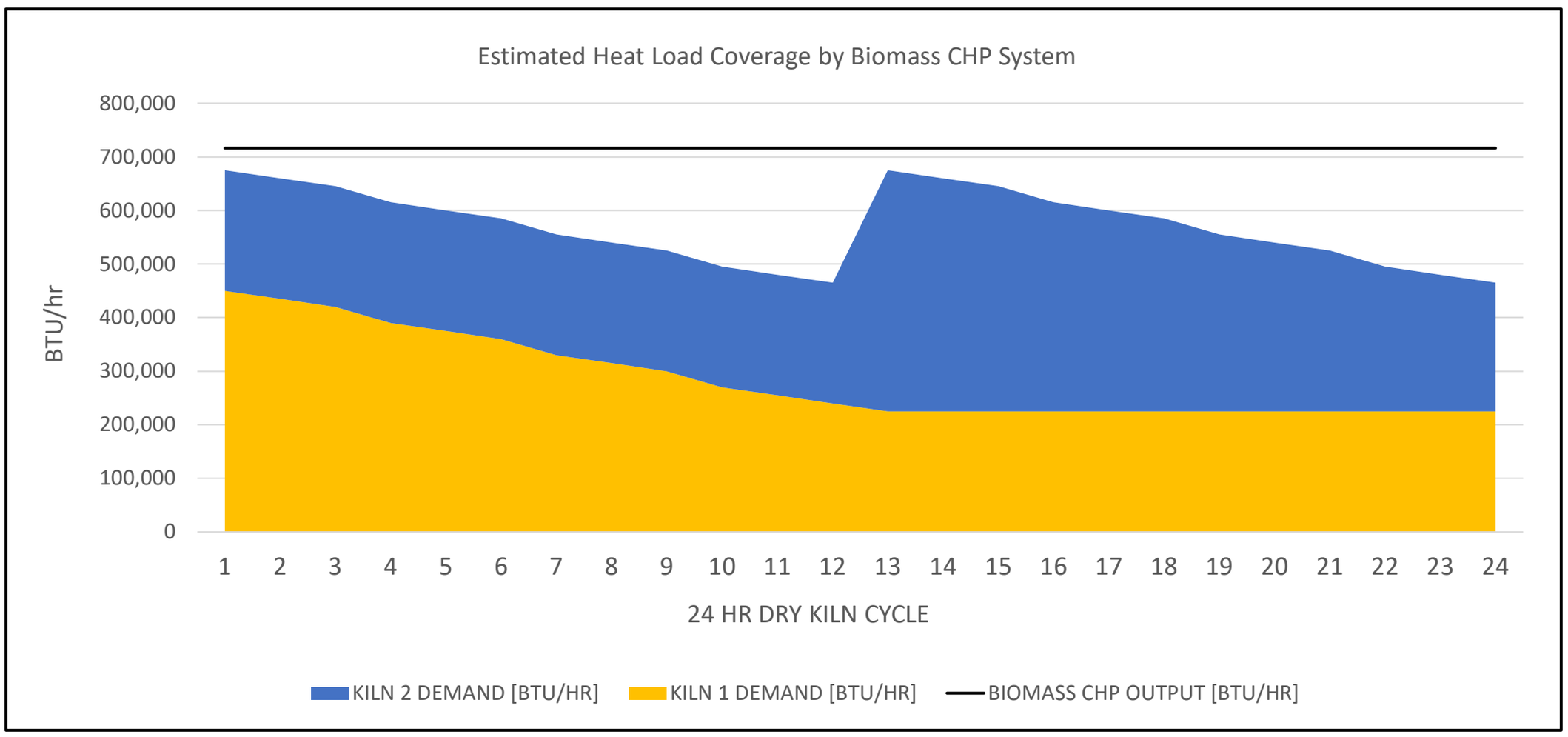
Proposed System Capacity	
Nominal electricity capacity [kW]	125
Nominal heat capacity [kW]	238
Operating hours per year	8,200
Estimated net electricity production [kWh/yr]	**984,000**
Estimated net thermal energy production [MMbtu/yr]	**5,873**

Wood Fuel Requirements	
Specified Fuel Type	Wood Chips
Procured wood fuel moisture content [% wb]	35%
Specified wood fuel moisture content [% wb]	10%
Wood fuel use at procured MC [ton/yr]	1,049
Wood fuel use at specified MC [tons/yr]	787
Wood fuel use [BDT/yr]	708

Proposed System Values	
Electricity coverage [%]	98.4%
Thermal energy coverage [%]	100.0%
Gross heating output [Btu/hr]	812,089
Wood (fuel) drying heat demand [Btu/hr]	95,918
Net heating output [Btu/hr]	716,172
Average excess heat capacity [Btu/hr]	146,172

Fuel Costs	
Wood fuel price [$/GT]	$20
Wood fuel cost [$/yr]	$20,974
Electricity price [$/kWh]	$0.22
Estimated electricity offset [kWh/yr]	984,000
Estimated electricity cost [$/yr]	-$216,480
Subtotal Fuel Costs [$/yr]	**-$195,506**
Other Fuel Variables	
Ash generation [tons/yr]	25
Tar generation [lt/yr]	938

O&M Costs	
Estimated third party services rate [$/hr]	$125
Estimated third party services [hr/yr]	106
Third party services subtotal [$/yr]	$13,235
Estimated consumables [$/yr]	$26,000
Subtotal O&M Costs [$/yr]	**$39,235**
Other O&M Variables	
Estimated FTE [daily and periodic O&M]	0.126



NOTES

1. Heat loads for each kiln are staggered according to a 24hr dry / heat treatment cycle, peak thermal demand for each kiln is 450,000 Btu/hr and gradually drops to 225,000 BTU/hr half way thru the cycle.
2. Fuel and O&M subtotals do not include ash or tar disposal costs, daily & periodic O&M costs, or potential related administrative, remote monitoring, or insurance costs.

