Initial Study/Mitigated Negative Declaration for the Gemperle Family Farms Manure Pelletizing Facility, Merced County, California

JUNE 2026

PREPARED FOR

Merced County
Community and Economic Development Department

PREPARED BY

SWCA Environmental Consultants

INITIAL STUDY/MITIGATED NEGATIVE DECLARATION FOR THE GEMPERLE FAMILY FARMS MANURE PELLETIZING FACILITY, MERCED COUNTY, CALIFORNIA

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1 INTRODUCTION

Gemperle Family Farms (Applicant) is proposing the Gemperle Family Manure Pelletizing Facility Project (project) to construct and operate a new manure processing facility as an addition/expansion to the Gemperle Family Farms operation located at 20167 Fowler Road, near the unincorporated community of Hilmar, in Merced County, California (Assessor's Parcel Number 045-100-033). The following Initial Study/Mitigated Negative Declaration (IS/MND) evaluates the potential environmental impacts associated with the construction and operation of the proposed project.

1.1 Project Location

The project site consists of an 8-acre portion of an approximately 40-acre parcel ("parent parcel") located at 20167 Fowler Road, near the unincorporated community of Hilmar in Merced County, California (Assessor's Parcel Number 045-100-033). The project site is situated on the south side of West Fowler Road, approximately 730 feet west of North Lander Avenue (State Route [SR] 165) (Figure 1). The surrounding area is predominantly agricultural and characterized by orchards, row crops, and rural residential uses.

The project site, as shown in Figure 1, occupies the rear (southern) portion of the larger parcel, and is set back from Fowler Road and away from existing agricultural buildings and worker housing units that are on the northern portion of the property. Access to the project site would be provided via an internal private driveway system connecting to Fowler Road to the north and Johnson Road to the south.

The site is designated Agriculture in the *2030 Merced County General Plan* and zoned A-1 (General Agriculture).

1.2 Environmental Setting

1.2.1 *Existing Site Conditions*

The project site historically was occupied by a dairy operation consisting of a manure lagoon, feed cultivation areas, and agricultural support facilities from the 1970s until its closure and removal from the Dairy General Order in 2021. The dairy infrastructure has been remediated and the site cleared from regulatory oversight. An existing irrigation pond is north of the proposed project footprint. Vegetation consists primarily of crops and ruderal species typical of farmland.

Currently, the approximately 8-acre project site proposed for development is generally flat and undeveloped and is vegetated primarily with nonnative grasses, consistent with continued agricultural use. No active dairy facilities or permanent structures are within the project site.

1.2.2 *Surrounding Land Uses*

The project site is within a larger agricultural parcel that contains additional agricultural and support uses outside the project area. Within the remainder of the parcel, existing conditions includes agricultural buildings and sheds, worker housing units, an irrigation pond, almond orchards, and cultivated fields.

Land uses surrounding the project site are predominantly agricultural. To the north, land within the larger parcel includes existing agricultural buildings, worker housing, and cultivated agricultural fields. To the west, adjacent properties are primarily used for row crops and other agriculture. To the east, surrounding lands consist of agricultural uses, including orchards and livestock operations. To the south, agricultural

lands continue, with scattered rural residential and agricultural worker housing located within the broader vicinity.

The nearest off-site communities include the unincorporated community of Hilmar, located approximately 1.5 miles to the south; the City of Turlock, approximately 2 miles to the north; and the community of Delhi, approximately 3 miles to the east.

1.3 Project Description

Gemperle Family Farms proposes to construct and operate a manure-based fertilizer pelletizing facility on an approximately 8-acre portion of a 40.55-acre property in Merced County. The project would centralize the storage of poultry manure from nearby applicant-owned egg-layer farms and process the material, along with fertilizer amendments, into stabilized, pelletized fertilizer products for commercial sale.

The project involves construction and operation of three primary buildings totaling approximately 162,000 square feet, along with associated equipment, internal driveways, parking, utilities, and supporting infrastructure necessary to produce organic fertilizer pellets. The overall site layout, building locations, access routes, and supporting improvements are illustrated on the site plan (Figure 2).

1.3.1 *Buildings*

The project would include construction of three primary buildings to support manure processing and fertilizer pellet production. A manure storage building, with an approximate footprint of 90,000 square feet, would be used to receive and temporarily store poultry manure delivered daily from adjacent Gemperle Family Farms prior to processing. The structure would be fully enclosed and designed as a low-occupancy agricultural facility. Features would include measures intended to minimize odor emissions and a designated manure offloading area located adjacent to internal circulation roadways to facilitate truck access.

The project would also include construction of a pelletizing plant, or processing building, with a footprint ranging from approximately 36,000 to 39,000 square feet, as depicted on the site plan and described in the project materials. This building would house the mechanical equipment required for screening, blending, pelletizing, drying, cooling, and stabilizing manure-based fertilizer products. The pelletizing plant would be designed as a commercial or industrial structure and would include a fire-sprinkler system, loading docks, and interior areas for temporary storage of finished, palletized products.

A bulk pellet storage warehouse, with an approximate footprint of 36,000 to 37,000 square feet, would be constructed to store finished fertilizer pellets in bulk form prior to off-site transport. This warehouse would be fully enclosed and generally unoccupied during normal operations, except for periodic loading activities. A conveyance system would connect the processing building to the storage warehouse to transfer finished pellets.

1.3.2 *Other Structures and Equipment*

The project would include a small administrative office, either within an existing structure or as a new building, to support employee functions, recordkeeping, and facility oversight. The exact size and location of the office would be finalized during detailed design.

Employee parking would be provided on-site in close proximity to the processing building. A total of eight parking spaces, including one Americans with Disabilities Act (ADA)–compliant space, would accommodate employees working both daytime and nighttime shifts.

Storage areas would include exterior silos used to store fertilizer amendments that are classified as hazardous materials under applicable regulations. Additional storage for bagged and palletized finished products would be located within the processing building, while bulk storage of finished pellets would occur exclusively within the dedicated pellet storage warehouse.

Perimeter fencing would be installed around operational areas to provide site security and ensure safety. Exterior lighting would be limited to low-intensity, downward-directed fixtures located at building entrances, access points, and circulation areas, consistent with applicable County lighting standards and operational safety requirements.