Heartwood Biomass LLC

WISEWOOD ENERGY

Tuolumne Integrated Wood Yard Energy System Technology Evaluation
Emissions Estimates - Gasifier CHP System

Location: Sonora, CA
Client Contact: Matt King
Date Last Modified: 2022-05-13
Proposed Scenario: Biomass CHP

Proposed System Output: 125 kW-el / 238 kW-th
Proposed Biomass Fuel: Wood Chips
Operation Hours [hrs/yr]: 8,200
Modeled Emissions Reductions: None

Gasifier CHP - Emissions Factors	
Exhaust Gas Production [Nm3/hr]	426
Carbon Monoxide [mg/m3]	40
Nitrogen Oxides [mg/m3]	530
VOC [mg/m3]	1.2
PM [mg/m3]	20

Gasifier CHP - Annual Estimated Emissions	
Exhaust Gas Production [Nm3/hr]	3,493,200
Carbon Monoxide [ton/yr]	0.15
Nitrogen Oxides [ton/yr]	2.04
VOC [ton/yr]	0.00
PM [ton/yr]	0.08
Total Gasifier Emissions [ton/yr]	**2.28**

Wood Chip Dryer - Fuel Variables & VOC Emissions Factors	
Methanol [lb/BDT]	0.048
Formaldehyde [lb/BDT]	0.0037
Acetaldehyde [lb/BDT]	0.013
Propionaldehyde [lb/BDT]	0.00107
Acrolein [lb/BDT]	0.0015
Wood Chips Demand [TPY @ 10% MC]	787
Wood Chips Demand [BDT/hr]	0.086

Wood Chip Dryer - Annual Estimated VOC Emissions	
Methanol [ton/yr]	0.017
Formaldehyde [ton/yr]	0.001
Acetaldehyde [ton/yr]	0.005
Propionaldehyde [ton/yr]	0.000
Acrolein [ton/yr]	0.001
Total Estimated Dryer VOC Emissions [ton/yr]	**0.024**

Wood Chip Dryer - Particulate Matter Factors	
Exhaust Gas Flow [CFM]	5,000
Exhaust Gas Flow [Nm3/hr]	8,495
PM [mg/Nm3]	20

Wood Chip Dryer - Particulate Matter Emissions	
Total Estimated PM [lb/hr]	0.37
Total Estimated PM [lb/yr]	3,071
Total Estimated PM [ton/yr]	**1.54**

Heartwood Biomass LLC

WISEWOOD ENERGY

Tuolumne Integrated Wood Yard Energy System Technology Evaluation
Emissions Estimates - Gasifier CHP System

Location: Sonora, CA
Client Contact: Matt King
Date Last Modified: 2022-05-13
Proposed Scenario: Biomass CHP

Proposed System Output: 125 kW-el / 238 kW-th
Proposed Biomass Fuel: Wood Chips
Operation Hours [hrs/yr]: 8,200
Modeled Emissions Reductions: Urea Injection

Gasifier CHP - Emissions Factors	
Exhaust Gas Production [Nm3/hr]	426
Carbon Monoxide [mg/m3]	25
Nitrogen Oxides [mg/m3]	278
VOC [mg/m3]	1.6
PM [mg/m3]	20

Gasifier CHP - Annual Estimated Emissions	
Exhaust Gas Production [Nm3/hr]	3,493,200
Carbon Monoxide [ton/yr]	0.10
Nitrogen Oxides [ton/yr]	1.07
VOC [ton/yr]	0.01
PM [ton/yr]	0.08
Total Gasifier Emissions [ton/yr]	**1.25**

Wood Chip Dryer - Fuel Variables & VOC Emissions Factors	
Methanol [lb/BDT]	0.048
Formaldehyde [lb/BDT]	0.0037
Acetaldehyde [lb/BDT]	0.013
Propionaldehyde [lb/BDT]	0.00107
Acrolein [lb/BDT]	0.0015
Wood Chips Demand [TPY @ 10% MC]	787
Wood Chips Demand [BDT/hr]	0.086

Wood Chip Dryer - Annual Estimated VOC Emissions	
Methanol [ton/yr]	0.017
Formaldehyde [ton/yr]	0.001
Acetaldehyde [ton/yr]	0.005
Propionaldehyde [ton/yr]	0.000
Acrolein [ton/yr]	0.001
Total Estimated Dryer VOC Emissions [ton/yr]	**0.024**

Wood Chip Dryer - Particulate Matter Factors	
Exhaust Gas Flow [CFM]	5,000
Exhaust Gas Flow [Nm3/hr]	8,495
PM [mg/Nm3]	20

Wood Chip Dryer - Particulate Matter Emissions	
Total Estimated PM [lb/hr]	0.37
Total Estimated PM [lb/yr]	3,071
Total Estimated PM [ton/yr]	**1.54**

MESSBERICHT
Nr. 130210
vom 27.03.2013

Durchführung von

EMISSIONSMESSUNGEN

am Holzvergasermotor in der Energiezentrale des Hallenbades Bambados

BETREIBER:

Stadtwerke Bamberg
Energie und Wasserversorgungs GmbH
Margaretendamm 28
96052 Bamberg

STANDORT:

„Bambados" Bamberg
Bereich Starkenfeldstraße/Annafeld

DATUM DER MESSUNG: **24.01.2013**

LGA Immissions- und Arbeitsschutz GmbH
Christian-Hessel-Str. 1 • 90427 Nürnberg
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Registergericht: Amtsgericht Nürnberg HRB 19157
Sitz: Nürnberg
IBAN: DE19 7602 0070 0349 8609 70

- Jede Veröffentlichung - auch in Kürzung oder Auszug - bedarf der vorherigen Zustimmung der LGA Immissions- und Arbeitsschutz GmbH. -

Bericht über die Durchführung von Emissionsmessungen

Name der nach § 26 BImSchG bekannt gegebenen Stelle:
LGA Immissions- und Arbeitsschutz GmbH

Befristung der Bekanntgabe nach BImSchG:
08.05.2017

Berichtsnummer:	130210 vom 27.03.2013
Betreiber:	Stadtwerke Bamberg Energie und Wasserversorgungs GmbH Margaretendamm 28 96052 Bamberg
Standort:	„Bambados“ Bamberg, Bereich Starkenfeldstraße/Annafeld
Art der Messung:	Erstmalige Emissionsmessung gemäß § 28 BImSchG
Auftragsnummer:	--
Auftragsdatum:	10.01.2013
Messtermin:	24.01.2013
Berichtsumfang:	20 Seiten 4 Anlagen