Utilities serving the project would include new or extended underground electrical lines, natural gas service to support dryers or heating systems, and water service provided by an on-site well. A fire water line would run through an adjacent parcel (APN 045-100-034) which would require an easement. Wastewater would be managed through on-site septic systems, and no industrial wastewater discharge is anticipated. Stormwater would be managed through site grading, drainage improvements, and implementation of best management practices in compliance with the Construction General Permit and applicable postconstruction stormwater requirements.

1.3.3 *Construction*

Construction activities would include site preparation and minor grading within the project footprint, including the import of fill material to raise portions of the pellet storage warehouse building pad. Excavation would occur to depths of up to approximately 6 feet to accommodate installation of utilities and foundation piers. Construction would also involve erection of project buildings, development of internal driveways, and installation of paved or compacted hardscape, resulting in approximately 76,000 square feet of new impervious surface, as shown on the site plans. In addition, mechanical processing equipment and associated material conveyance systems would be installed within the processing buildings as part of facility construction.

Construction duration is anticipated to be 12 months, occurring during daytime hours in compliance with County of Merced construction noise standards. Construction traffic would consist of haul trucks, worker trips, delivery vehicles, and material transport

1.3.4 *Operation*

Operational activities at the proposed facility would occur on a variable schedule depending on production demand. At a minimum, the facility would operate up to four days per week for approximately 12 hours per day. At peak capacity, operations could occur up to six days per week on a continuous 24-hour basis. Initial operations are anticipated to occur Monday through Thursday between 6:00 a.m. and 6:00 p.m. Full-capacity operations would consist of two shifts, with the first shift operating from approximately 5:00 a.m. to 5:00 p.m. and the second shift operating from approximately 5:00 p.m. to 5:00 a.m.

The project would employ approximately 10 to 15 employees, including equipment operators and support staff. Truck drivers associated with manure transport and product distribution would primarily operate from adjacent Gemperle Family Farms facilities rather than being permanently stationed at the project site.

Project operations would not result in a net increase in manure haul trips from nearby poultry ranches, as manure that is currently transported off-site would instead be delivered to the on-site manure storage facility for processing. Average daily vehicle activity associated with operations is estimated to include

approximately seven truck trips per day for manure deliveries, five to six truck trips per day for off-site transport of finished fertilizer products, and 20 to 30 employee vehicle trips per day. When averaged over a 7-day week, total operational traffic is estimated at approximately 30 vehicle trips per day.

Processing equipment at the facility would include screening equipment, mixers and amendment silos, pellet mills, dryers used for product sterilization, coolers for product stabilization, and associated material-handling equipment such as conveyors, crumblers, bagging equipment, palletizers, and load-out systems. Finished products would consist of standard manure-based fertilizer pellets as well as custom blended organic fertilizer products. Products may be bagged, placed in totes, crumbled, or stored in bulk prior to off-site distribution.

Some fertilizer additives used in the production process are classified as hazardous materials under applicable regulations and would be stored in outdoor silos with appropriate containment and handling measures. Poultry manure itself is not classified as a hazardous material.

2 REQUIRED DISCRETIONARY APPROVALS

Table 1 includes the discretionary approvals from the County and other agencies required for the proposed project.

Table 1. Required Discretionary Approvals

Agencies	Discretionary Approvals
County of Merced	• Conditional Use Permit (CUP24-014) • Site Plan and Design Review (as applicable) • Building permits for all new structures • Grading permit, if required • Well or septic system permits, if modifications are necessary • Fire water line easement on APN 045-100-034 • Adoption of an IS/MND under the California Environmental Quality Act (CEQA)
San Joaquin Valley Air Pollution Control District	• Potential air permit(s) for equipment such as dryers, conveyors, or emissions-generating units • Indirect Source Review applicability review (if triggered)
State Water Resources Control Board / Regional Water Quality Control Board	• Construction General Permit coverage (Stormwater Pollution Prevention Plan) • Industrial General Permit, if applicable to operations
Other Agencies (as applicable)	• Fire Marshal approval (sprinkler systems, access, suppression systems) • Utility providers for electrical and natural gas connections