Aufgabenstellung:	Emissionsmessungen an Holzvergaseranlage in der Energiezentrale des Hallenbades "Bambados"

Zusammenfassung:

Anlage: 1.13 Spalte 2
Betriebszeiten: bis zu 24 h/d
Emissionsquelle: --
Messkomponenten: NOx, CO, Benzol, Formaldehyd

Messkomponente	Einheit	Maximaler Messwert abzüglich erweiterte Messunsicherheit	Maximaler Messwert zuzüglich erweiterte Messunsicherheit	Grenzwert	Betriebszustand (Auslastung)
NO_x	g/m^3	0,46*	0,53*	0,50	100%
CO	g/m³	0,03	0,04	0,30	
Benzol	mg/m³	<< 0,1	< 0,2	1 / 3**	
Formaldehyd	mg/m³	<< 0,5	< 1,0	60	

* Maximaler Messwert, der zur Beurteilung herangezogen wird
** Der Grenzwert von 1 mg/m³ gilt ab 2 Jahren nach Inbetriebnahme, davor sind 3 mg/m³ zulässig

Maximum reading less advanced measurement uncertainty

Maximum reading plus advanced measurement uncertainty

Limit

Operating status

INHALTSVERZEICHNIS

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1 FORMULIERUNG DER MESSAUFGABE

1.1 Auftraggeber

Stadtwerke Bamberg
Energie und Wasserversorgungs GmbH
Margaretendamm 28
96052 Bamberg

1.2 Betreiber

siehe 1.1

1.3 Standort

„Bambados" Bamberg Bereich Starkenfeldstraße/Annafeld

1.4 Anlage

Anlage zur Erzeugung von Generator- oder Wassergas aus festen Brennstoffen, die eine Gasmenge mit einem Energieäquivalent von 1 MW oder mehr erzeugen können (1.13 Spalte 2 des Anhangs zur 4. BImSchV)

1.5 Messzeit (Datum)

1.5.1 Datum der letzten Messung
entfällt

1.5.2 Datum der vorliegenden Messung
24.01.2013

1.5.3 Datum der nächsten Messung
2016

1.6 Anlass der Messung

Erstmalige Emissionsmessung gemäß § 28 BImSchG

1.7 Aufgabenstellung

Messtechnische Ermittlung der im Bescheid 381/614-09 Si/He/Ho vom 23.09.2010 bzw. im Schreiben 381 vom 25.01.2011 der Stadt Bamberg begrenzten Schadstoffkonzentrationen.
Die Stadtwerke Bamberg beauftragten die LGA Immissions- und Arbeitsschutz GmbH mit der Durchführung von Emissionsmessungen im Abgas der Holzvergaseranlage in der Energiezentrale des Hallenbades "Bambados"

Grenzwerte lt. Bescheid

Parameter	Grenzwert
Stickstoffoxide, angeg. als NO_2	0,50 g/m^3
Kohlenmonoxid	0,30 g/m^3
Formaldehyd	60 mg/m^3
Benzol	1 mg/m^3 * 3 mg/m^3 *

* Der Grenzwert von 1 mg/m^3 gilt ab 2 Jahren nach Inbetriebnahme, davor sind 3 mg/m^3 zulässig

Die Konzentrationen beziehen sich auf Abgas im Normzustand, trocken (273 K, 1013 hPa) und auf einen Sauerstoffgehalt von 5 Vol.-%.

1.8 Messobjekte

- Stickoxide, angegeben als NO_2
- Kohlenmonoxid
- Formaldehyd
- Benzol

1.9 Durchgeführte Ortsbesichtigung vor Messdurchführung

☐ Ortsbesichtigung durchgeführt am.....
Messbedingungen entsprechend DIN EN 15259
- ☐ vorgefunden
- ☐ nicht vorgefunden
  - ☐ festgelegt und realisiert
  - ☐ nicht festgelegt und realisiert

☒ keine Ortsbesichtigung durchgeführt
☐ da mit den vorherigen Messungen an dieser Anlage befasst.
☒ da Messbedingungen zuvor telefonisch und per E-Mail abgestimmt wurden
Messbedingungen entsprechend DIN EN 15259
☒ vorgefunden
☐ nicht vorgefunden

1.10 Messplanabstimmung

☒ mit dem Betreiber
☐ mit der zuständigen Aufsichtsbehörde
☐ keine Messplanabstimmung durchgeführt

1.11 Beteiligte Personen

LGA Immissions- und Arbeitsschutz GmbH
Herr Daniel Kremer

1.12 Beteiligung weiterer Institute

entfällt

1.13 Fachlich Verantwortlicher

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2 BESCHREIBUNG DER ANLAGE, GEHANDHABTE STOFFE

2.1 Art der Anlage

Anlage zur Erzeugung von Generator- oder Wassergas aus festen Brennstoffen, die eine Gasmenge mit einem Energieäquivalent von 1 MW oder mehr erzeugen können gemäß 1.13 Spalte 2 des Anhangs zur 4. BImSchV

2.2 Beschreibung der Anlage

Die Holzvergaseranlage mit BHKW dient zur Energieversorgung des Hallenbades „Bambados“ in Bamberg. Die Verbrennungsanlage verwertet das in Vergasungsreaktoren erzeugte Holzgas zur Erzeugung von Strom und Wärme.