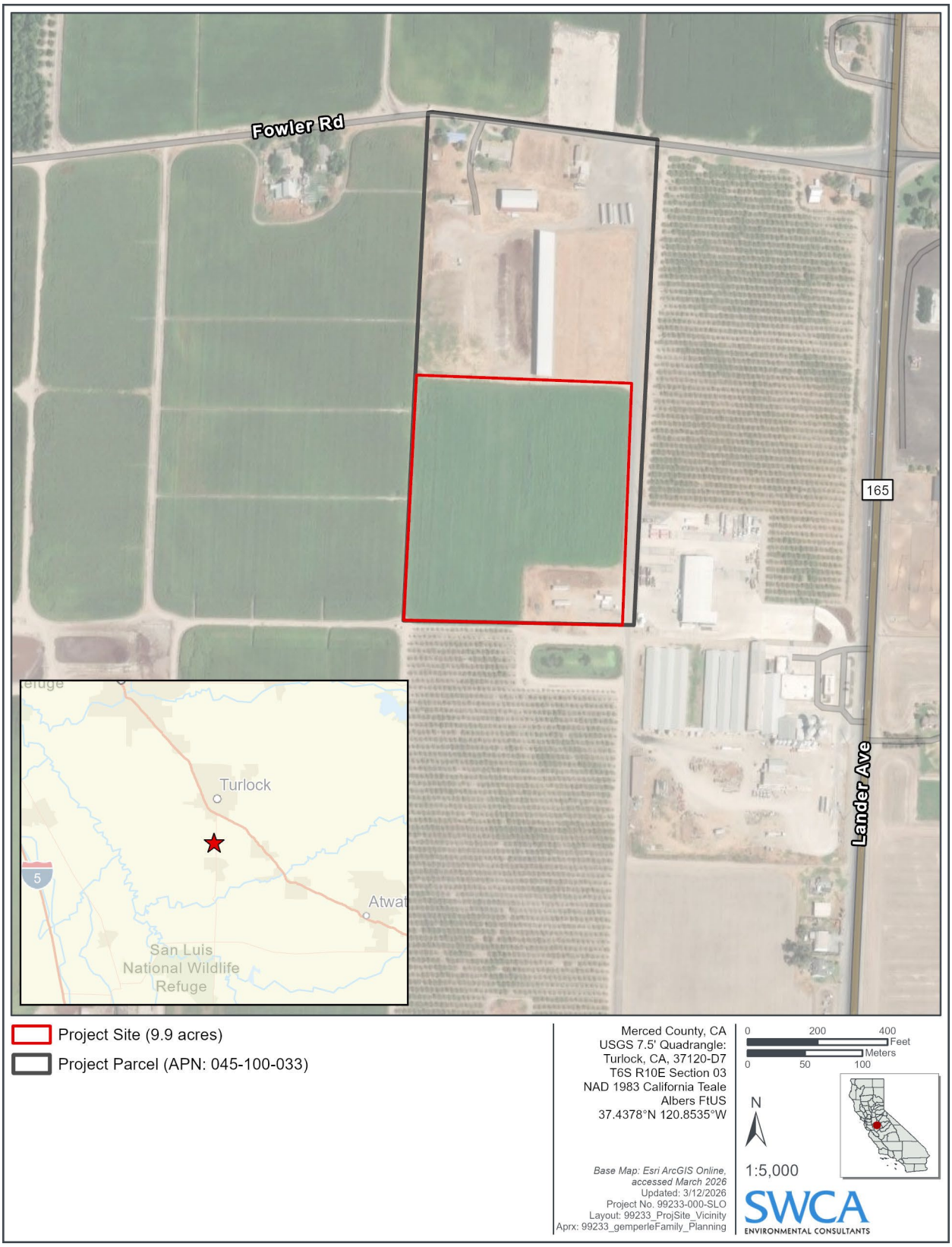
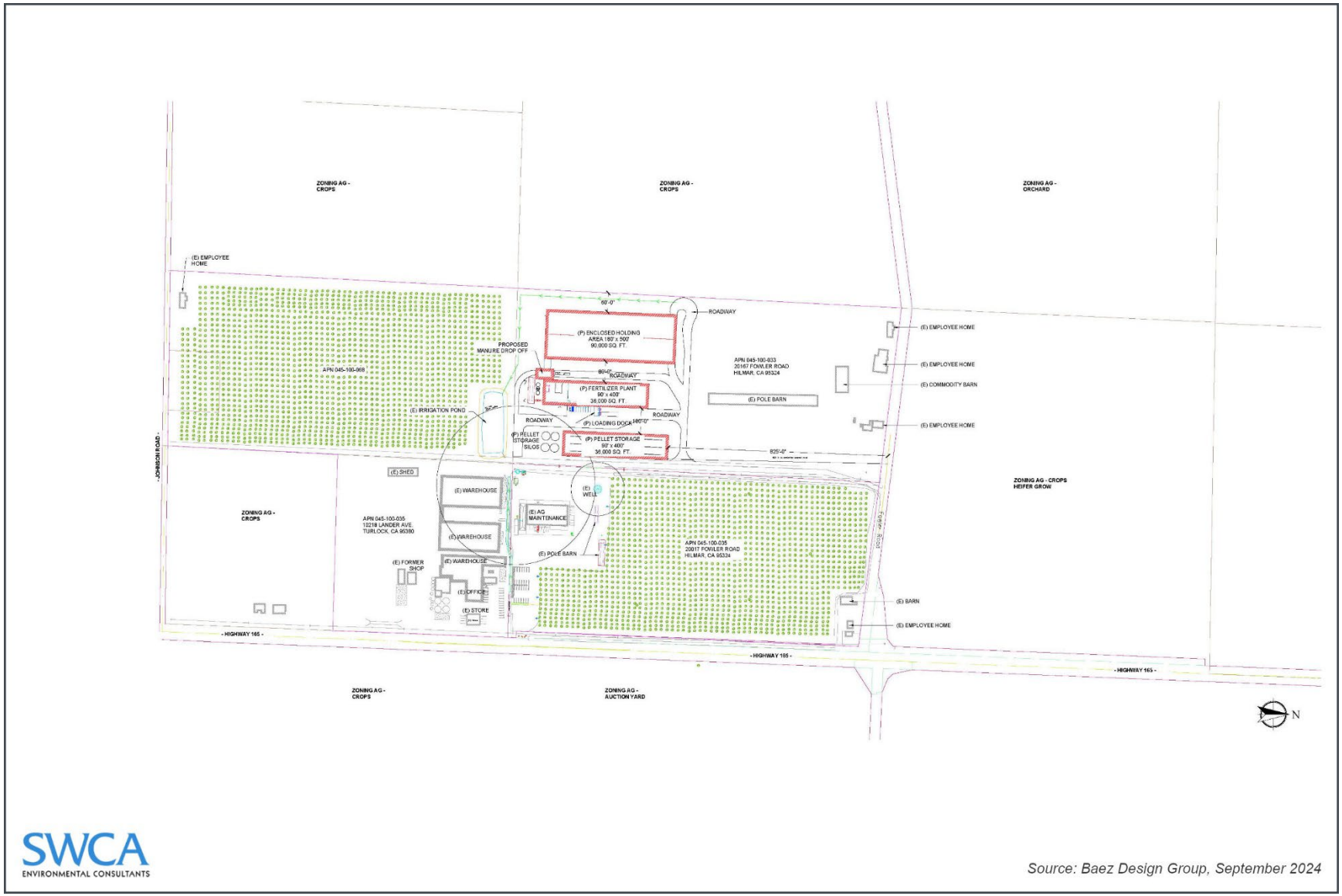


Figure 1. Project Site and Vicinity Map.



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Source: Baez Design Group, September 2024

Figure 2. Site Plan.

3 ENVIRONMENTAL CHECKLIST AND ENVIRONMENTAL EVALUATION

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 environmental resource area evaluations in this Initial Study.

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

Environmental Determination

On the basis of this initial evaluation:

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

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

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

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measure 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.

Date: _____ **Signed:** DRAFT

I. Aesthetics

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

Setting

The California Environmental Quality Act (CEQA) establishes that it is the policy of the state to take all action necessary to provide people of the state "with . . . enjoyment of aesthetic, natural, scenic and historic environmental qualities" (California Public Resources Code [PRC] Section 21001(b)). A scenic vista is generally defined as a high-quality view displaying good aesthetic and compositional values that can be seen from public viewpoints. Some scenic vistas are officially or informally designated by public agencies or other organizations. A substantial adverse effect on a scenic vista would occur if the project would significantly degrade the scenic landscape as viewed from public roads or other public areas. A proposed project's potential effect on a scenic vista is largely dependent on the degree to which it would complement or contrast with the natural setting, the degree to which it would be noticeable in the existing environment, and whether it detracts from or complements the scenic vista.

The California Scenic Highway Program was created by the State Legislature in 1963 with the intention of protecting and enhancing the natural scenic beauty of California highways and adjacent corridors. A highway may be designated scenic depending on how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view.

According to the California Department of Transportation (Caltrans) State Scenic Highway System Map, no designated state scenic highways are within or in the immediate vicinity of the project site. The nearest designated scenic highway is Interstate 5 (I-5), located approximately 17 miles west of the project site (Caltrans 2026).

The *2030 Merced County General Plan* provides guidance regarding the visual character of the county and policies related to scenic resource protection. The county's visual character is largely defined by flat agricultural landscapes, orchards, row crops, and associated rural infrastructure. Relevant policies applicable to the project include:

- **Goal NR-4:** Protect scenic resources and vistas.
  - **Policy NR-4.1:** Scenic Resource Preservation—promote the preservation of agricultural land and open space to protect scenic resources.
  - **Policy NR-4.5:** Light Pollution Reduction—require lighting practices that minimize glare and preserve night sky views.

The project site is in an agricultural area of Merced County. The approximately 8-acre project site is currently undeveloped and vegetated primarily with nonnative grass. Surrounding land uses consist of agricultural fields, orchards, agricultural buildings, and limited rural residential and worker housing uses.

Environmental Evaluation

a) Would the project have a substantial adverse effect on a scenic vista?

No Impact. Scenic vistas in Merced County include distant views of the Sierra Nevada foothills and river corridors such as the Merced and San Joaquin Rivers (County of Merced 2013). The project site is not within the viewshed of a designated scenic vista, nor would it obstruct or degrade views of recognized scenic resources from public vantage points. The project would not have a substantial adverse effect on a scenic vista. Therefore, *no impact* would occur.

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

No Impact. The nearest designated state scenic highway, I-5, is approximately 17 miles west of the project site (Caltrans 2026). Due to this distance and intervening development, the project site would not be visible from Interstate 5 or any other scenic highway corridor. The project site does not contain unique scenic resources such as mature trees, rock outcroppings, or historic structures. The project would not damage scenic resources within a scenic highway corridor. Therefore, *no impact* would occur.

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

Less than Significant Impact. The project site is in a rural agricultural area characterized by flat topography and active farming operations. Public views of the site are primarily limited to local roadways within an agricultural setting. The proposed project would introduce new agricultural-industrial buildings, internal roadways, parking areas, and associated infrastructure within an area historically used for agricultural production, including a former dairy operation.

Although the project would alter the visual character of the immediate site, the proposed development would be consistent with surrounding agricultural and agricultural-industrial uses in the vicinity. Building design, scale, and placement would reflect typical agricultural processing facilities and would not introduce visual elements inconsistent with the existing rural context. As such, the project would not substantially degrade the existing visual character or quality of public views of the site or its surroundings. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

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

Less than Significant Impact. The project would include exterior lighting for operational safety and security. Proposed outdoor lighting fixtures would be required to comply with Section 18.40.070 of the Merced County Code, which requires outdoor lighting to be designed and maintained to contain glare and reflection within the boundaries of the project site; be hooded, directed downward, and away from adjacent properties and public areas; avoid blinking, flashing, or unusually high intensity; and be similar in scale, intensity, and height to surrounding uses. Based on required compliance with the Merced County Code, the project would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area; therefore, impacts would be *less than significant*, and mitigation is not necessary.

Conclusion

The project would not substantially affect a scenic vista, damage a scenic resource, conflict with zoning, or create a source of new light or glare; therefore, impacts related to aesthetics would be less than significant, and mitigation is not necessary.

Mitigation Measures

Mitigation is not necessary.

II. Agriculture and Forestry Resources

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
(a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒	☐
(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?	☐	☐	☐	☒

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	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?	☐	☐	☐	☒

Setting

The California Department of Conservation (CDOC) Farmland Mapping and Monitoring Program (FMMP) produces maps and statistical data used for analyzing impacts on California's agricultural resources. Agricultural land is rated according to soil quality and current land use. For environmental review purposes under CEQA, the FMMP categories of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land are considered "agricultural land." Other non-agricultural designations include, but are not limited to, Urban and Built-up Land, Other Land, and Water. According to the FMMP, the project site is on land that is partly designated as Farmland of Statewide Importance and part Confined Animal Agriculture (CDOC 2026).

The Land Conservation Act of 1965, commonly referred to as the Williamson Act, enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agriculture or related open space use. In return, landowners receive property tax assessments that are much lower than normal because they are based on farming and open space uses as opposed to full market value. The project site is enrolled a Williamson Act contract (CDOC 2026).

According to PRC Section 12220(g), forest land is defined as land that can support 10% native tree cover of any species, including hardwoods, under natural conditions, and that allows for the management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. Timberland is defined as land, other than land owned by the federal government and land designated by the California Board of Forestry and Fire Protection as experimental forest land, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees.

Environmental Evaluation

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

Less than Significant Impact. Mapping from the CDOC FMMP indicates that the project site is designated as Farmland of Statewide Importance and Confined Animal Agriculture (CDOC 2026). Although the site historically supported dairy operations, those operations have ceased and the facilities are no longer active. The proposed project would develop the site with an agricultural use in the form of a manure pelleting plant that would utilize manure from Gemperle Farms that would support offsite agricultural uses. The project would not result in the conversion of important farmland to urban or other non-agricultural uses. The project would not result in the loss of Farmland of Statewide Importance. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. The project site is zoned A-1 (General Agriculture) and is part of a larger parcel that is subject to a Williamson Act contract (County of Merced 2013). However, the proposed area of development has not been used for agricultural purposes since at least 2005, and the proposed use is both consistent with the project site's zoning and is an agricultural supporting use that would not conflict with the larger parcel's Williamson Act contract. (Historic Aerials 2026) Further, as discussed under *Impact Discussion II.e*, the project would not result in conversion of Farmland to non-agricultural use. For these reasons, the project would not conflict with existing agricultural zoning or a Williamson Act contract. Therefore, *no impact* would occur.