Technische Daten Verbrennungsmotor:

Hersteller	MAN
Baujahr	2011
Typ	E 2842 DN
Verbrennungsverfahren	Gas-Otto-Motor
Arbeitsweise	4-Takt
Zylinderzahl/Anordnung	12/V
Bohrung/Hub	128 / 142 mm
Drehzahl	1500 1/min
Mittlere Kolbengeschwindigkeit	7,1 m/s
Verdichtungsverhältnis	12,5:1
Mittlerer Effektiver Druck	8,1 bar
Standardleistung nach ISO 3046/1, nicht überlastbar	222 kW
Feuerungswärmeleistung	608 kW
Elektrische. Leistung	120 kW
Brennstoff	Holzgas
Spez. Vollastverbrauch (Toleranz 5%)	2,74 kWh/kWh$_{mech}$
Schmierölverbrauch (ohne Gewähr)	60 g/h

Technische Daten Holzvergaser

Höhe	~1,80 m
Durchmesser	~1,20 m
Gewicht	~2400 kg
Nominaler Holzdurchsatz	~0,60 Sm³/h
Dimension Revisionsöffnung Mittelteil	~0,60 x 0,40 m
Dimension Revisionsöffnung Hinterteil	~0,60 x 0,40 m
Ausgangstemperatur Holzgas	~750 °C
Produktion Holzgas	~400 Nm³/h
Heizwert Holzgas	~1,40 kWh/Nm³

2.3 Beschreibung der Emissionsquellen

Höhe über Grund	12 m
Austrittsfläche	0,03 m^2 (Ø 0,2 m)
Rechts- / Hochwert	-- / --
Bauausführung	Stahl

2.4 Angabe der lt. Genehmigungsbescheid möglichen Einsatzstoffe

- naturbelassene Holzhackschnitzel

2.5 Betriebszeiten

2.5.1 Gesamtbetriebszeit
bis zu 24 h/d

2.5.2 Emissionszeit nach Betriebsangaben
entspricht Gesamtbetriebszeit

2.6 Einrichtung zur Erfassung und Minderung der Emissionen

2.6.1 Einrichtung zur Erfassung der Emissionen

2.6.1.1 Anlage zur Emissionserfassung
Geschlossene Rohrleitungssysteme von den Motoren über einen Oxidationskatalysator, Abgaswärmetauscher und Schalldämpfer zu dem Kamin.

2.6.1.2 Erfassungselement
Nicht vorhanden

2.6.2 Einrichtung zur Verminderung der Emissionen

Bauart	Oxidationskatalysator
Hersteller	Interkat
Artikelnummer	LG500150200
Beschichtung	40 gr Pt/ft^3
Zelldichte	200 cpsi
Durchmesser	500 mm
Länge	150 mm

2.6.3 Einrichtung zur Kühlung des Abgases

Bauart	Abgaswärmetauscher
Wärmeleistung (Toleranz: 5%)	110 kW
Abgastemperatur Eintritt	480 °C
Abgastemperatur Austritt	120 °C
Kühlwassertemperatur Eintritt	88 °C
Kühlwassertemperatur Austritt	92 °C
Druckverlust Abgasseitig	< 10 mbar
Werkstoff Rohre	1.4571
Werkstoff Abgas-Kopf Eintritt / Austritt	1.4828 / 1.4571
Werkstoff Wassermantelrohr	ST 35

3 BESCHREIBUNG DER PROBENAHMESTELLE

3.1 Lage des Messquerschnittes

Lage des Abgaskanals: waagerecht
Einlauf- / Auslaufstrecke: 1 m / 0,5 m

Die DIN EN 15259 konkretisiert folgende Vorgaben für den Messquerschnitt:

Winkel Gasstrom zu Mittelachse Abgaskanal	≤ 15°	[x] ja	[ ] nein
Keine lokale negative Strömung		[x] ja	[ ] nein
Verhältnis höchste/niedrigste örtliche Geschwindigkeit im Messquerschnitt	≤ 3:1	[x] ja	[ ] nein

Messstelle gemäß DIN EN 15259: ja

Lage des Messquerschnittes (Nr. 6.2.1, Anm. 4 der DIN EN 15259)	Einlauf: ≥ 5 D_h	[x] ja	[ ] nein
	Auslauf: ≥ 2 D_h	[x] ja	[ ] nein
	≥ 5 D_h vor Mündung	[x] ja	[ ] nein

3.2 Abmessungen des Messquerschnittes

Ø 0,2 m / 0,03 m^2

3.3 Anzahl der Messachsen und Lage der Messpunkte im Messquerschnitt

1 Messachse, 1 Messpunkt

- **Homogenitätsprüfung**

Ist nach DIN EN 15259 bei einem Messquerschnitt < 0,1 m^2 nicht erforderlich.

3.4 Anzahl und Größe der Messöffnungen (Messstutzen)

2 Messstutzen (à 3 Zoll); 1 Messstutzen (1 Zoll)

4 MESS- UND ANALYSENVERFAHREN

4.1 Ermittlung der Abgasrandbedingungen

4.1.1 Strömungsgeschwindigkeit

rechnerische Ermittlung (aus Brennstoffmenge)

4.1.2 Statischer Druck im Abgaskamin

Manometer:	Vacuubrand DVR-1
letzte Überprüfung / Kalibrierung:	08/2012

4.1.3 Luftdruck in Höhe der Probenahmestelle

Barometer:	Vacuubrand DVR-1
letzte Überprüfung / Kalibrierung:	08/20012

4.1.4 Abgastemperatur

Ni-Cr-Ni-Thermoelement:	Thermometer/ YC-727D
letzte Überprüfung / Kalibrierung:	08/2012
kontinuierliche Ermittlung:	ja

4.1.5 Wasserdampfanteil im Abgas (Abgasfeuchte)

rechnerische Ermittlung (aus Brennstoffmenge)

4.1.6 Abgasdichte

Rechnerisch mit Abgasparameter:
Abgaszusammensetzung, Feuchte, Temperatur und Druck

4.1.7 Abgasverdünnung

entfällt

4.2 Kontinuierliche Messverfahren

4.2.1 Messobjekt – Stickstoffoxide, Kohlenmonoxid, Sauerstoff

4.2.1.1 Messverfahren

NO_x:	UV Absorption
CO:	NDIR / DIN EN 15058
O_2:	Paramagnetismus / DIN EN 14789

4.2.1.2 Analysator

Hersteller:	ABB
Typ:	AO 2000

4.2.1.3 eingestellter Messbereich

NO:	0 - 500 ppm
NO_2:	0 - 200 ppm
CO:	0 - 500 ppm
O_2:	0 - 25 Vol.-%

4.2.1.4 Eignungsprüfung

Gerät eignungsgeprüft	ja

4.2.1.5 Messplatzaufbau

Entnahmesonde / Vorfilter:	unbeheizt
maximale Eintauchtiefe:	0,5 m
Staubfilter:	unbeheizt
Messgasleitung vor Gasaufbereitung:	beheizt / Länge 5 m
Messgasleitung nach Gasaufbereitung:	unbeheizt / Länge 1,0 m
Werkstoff der gasführenden Teile:	PE/Teflon
Messgasaufbereitung:	Messgaskühler
- Fabrikat / Typ:	M&C
- Temperatur, ger. auf:	3 °C