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

No Impact. The project site is designated Agriculture in the *2030 Merced County General Plan* and zoned A-1 (General Agriculture) (County of Merced 2013a, 2026) and does not contain forest land or timberland resources, nor is it located within land zoned Timberland Production under Government Code Section 51104(g). The project would occur on land currently zoned for agricultural uses and would not require rezoning of forest land, timberland, or Timberland Production Zone lands. Therefore, the project would not conflict with existing zoning for forest land or timberland and would not cause rezoning of such lands, and no impact would occur. The project would not require rezoning or conflict with forest or timberland zoning. Therefore, *no impact* would occur.

d) Would the project 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 as defined by PRC Section 12220(g) and does not support native tree cover. The project would not involve removal of trees or conversion of forested areas. The project would not result in the loss or conversion of forest land. Therefore, *no impact* would occur.

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

No Impact. The project site is within an agricultural area characterized by active farming operations. Surrounding land uses consist primarily of agricultural fields, orchards, agricultural buildings, and associated rural infrastructure. The proposed facility would process manure generated by nearby agricultural operations and would therefore have a beneficial impact on agricultural uses that reduces the likelihood of inducing growth or development that would convert surrounding agricultural lands to non-agricultural uses.

Project operations are not expected to generate significant dust, water demand, or other indirect effects that would interfere with adjacent agricultural uses. The project would not require substantial new water withdrawals that could reduce water availability for surrounding agricultural operations. The project would not indirectly result in the conversion of agricultural land or forest land. Therefore, *no impact* would occur.

Conclusion

The proposed project would not result in the conversion of farmland or forest land, and would not interfere with zoning for agricultural or forest land uses. Therefore, the project would not result in impacts related to agriculture and forestry resources.

Mitigation Measures

Mitigation is not necessary.

III. Air Quality

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

Setting

This section summarizes the findings of the Air Quality and Greenhouse Gas Impact Analysis prepared for the project (AMBIENT Air Quality and Noise Consulting [AMBIENT] 2026), which evaluated potential project-related air pollutant and greenhouse gas (GHG) emission impacts.

REGULATORY FRAMEWORK

Air quality in the project area is regulated at the federal, state, and regional levels by the U.S. Environmental Protection Agency (U.S. EPA), the California Air Resources Board (CARB), and the San Joaquin Valley Air Pollution Control District (SJVAPCD).

Federal

At the federal level, the U.S. EPA administers national air quality programs under the Federal Clean Air Act (FCAA), originally enacted in 1970 and amended in 1977 and 1990. The FCAA requires the U.S. EPA to establish National Ambient Air Quality Standards (NAAQS) for criteria pollutants to protect public health and welfare. Primary standards protect human health, while secondary standards address environmental effects such as reduced visibility and damage to crops and materials.

The FCAA also requires each state to prepare a State Implementation Plan (SIP) describing how the state will attain and maintain the NAAQS. SIPs include emissions inventories, control measures, and air district regulations and are periodically updated. The U.S. EPA reviews and approves SIPs to ensure compliance with federal requirements and may impose a Federal Implementation Plan (FIP) if a SIP is determined to be inadequate.

In addition, the U.S. EPA regulates hazardous air pollutants under the National Emission Standards for Hazardous Air Pollutants (NESHAP), which establish technology-based emission limits for specific sources. The Toxic Substances Control Act (TSCA) also authorizes the U.S. EPA to regulate asbestos, including inspection and management requirements for asbestos-containing building materials under the Asbestos Hazard Emergency Response Act (AHERA)

State

At the state level, air quality regulation is administered by the CARB, which oversees statewide air pollution control programs and implements the California Clean Air Act (CCAA). CARB is responsible for monitoring air quality, coordinating with local air districts, establishing the California Ambient Air Quality Standards (CAAQS), and adopting emissions standards for motor vehicles. In many cases, CAAQS are more stringent than federal standards.

The CCAA requires air districts to attain and maintain CAAQS for ozone, carbon monoxide (CO), sulfur dioxide (SO_2), and nitrogen dioxide (NO_2) as expeditiously as practicable. District air quality plans must either achieve a 5% annual reduction in emissions of nonattainment pollutants or their precursors, averaged over consecutive three-year periods, or implement all feasible emission reduction measures.

California also regulates toxic air contaminants (TACs) under Assembly Bill (AB) 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spots" Information and Assessment Act). These laws establish a process for identifying TACs and require facilities with significant emissions to prepare toxic emissions inventories, conduct risk assessments, notify the public of health risks, and implement risk reduction measures when necessary.

Additional state regulations relevant to air quality include AB 203, which requires Valley Fever awareness training for construction workers in highly endemic counties where soil disturbance may release fungal spores; AB 170, which requires cities and counties in the San Joaquin Valley to incorporate air quality planning and strategies into their general plans; and CARB's Truck and Bus Regulation, which requires diesel fleets to reduce emissions through engine retrofits or replacement with newer engines meeting 2010 emission standards. CARB has also adopted an Airborne Toxic Control Measure limiting idling of school buses and commercial vehicles near schools, restricting idling to five minutes and requiring engines to be shut off upon arrival unless necessary for safety or operational needs.

Regional

The SJVAPCD is responsible for implementing federal and state air quality requirements within the San Joaquin Valley Air Basin, including the project area. The SJVAPCD's responsibilities include developing air quality attainment plans, adopting and enforcing air pollution control regulations, issuing permits for stationary sources, monitoring ambient air quality and meteorological conditions, and implementing programs required under the FCAA and CCAA.

Several SJVAPCD rules may apply to project activities. Regulation II (Permits) governs permitting requirements for stationary sources, including Rule 2010 (Permits Required), Rule 2020 (Exemptions), and Rule 2201 (New and Modified Source Review). Regulation VIII (Fugitive Dust Prohibitions) establishes requirements to control particulate matter emissions from activities such as

construction, demolition, unpaved roads, and bulk material handling. Other applicable rules include Rule 4102 (Nuisance), which prohibits emissions that cause public nuisance conditions; Rule 4601 (Architectural Coatings), which limits volatile organic compound emissions from coatings; and Rule 4641, which regulates emissions from asphalt paving and maintenance operations.

In addition, Rule 9510 (Indirect Source Review) requires certain large development projects to reduce or offset construction and operational emissions of ozone precursors and particulate matter. Projects that cannot achieve required emission reductions through on-site measures must mitigate remaining emissions through SJVAPCD-administered offset programs.