4.2.1.6 Überprüfung der Gerätekennlinie mit folgenden Prüfgasen

Messobjekt:	Stickstoffoxide, Kohlenmonoxid;
Nullgas:	Umgebungsluft
Prüfgas:	NO, CO in N_2
Konzentration:	158 ppm NO 160 ppm CO Umgebungsluft (20,9 Vol.-% O_2)
Hersteller:	Westfalen AG
Herstelldatum:	06/2012
Stabilitätsgarantie:	12 Monate
Zertifiziert:	ja
Überprüfung des Zertifikats:	25.06.2012
Aufgabe durch das gesamte Probenahmesystem:	(incl. Sonde) ja

Messobjekt:	Sauerstoff
Nullgas:	Stickstoff
Prüfgas:	Umgebungsluft
Konzentration:	20,9 Vol.-%

Aufgabe durch das gesamte Probenahmesystem (incl. Sonde):	ja

4.2.1.7 90% - Einstellzeit des gesamten Messaufbaus

NO, NO_2, CO, O_2 < 15 s

4.2.1.8 Registrierung der Messwerte

Art:	12-Kanal-Datenlogger mit Statistikberechnung je Kanal
Schreibbreite:	100 mm
Fabrikat:	PMA
Typ:	KS 3010

4.2.1.9 Maßnahmen zur Qualitätssicherung

Dichtheitsprüfung der Probenahmeeinrichtung:
Das gesamte Probenahmesystem wurde auf die Dichtigkeit überprüft. Dem Entnahmesystem wurde über einen Bypass im Überschuss Stickstoff zugegeben und mittels Sauerstoffanalysator gemessen.

4.3 Diskontinuierliche Messverfahren

4.3.1 Gas- und dampfförmige Emissionen

4.3.1.1 Messobjekt - Aldehyde

4.3.1.1.1 Messverfahren

VDI 3862 Bl.2

4.3.1.1.2 Messplatzaufbau:

<u>Entnahmesonde:</u>	
- Material:	Edelstahl
- beheizt auf:	unbeheizt
- maximale Eintauchtiefe	0,25 m
<u>Partikelfilter:</u>	
- Typ:	--
- Material:	Glaswolle
- beheizt auf:	unbeheizt
<u>Messgasleitung</u>	
- Material:	Teflon
- beheizt auf:	180 °C
- Länge	5 m
<u>Ab- / Adsorptionseinrichtungen</u>:	Muenke Waschflaschen
- Sorptionsmittel:	Dinitrophenylhydrazin
- Sorptionsmittelmenge:	2 x 20 ml
Abstand zwischen Ansaugöffnung der Entnahmesonde und dem Sorptionsmittel bzw. Abscheideelement:	ca. 5 m
Probentransfer:	Glasflaschen / 1 Tag zwischen Probenahme und Analyse
Beteiligung eines Fremdlabors:	entfällt

4.3.1.1.3 Analytische Bestimmung

Analysenverfahren:	VDI 3862 Bl. 2
Aufarbeitung des Probenmaterials:	--
Analysegerät:	HPLC Agilent 1100 / 1200
spez. Kenndaten / Angaben:	RP C 18 Säulenmaterial Eluent: Acetonitril / Wasser Detektor: UV-DAD 365 nm
Standards:	DNPH-Derivate: 0,1 – 5 mg/l
Beteiligung eines Fremdlabors:	entfällt

4.3.1.1.4 Verfahrenskenngrößen

Einfluss von Begleitstoffen (Querempfindlichkeit) / Selektivität:	--
Bestimmungsgrenze:	0,05 mg/l
Obere Erfassungsgrenze:	5 mg/l
Wiederfindungsrate:	Bestimmung der Wiederfindung der verschiedenen Standardkonzentrationen durch Verdünnung der Stammlösung
Wiederholbarkeit:	> 99 %
Messunsicherheit:	s. Ziffer 6.3

4.3.1.1.5 Maßnahmen zur Qualitätssicherung

- Dichtheitsprüfung der Probenahmeeinrichtung:
  Die Probenahmesonde vor der Absorptionseinrichtung wurde verschlossen und der Druckfall am Flowmeter des Probenahmegerätes verfolgt
- Blindwert
- Messunsicherheit des Gasvolumens < 5 %
- Messunsicherheit Temperatur < 2 °C

4.3.1.2 Messobjekt - Benzol / BTXE

4.3.1.2.1 Messverfahren

DIN EN 13649

4.3.1.2.2 Messplatzaufbau:

Entnahmesonde:	
- Material:	Glas
- beheizt auf:	unbeheizt
- maximale Eintauchtiefe	0,25 m
Partikelfilter:	
- Typ:	--
- Material:	Glaswolle
- beheizt auf:	unbeheizt
Ab- / Adsorptionseinrichtungen:	Glasrohr mit A-Kohle
- Sorptionsmittel:	Aktivkohle
- Sorptionsmittelmenge:	1g
Abstand zwischen Ansaugöffnung der Entnahmesonde und dem Sorptionsmittel bzw. Abscheideelement:	5 m
Probentransfer:	1 bis 3 Tage zwischen Probenahme und Analyse
Beteiligung eines Fremdlabors:	entfällt

4.3.1.2.3 Analytische Bestimmung

Analysenverfahren:	DIN EN 13649
Aufarbeitung des Probenmaterials:	Die Aktivkohle wurde mit 5 ml benzolfreiem CS_2 5 min. im Ultraschallbad desorbiert. Die überstehende Lösung wurde zur Analyse in GC-Vials abgefüllt
Analysegerät	Agilent 7890A GC-FID; Agilent 6890 GC mit 5975 MSD
spez. Kenndaten / Angaben:	Säule: Restek RTX 200, L: 60 m; FD: 1,0µm; ID: 0,32 mm Injektor: 260°C Ofen: 40°C/9min; 4°C/min bis 170°C; 6°C/min bis 230°C 20°C/min bis 270°C (6 min) Detektor (FID): 300°C
Standards:	Selbst hergestellt aus zertifizierten Referenzsubstanzen x50, x1000, x20000 (ca. 200 µg/ml, 10 µg/ml, 0,5 µg/ml in CS_2)
Beteiligung eines Fremdlabors:	entfällt

4.3.1.2.4 Verfahrenskenngrößen

Einfluss von Begleitstoffen (Querempfindlichkeit) / Selektivität:	DIN EN 13649
Bestimmungsgrenze:	0,1 µg/ml
Obere Erfassungsgrenze:	400 µg/ml
Wiederfindungsrate:	100 % (im Bereich der gerätspezifischen Messschwankung) 5 ml Standardlösung werden auf Aktivkohle gegeben. Weitere Aufbereitung erfolgt wie bei den Proben
Wiederholbarkeit:	> 99 %
Messunsicherheit:	s. Ziffer 6.3

4.3.1.2.5 Maßnahmen zur Qualitätssicherung

- Dichtheitsprüfung der Probenahmeeinrichtung:
  Die Probenahmesonde vor der Absorptionseinrichtung wurde verschlossen und der Druckfall am Flowmeter des Probenahmegerätes verfolgt
- Blindwert
- Messunsicherheit des Gasvolumens < 5 %
- Messunsicherheit Temperatur < 2 °C

5 BETRIEBSZUSTAND DER ANLAGE WÄHREND DER MESSUNGEN

5.1 Produktionsanlage

Betriebsweise: kontinuierlich

Datum: 24.01.2013

	Holzgasmotor
Brennstoff	Holzgas
Brennstoffverbrauch	500 Nm³/h
Betriebsstunden	4842 h
el. Leistung	120 kW (100 %)
Starts	782
Kühlwasser Motor	76,0 °C
Austritt	70,1 °C
Eintritt	78,1 °C
Lambdaregelventil	73,1 %
Sondenspannung	39,0 mV
Zündzeitpunkt	12,0° v. OT
Schmieröldruck	3,6 bar
Wartungsintervall	600 h

5.2 Abgasreinigungsanlagen

Der Katalysator wurde unter den in 2.6.2 beschriebenen Bedingungen betrieben und wurde unmittelbar vor der Messung eingebaut.

6 ZUSAMMENSTELLUNG DER MESSERGEBNISSE UND DISKUSSION

6.1 Bewertung der Betriebsbedingungen während der Messungen

Die Messungen wurden unter den in Punkt 5 genannten Betriebsbedingungen durchgeführt. Die Anlage wurde während der Messzeit bei maximaler Leistung gefahren.

Parameter	maximal zulässig gemäß Bescheid	Istwert	Auslastung
elektrische Leistung	120	120	100%

Aufgrund der Überschreitung von NO_x zu Beginn der Messung wurden 5 Halbstundenmittelwerte ermittelt. Es wurden lediglich die letzten 3 Messungen auf Benzol und Formaldehyd ausgewertet.

6.2 Messergebnisse

Nachfolgend sind nur die zur Emissionsbeurteilung relevanten Daten aufgeführt. Sonstige Mess- und Rechengrößen befinden sich in den Messprotokollen.

Datum	24.01.2013	Messwerte				
Messzeit	von	10:21	11:40	12:14	12:48	13:22
	bis	10:51	12:10	12:44	13:18	13:52
Volumenstrom	m^3/h 1)	1702	1971	1981	2004	1972
	m^3/h 2)	683	820	839	849	836
	m^3/h 3)	609	753	773	783	769
O_2- Gehalt	Vol.-%	4,7	7,8	8,2	8,3	8,1
Stickoxide, ang. als NO_2	mg/m^3 3)	605	444	353	391	362
	mg/m^3 4)	594	539	441	495	448
	kg/h 5)	0,37	0,33	0,27	0,31	0,28
Kohlenmonoxid	mg/m^3 3)	15	17	23	23	28
	mg/m^3 4)	14	21	29	29	35
	g/h 5)	8,9	13,2	18,1	17,9	21,6
Benzol	mg/m^3 3)	--	--	< 0,1	< 0,1	< 0,1
	mg/m^3 4)	--	--	< 0,1	< 0,1	< 0,1
Formaldehyd	mg/m^3 3)	--	--	< 0,4	< 0,4	< 0,4
	mg/m^3 4)	--	--	< 0,5	< 0,5	< 0,5

1) bezogen auf Abgase im Betriebszustand; **2)** bezogen auf feuchte Abgase im Normzustand (273 K, 1013 hPa); **3)** bezogen auf trockene Abgase im Normzustand (273 K, 1013 hPa); **4)** bezogen auf trockene Abgase im Normzustand und auf 5 Vol.-% O_2; **5)** Massenstrom

0

6.2.1 Bestimmungsgrenzen

Parameter	mg/m³
Stickoxide ang. als NO_2	2
Kohlenmonoxid	3
Benzol	0,1
Formaldehyd	0,3

6.3 Messunsicherheiten

Messkomponente	Maximaler Messwert y_{max}	Erweiterte Messunsicherheit (U_p) mit p=95%	$y_{max} - U_p$	$y_{max} + U_p$	Bestimmungsmethode
Kohlenmonoxid	35 mg/m³	U_p = 8 %	32 mg/m³	38 mg/m³	[X] indirekter Ansatz
Stickstoffoxide	495 mg/m³*	U_p = 8 %	455 mg/m³	534 mg/m³	[X] indirekter Ansatz
Benzol	< 0,1 mg/m³	U_p = 100 %	<< 0,1	< 0,2	[X] indirekter Ansatz
Formaldehyd	< 0,5 mg/m³	U_p = 100 %	<< 0,5	< 1,0	[X] indirekter Ansatz

* Maximaler Messwert nach Einstellen des Motors

Hinweis: Im Bereich der Nachweisgrenzen kann die Messunsicherheit auf 100 % ansteigen.