AIR POLLUTANTS OF CONCERN

The primary criteria air pollutants of concern include ozone (O_3), reactive organic gases (ROG), volatile organic compounds (VOC), oxides of nitrogen (NO_x), and particulate matter (10 microns or less in diameter [PM_{10}] and 2.5 microns or less in diameter [$PM_{2.5}$]). Ozone is a secondary pollutant formed through photochemical reactions between NO_x and VOC in the presence of sunlight and is a major component of smog. ROG and VOC are hydrocarbon compounds that contribute to the formation of ozone and may also be toxic. Nitrogen oxides are produced primarily from fossil fuel combustion and are also precursors to ozone and particulate matter formation. Particulate matter consists of extremely small solid and liquid particles suspended in the air, including dust, organic chemicals, metals, and other substances, and particles with diameters of 10 microns or less can enter the lungs and cause adverse health effects

EXISTING CONDITIONS

The project site is within the San Joaquin Valley Air Basin (SJVAB), which encompasses eight counties in the Central Valley, including Merced County. Air quality in the basin is influenced by regional topography and meteorological conditions that can limit dispersion of pollutants and contribute to the accumulation of air contaminants.

ATTAINMENT STATUS

Under the CCAA, the CARB designates areas of the state as attainment, nonattainment, or unclassified based on compliance with state ambient air quality standards. An attainment designation indicates that pollutant concentrations meet applicable standards, while nonattainment indicates that standards have been exceeded. Nonattainment areas may be further classified as moderate, serious, severe, or extreme depending on the severity and frequency of violations.

Similarly, the U.S. EPA designates areas based on compliance with the NAAQS. Federal classifications generally parallel state terminology, although federal designations may also include categories such as “better than national standards” or “cannot be classified.”

The SJVAB, which includes the project area, is currently designated nonattainment for ozone and $PM_{2.5}$ under both state and federal standards and nonattainment for PM_{10} under state standards, although the basin was redesignated attainment for the federal PM_{10} standard in 2008 following approval of a maintenance plan. The basin is designated attainment or unclassified for other criteria pollutants, including CO, NO_2, SO_2, and lead (SJVAPCD 2025).

The SJVAB is currently designated as nonattainment for state standards for ozone, PM_{10}, and $PM_{2.5}$, and nonattainment for federal 8-hour ozone and $PM_{2.5}$ standards. These pollutants are commonly associated with emissions from mobile sources, agricultural activities, industrial operations, and other combustion-related processes.

SENSITIVE RECEPTORS

One of the most important reasons for air quality standards is the protection of those members of the population who are most sensitive to the adverse health effects of air pollution, termed "sensitive receptors." The term sensitive receptors refer to specific population groups, as well as the land uses where individuals would reside for long periods. Commonly identified sensitive population groups are children, the elderly, the acutely ill, and the chronically ill. Commonly identified sensitive land uses would include facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Residential dwellings, schools, parks, playgrounds, childcare centers, convalescent homes, and hospitals are examples of sensitive land uses.

Sensitive receptors are locations where individuals may experience greater exposure to air pollutants, such as residences, schools, parks, and healthcare facilities. Land uses surrounding the project site are predominantly rural agricultural and residential uses, with the nearest off-site residential land uses are in excess of 1,000 feet from the proposed facility location. The nearest on-site worker housing is approximately 650 feet north of the project.

Environmental Evaluation

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less than Significant Impact. In accordance with SJVAPCD-recommended methodology for the assessment of air quality impacts, projects that result in significant air quality impacts at the project level are also considered to have a significant cumulative air quality impact. As noted in Impact AQ-B, short-term construction and long-term operational emissions would not exceed applicable thresholds. In addition, implementation of the proposed project would not result in an increase in population or vehicle miles traveled that would conflict with applicable plans, such as the Merced County Association of Governments' (MCAG) *2022 Regional Transportation Plan/Sustainable Community Strategy for Merced County* (MCAG 2022 RTP/SCS) (MCAG 2022). For these reasons, implementation of the proposed project would not conflict with air quality attainment or maintenance planning efforts. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

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

Less than Significant Impact. Short-term construction and long-term air quality impacts associated with the proposed project are discussed below.

Short-Term Construction Emissions

Short-term increases in emissions would occur during the construction phase. Construction-generated emissions are temporary, lasting only as long as construction activities occur, but have the potential to represent a significant air quality impact. The construction of the proposed project would result in the temporary generation of emissions associated with site preparation, building construction, and paving. Short-term construction emissions would result in increased emissions of ozone-precursor pollutants (i.e., ROG and nitrogen oxides [NO_X]), CO, and emissions of PM. Emissions of ozone precursors would result from the operation of on-road and off-road motorized vehicles and equipment. Emissions of airborne PM are largely dependent on the amount of ground disturbance associated with site preparation. Estimated construction-generated annual emissions associated with the proposed project are summarized in Table 2.

Table 2. Annual Construction Emissions

Construction Year	Uncontrolled Maximum Annual Emissions (tons/year)[1]					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Year 2026	1	0.2	0.3	<0.1	<0.1	<0.1
Year 2027	0.1	0.8	1.1	<0.1	0.1	<0.1
Maximum Annual Emissions	**0.1**	**0.8**	**1.1**	**<0.1**	**0.1**	**<0.1**
Significance Thresholds	***10***	***10***	***100***	***27***	***15***	***15***
Exceeds Thresholds/Significant Impact?	*No*	*No*	*No*	*No*	*No*	*No*

[1] Based on CalEEMod computer modeling. Totals may not sum due to rounding. Includes compliance with SJVAPCD Regulation VII for the Control of Fugitive dust emissions. Refer to Appendix A for modeling results and assumptions.

As noted in Table 2, construction of the proposed project would generate annual emissions of approximately 0.1 tons/year of ROG, 0.8 tons/year of NOx, 1.1 tons/year of CO, and 0.1 tons/year of PM_{10}. Emissions of SO_2 and $PM_{2.5}$ would be negligible (i.e., 0.1 tons/year or less). Estimated annual construction-generated emissions would not exceed the SJVAPCD's significance thresholds of 10 tons/year of ROG, 10 tons/year of NOx, 100 tons/year of CO, 27 tons/year of SOx, 15 tons/year PM_{10}, or 15 tons/year $PM_{2.5}$.