6.4 Plausibilitätsprüfung

Unter den beschriebenen Betriebsbedingungen sind die Messergebnisse als plausibel zu betrachten.
Aufgrund der nicht stabil laufenden Anlagenkonfiguration scheint die dauerhafte Einhaltung des Grenzwertes für Stickoxide nicht gewährleistet.

Nürnberg, den 27.03.2013

LGA Immissions- und Arbeitsschutz GmbH

Dipl. Ing. Günter Knerr

Bearbeiter

Dipl. Geoök. Daniel Kremer

Anlagen

zu Messbericht

130210

Anlage 1: Mess- und Rechenwerte Formaldehyd
Anlage 2: Mess- und Rechenwerte Benzol
Anlage 3: Verbrennungsrechnung
Anlage 4: Kontinuierlicher Verlauf der Messung

LGA Immissions- und Arbeitsschutz GmbH			
MESSPROTOKOLL-SCHADSTOFFBERECHNUNG	Anlage 1	zu Auftrag	130210

Firma:		Stadtweke Bamberg			
Anlage:		Holzvergasermotor Bambados			
Meßstelle:		Kamin			
Schadstoff:		HCHO			
Datum:		24.01.2012	24.01.2012	24.01.2012	
Betriebszustand:		Normalbetrieb	Normalbetrieb	Normalbetrieb	
Messung Nr.:		**1**	**2**	**3**	
Uhrzeit (Beginn):		12:14	12:48	13:22	
Uhrzeit (Ende):		12:44	13:18	13:52	
Teilvolumenstrom:					
Statischer Druck	(hPa):	0	0	0	
Temperatur trocken	(°C):	30,0	30,0	30	
Temperatur feucht	(°C):				
Wassergehalt gemessen	(kg/m³):	0,000	0,000	0,000	
Teilgasvolumen n	(m³):	0,004	0,003	0,002	
Teilgasvolumen nf	(m³):	0,004	0,003	0,002	
Teilgasvolumen ptf	(m³):	0,004	0,004	0,003	
Hauptvolumenstrom:					
Barometerstand	(hPa):	982	961	961	
Stat. Druck im Kamin	(hPa):	4	-2	-2	
Abgastemperatur	(°C):	354,1	351,7	358,5	
Temperatur trocken	(°C):	---	---	---	
Temperatur feucht	(°C):	---	---	---	
CO_2-Konzentration	(Vol%):	---	---	---	
O_2-Konzentration	(Vol%):	8,2	8,3	8,1	
CO-Konzentration	(Vol%):	---	---	---	
SO_2-Konzentration	(Vol%):	---	---	---	
		---	---		
Wassergehalt n	(kg/m³):	0,009	0,009	0,009	
Dichte n	(kg/m³):	1,271	1,271	1,271	
Dichte nf	(kg/m³):	1,266	1,266	1,266	
Dichte ptf	(kg/m³):	0,536	0,524	0,518	
Abgasgeschwindigkeit	(m/s):	17,5	17,7	17,4	
Meßstellenquerschnitt	(m²):	0,031	0,031	0,031	
Durchmesser	(m):	0,20	0,20	0,20	
Volumenstrom n	(m³/h):	830	820	798	
Volumenstrom nf	(m³/h):	840	829	807	
Volumenstrom pft	(m³/h):	1.981	2.004	1.972	
Teilvolumen (Zust. Hauptvol.)					
Teilgasvolumen n	(m³):	0,004	0,003	0,002	
Teilgasvolumen nf	(m³):	0,004	0,003	0,002	
Teilgasvolumen ptf	(m³):	0,009	0,008	0,005	
Schadstoffbestimmung	**HCHO**				
Schadstoffmenge i.Teilv.	(mg):	0,001	0,001	0,001	Mittelwert
Nachweisgrenze	(mg):	0,001	0,001	0,001	
Massenkonzentration n	(mg/m³):	< 0,3	< 0,3	< 0,4	0,33
Massenkonzentration nf	(mg/m³):	< 0,26	< 0,29	< 0,45	
Massenkonzentration ptf	(mg/m³):	< 0,11	< 0,12	< 0,18	
Massenstrom	(g/h):	< 0,22	< 0,24	< 0,36	0,27
Sauerstoffbezugswert	(%)	5	5	5	
Umgerechnet		ja	ja	ja	
Massenkonz. n bei O_2-Bezug	(mg/m³):	< 0,3	< 0,4	< 0,6	0,42

n: Normzustand trocken, nf: Normzustand feucht, ptf: Betriebszustand

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MESSPROTOKOLL-SCHADSTOFFBERECHNUNG	Anlage 2	zu Auftrag	130210

Firma:		Stadtweke Bamberg		
Anlage:		Holzvergasermotor Bambados		
Meßstelle:		Kamin		
Schadstoff:		Benzol		
Datum:		24.01.2012	24.01.2012	24.01.2012
Betriebszustand:		Normalbetrieb	Normalbetrieb	Normalbetrieb
Messung Nr.:		**1**	**2**	**3**
Uhrzeit (Beginn):		12:14	12:48	13:22
Uhrzeit (Ende):		12:44	13:18	13:52
Teilvolumenstrom:				
Statischer Druck	(hPa):	0	0	0
Temperatur trocken	(°C):	26,0	27,0	27
Temperatur feucht	(°C):			
Wassergehalt gemessen	(kg/m³):	0,000	0,000	0,000
Teilgasvolumen n	(m³):	0,009	0,008	0,009
Teilgasvolumen nf	(m³):	0,009	0,008	0,009
Teilgasvolumen ptf	(m³):	0,010	0,010	0,010
Hauptvolumenstrom:				
Barometerstand	(hPa):	982	961	961
Stat. Druck im Kamin	(hPa):	4	-2	-2
Abgastemperatur	(°C):	354,1	351,7	358,5
Temperatur trocken	(°C):	---	---	---
Temperatur feucht	(°C):	---	---	---
CO_2-Konzentration	(Vol%):	---	---	---
O_2-Konzentration	(Vol%):	8,2	8,3	8,1
CO-Konzentration	(Vol%):	---	---	---
SO_2-Konzentration	(Vol%):	---	---	---
		---	---	
Wassergehalt n	(kg/m³):	0,009	0,009	0,009
Dichte n	(kg/m³):	1,271	1,271	1,271
Dichte nf	(kg/m³):	1,266	1,266	1,266
Dichte ptf	(kg/m³):	0,536	0,524	0,518
Abgasgeschwindigkeit	(m/s):	17,5	17,7	17,4
Meßstellenquerschnitt	(m²):	0,031	0,031	0,031
Durchmesser	(m):	0,20	0,20	0,20
Volumenstrom n	(m³/h):	830	820	798
Volumenstrom nf	(m³/h):	840	829	807
Volumenstrom pft	(m³/h):	1.981	2.004	1.972
Teilvolumen (Zust. Hauptvol.)				
Teilgasvolumen n	(m³):	0,009	0,008	0,009
Teilgasvolumen nf	(m³):	0,009	0,008	0,009
Teilgasvolumen ptf	(m³):	0,021	0,020	0,021