Estimated daily construction emissions are summarized in Table 3. As noted in Table 3, construction of the proposed project would generate maximum daily emissions of approximately 1.8 lbs/day of ROG, 16.7 lbs/day of NOx, 21.1 lbs/day of CO, 0.1 lbs/day of SO_2, 0.8 lbs/day of PM_{10}, and 0.7 lbs/day of $PM_{2.5}$. Daily on-site construction emissions would not exceed the SJVAPCD's recommended localized ambient air quality significance thresholds of 100 lbs/day for each of the criteria air pollutants evaluated.

Table 3. Daily Construction Emissions

Construction Year	Uncontrolled Maximum Daily Emissions (lbs/day)[1]					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Year 2026	1.8	16.7	21.1	0.1	0.8	0.7
Year 2027	0.8	7.0	10.6	<0.1	0.6	0.3
Maximum Daily Emissions	**1.8**	**16.7**	**21.1**	**0.1**	**0.8**	**0.7**
Significance Thresholds	***100***	***100***	***100***	***100***	***100***	***100***
Exceeds Thresholds/Significant Impact?	*No*	*No*	*No*	*No*	*No*	*No*

[1] Based on CalEEMod computer modeling. Totals may not sum due to rounding. Does not include emission control measures. Construction would begin in 2026. Future year emissions would be less. Refer to Appendix A for modeling results and assumptions.

Short-term construction of the proposed project would not result in a significant impact to regional or local air quality conditions. Furthermore, it is important to note that project construction, including grading activities, would be required to comply with SJVAPCD Regulation VIII (Fugitive PM_{10} Prohibitions). In addition, compliance with SJVAPCD Regulation VIII would require implementation of measures for the control of fugitive dust. For these reasons, construction-generated emissions would not be anticipated to result in a substantial increase in localized or regional pollutant concentrations that would have a significant adverse impact to public health. Given that project-generated emissions would not exceed applicable SJVAPCD significance thresholds, this impact would be considered less than significant.

Long-term Operational Emissions

Estimated annual operational emissions for the proposed project are summarized in Table 4. As depicted, the proposed project would result in annual emissions of approximately 0.6 tons/year of ROG, 0.3 tons/year of NOX, 1.0 tons/year of CO. Emissions of SO_2, PM_{10}, and $PM_{2.5}$ would negligible (less than 0.1 tons/year). Estimated annual operational emissions would not exceed the SJVAPCD's significance thresholds of 10 tons/year of ROG, 10 tons/year of NOx, 100 tons/year of CO, 27 tons/year of SOx, 15 tons/year PM_{10}, or 15 tons/year $PM_{2.5}$. It is also important to note that the proposed pelletizing facility would not include the installation of major emissions sources (e.g., boilers, backup generators, etc.). The proposed facility would be enclosed and would be designed to minimize operational emissions in accordance with applicable SJVAPCD permitting requirements. It is also important to recognize that the proposed project would help to reduce emissions that are often associated with typical farm practices, such as open-air manure storage ponds and lagoons. The pelletizing of manure would result in reductions in ammonia emissions. Reductions in ammonia emissions from agricultural practices would indirectly result in lower ambient concentrations of $PM_{2.5}$ (CDFA 2026). For these reasons, this impact would be considered less than significant.

Table 4. Annual Operational Emissions

	Uncontrolled Annual Emissions (tons/year)[1]					
Operational Category	**ROG**	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Mobile	<0.1	<0.1	0.2	<0.1	<0.1	<0.1
Area Source	0.6	<0.1	0.5	<0.1	<0.1	<0.1
Energy Use	<0.1	0.1	0.1	<0.1	<0.1	<0.1
Total[2]	**0.6**	**0.3**	**1.0**	**<0.1**	**<0.1**	**<0.1**
Significance Thresholds:	***10***	***10***	***100***	***27***	***15***	***15***
Exceeds Thresholds/Significant Impact?	*No*	*No*	*No*	*No*	*No*	*No*

[1] Emissions were calculated using the CalEEMod computer program. Includes installation of water-efficient fixtures in accordance with building code requirements.

[2] Includes EmFac2021 off-model adjustment factors. Refer to Appendix A for modeling results and assumptions.

Estimated daily on-site operational emissions are summarized in Table 5. As depicted, the proposed project would result in daily operational emissions of approximately 3.7 lbs/day of ROG, 1.6 lbs/day of NOX, 8.4 lbs/day of CO, and, 0.2 lbs/day of PM_{10}. Emissions of SO_2 and $PM_{2.5}$ would be negligible (i.e., less than 0.01 lbs/day). Daily operational emissions would not exceed the SJVAPCD's recommended localized ambient air quality significance thresholds of 100 lbs/day for each of the criteria air pollutants evaluated. Long-term operation of the proposed project would not result in a significant impact to local air quality conditions. This impact would be considered less than significant.

Table 5. Daily Operational Emissions

	Uncontrolled Annual Emissions (tons/year)[1]					
Operational Category	**ROG**	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Mobile	0.1	0.2	1.2	<0.1	0.2	0.1
Area Source	3.5	<0.1	0.5	<0.1	<0.1	<0.1
Energy Use	<0.1	0.4	0.3	<0.1	<0.1	<0.1
Off- Road Equipment	0.1	1.0	1.9	<0.1	<0.1	<0.1

Total[2]	**3.7**	**1.6**	**8.4**	**<0.1**	**0.2**	**0.1**
Significance Thresholds	***100***	***100***	***100***	***100***	***100***	***100***
Exceeds Thresholds/Significant Impact?	*No*	*No*	*No*	*No*	*No*	*No*

[1] Emissions were calculated using the CalEEMod computer program. Includes installation of water-efficient fixtures in accordance with building code requirements.

[2] Includes EmFac2021 off-model adjustment factors. Refer to Appendix A for modeling results and assumptions.

Based on the evaluations of short- and long-term construction emissions, impacts would be *less than significant*, and mitigation is not necessary.

c) Would the project expose sensitive receptors to substantial pollutant concentrations?

Less than Significant Impact. Sensitive land uses located in the vicinity of the proposed project site consist predominantly of residential land uses. The nearest off-site residential land uses are in excess of 1,000 feet from the project. The nearest on-site worker housing is approximately 650 feet north of the project. Short-term construction and long-term operational activities and emission sources that could adversely impact these nearest sensitive receptors are discussed below.