Schadstoffbestimmung	**Benzol**							
Schadstoffmenge i.Teilv.	(mg):	<	0,0005	<	0,0005	<	0,0005	Mittelwert
Nachweisgrenze	(mg):		0,0005		0,0005		0,0005	
Massenkonzentration n	(mg/m³):	<	0,06	<	0,06	<	0,06	< 0,06
Massenkonzentration nf	(mg/m³):	<	0,06	<	0,06	<	0,06	
Massenkonzentration ptf	(mg/m³):	<	0,02	<	0,02	<	0,02	
Massenstrom	(g/h):	<	0,05	<	0,05	<	0,05	< 0,05
Sauerstoffbezugswert	(%)		5		5		5	
Umgerechnet			ja		ja		ja	
Massenkonz. n bei O_2-Bezug	(mg/m³):	<	0,1	<	0,1	<	0,1	< 0,07

n: Normzustand trocken, nf: Normzustand feucht, ptf: Betriebszustand

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ABGASVOLUMENSTROMBERECHNUNG FÜR ERDGAS

Holzvergasermotor, Stadtwerke Bamberg, Standort Bambados

Gaszusammensetzung:	Chem.Formel						
Stickstoff	N2	Vol.-%	39,5	39,5	39,5	39,5	39,5
Wasserstoff	H2	Vol.-%	19,5	19,5	19,5	19,5	19,5
Sauerstoff	O2	Vol.-%	0	0	0	0	0
Kohlenmonoxid	CO	Vol.-%	26	26	26	26	26
Kohlendioxid	CO2	Vol.-%	12,1	12,1	12,1	12,1	12,1
Methan	CH4	Vol.-%	2,9	2,9	2,9	2,9	2,9
Ethan	C2H6	Vol.-%	0	0	0	0	0
Propan	C3H8	Vol.-%	0	0	0	0	0
Butan	C4H10	Vol.-%	0	0	0	0	0
Pentan	C5H12	Vol.-%	0	0	0	0	0
Hexan	C6H14	Vol.-%	0	0	0	0	0
Feuchte	H20	Vol.-%	0	0	0	0	0
Summe :		Vol.-%	100	100	100	100	100
Luftbedarf:							
Mindestsauerstoffbedarf (n)		m^3/m^3	0,156	0,156	0,156	0,156	0,156
Mindestluftbedarf (n)		m^3/m^3	0,740	0,740	0,740	0,740	0,740
Mindestluftbedarf (nf)		m^3/m^3	0,749	0,749	0,749	0,749	0,749
Luftfeuchte (n)		kg/Nm^3	0,009	0,009	0,009	0,009	0,009
Spez. Abgasmenge (n)		m^3/m^3	1,390	1,390	1,390	1,390	1,390
Spez. Abgasmenge (nf)		m^3/m^3	1,651	1,651	1,651	1,651	1,651
davon :							
N2 aus Luftbedarf		m^3/m^3	0,585	0,585	0,585	0,585	0,585
N2 aus Brenngas		m^3/m^3	0,395	0,395	0,395	0,395	0,395
CO2 aus Brenngas		m^3/m^3	0,121	0,121	0,121	0,121	0,121
CO2 aus Verbrennung		m^3/m^3	0,410	0,410	0,410	0,410	0,410
H2O aus Luftbedarf		m^3/m^3	0,011	0,011	0,011	0,011	0,011
H2O aus Brenngas		m^3/m^3	0,000	0,000	0,000	0,000	0,000
H2O aus Verbrennung		m^3/m^3	0,253	0,253	0,253	0,253	0,253
CO2max (n)		%	29,50	29,50	29,50	29,50	29,50
CO2max (nf)		%	24,83	24,83	24,83	24,83	24,83
CO2 gemessen/errecnnet		%	22,89	18,50	18,02	17,79	18,12
O2 gemessen/errecnnet		%	4,70	7,83	8,17	8,34	8,10
Luftverhältniszahl		---	1,54	2,12	2,20	2,24	2,18
Abgasvolumenstrom (n)		m^3/h	609	753	773	783	769
Abgasvolumenstrom (nf)		m^3/h	683	820	839	849	836
Abgasvolumenstrom (ptf)		m^3/h	1702	1971	1981	2004	1972
Abgasfeuchte (n)		kg/m^3	0,098	0,071	0,069	0,068	0,069
Abgastemperatur		°C	389	366	354	354	354
Stat. Druck		mbar	4	4	4	4	4
Barometerstand		mbar	982	982	982	982	982
Lufttemperatur		°C	20	20	20	20	20
Luftfeuchte		% rel.	50	50	50	50	50
Brenngasverbrauch (n)		m^3/h	340	340	340	340	340

Indices: (n) ... Normzustand trocken, (nf) ... Normzustand feucht, (ptf) ... Betriebszustand feucht

Anlage 4: Kontinuierlicher Verlauf Emissionsmessung