Short-Term Construction

Naturally Occurring Asbestos

Naturally occurring asbestos (NOA), which was identified by the CARB as a TAC in 1986, is in many parts of California and is commonly associated with ultramafic rock. The project site is not near any areas that are likely to contain ultramafic rock (DOC 2000). As a result, risk of exposure to asbestos during the construction process would be considered less than significant.

Diesel-Exhaust Emissions

Diesel-exhaust particulate matter (DPM) was identified by the ARB as a TAC in 1998. Health risks associated with DPM are primarily associated with potential cancer risks. The dose to which receptors are exposed is the primary factor used to determine carcinogenic health risks. Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. The calculation of cancer risk associated with exposure to TACs are typically calculated based on a 25- to 30-year period of exposure. However, such assessments should be limited to the period and duration during which exposure occurs. Assuming that construction activities involving the use of diesel-fueled equipment would occur over an approximate 12-month period, project-related construction activities would constitute less than four percent of the typical exposure period. On-site construction equipment would also be required to comply with State's Off-Road Diesel Regulation, which limits idling of off-road diesel equipment to a maximum of 5 minutes when not in use. As a result, because the use of off-road heavy-duty diesel equipment would be temporary and episodic occurring over a relatively large area, and the highly dispersive properties of DPM, project construction would not expose sensitive receptors to substantial emissions of DPM in excess of applicable thresholds. For these reasons, this impact would be considered less than significant.

Valley Fever

Valley Fever (Coccidioidomycosis) is an infectious disease caused by the fungus Coccidioides immitis. The Valley Fever fungus tends to be found in virgin, undisturbed soil and is not likely to be found in soil that has been disturbed. In addition, the Valley Fever fungus is not likely to be found in active agricultural production lands that are being cultivated, watered, or fertilized. The frequent disturbance of agricultural

soils, watering, and the application of human-made fertilizers, inhibit the growth of the Valley Fever fungus. Valley Fever infection is most frequent during the dry summer periods that follow a rainy winter or spring, especially after wind and dust storms. In its primary form, symptoms appear as a mild upper respiratory infection, acute bronchitis, or pneumonia. The most common symptoms are fatigue, cough, chest pain, fever, rash, headache, and joint aches, although 60% of people infected are asymptomatic and do not seek medical attention. In the remaining 40%, symptoms range from mild to severe. A small percentage, less than one percent, die as a result of the disease (DIR 2026, Ventura County 2003).

Project construction contractor(s) would be required to comply with all applicable laws and regulations related to air quality. California Assembly Bill (AB) 203, adopted in 2019, requires construction employers to provide Valley Fever training for workers located within identified high-risk counties (DPH 2026, DIR 2026). This worker training includes education in topics such as risks, common symptoms, and how best to prevent exposure, including measures to be taken to reduce risk (e.g., use of respirators [N95s]); wetting soil; avoiding airborne dust, particularly in downwind locations; use of equipment cab enclosures; as well as, any measures recommended by Cal/OSHA (DPH 2026, DIR 2026). In addition, the project site consists predominantly of actively disturbed lands. As noted above, the Valley Fever fungus is not likely to be found in actively disturbed lands. Furthermore, compliance with SJVAPCD Regulation VIII, which includes measures to be implemented during project construction for the control of fugitive dust, would further minimize potential increases of entrained fungal spores. For these reasons, potential exposure to fungal spores that would cause Valley Fever would be considered less than significant.

Localized PM Concentrations

Fugitive dust emissions would be primarily associated with site preparation and vehicle travel on unpaved and paved surfaces. On-site off-road equipment and trucks would also result in short-term emissions of diesel-exhaust PM, which could contribute to elevated localized concentration at nearby receptors. The proposed project would not require grading or the import/export of soils. In addition, project construction activities would be required to comply with SJVAPCD Regulation VIII, which includes measures to be implemented during project construction for the control of fugitive dust. As noted in Table 3, daily construction emissions of PM would not exceed the SJVAPCD's recommended localized ambient air quality significance thresholds of 100 lbs/day. For these reasons, localized uncontrolled concentrations of construction-generated PM would be considered to have a less-than-significant impact.

Long-Term Operation

Localized Mobile-Source CO Emissions

Carbon monoxide is the primary criteria air pollutant of local concern associated with the proposed project. Under specific meteorological and operational conditions, such as near areas of heavily congested vehicle traffic, CO concentrations may reach unhealthy levels. If inhaled, CO can be adsorbed easily by the bloodstream and can inhibit oxygen delivery to the body, which can cause significant health effects ranging from slight headaches to death. The most serious effects are felt by individuals susceptible to oxygen deficiencies, including people with anemia and those suffering from chronic lung or heart disease.

Mobile-source emissions of CO are a direct function of traffic volume, speed, and delay. Transport of CO is extremely limited because it disperses rapidly with distance from the source under normal meteorological conditions. For this reason, modeling of mobile-source CO concentrations is typically recommended for sensitive land uses located near signalized roadway intersections that are projected to operate at unacceptable levels of service (i.e., LOS E or F). Localized CO concentrations associated with the proposed project would be considered a less-than-significant impact if: (1) traffic generated by the proposed project would not result in deterioration of a signalized intersection to a LOS of E or F; or

(2) the project would not contribute additional traffic to a signalized intersection that already operates at LOS of E or F.

The nearest signalized intersections are along SR 165 at Bradbury Road and August Avenue. Assuming a total of approximately 15 employees and two daily trips per employee, implementation of the proposed project would be anticipated to result in approximately 30 vehicle trips per day along area roadways. The project would not result in increases in truck trips. Vehicle trips along SR 165 average approximately 1,500 to 1,700 vehicles during peak hour operations (Caltrans 2026). As a result, implementation of the proposed project would not be anticipated to result in a substantial increase in vehicle traffic that would adversely impact nearby signalized intersection operations. As a result, the project's contribution to localized CO concentrations and potential health-related impacts on nearby receptors would be considered less than significant.

Toxic Air Contaminants

Implementation of the proposed project would not result in the long-term operation of any major on-site stationary sources of TACs, nor would project implementation result in a significant increase in diesel-fueled vehicles traveling along area roadways. No major stationary sources of TACs were identified in the project vicinity that would result in increased exposure of residences, students, or staff to TACs. For these reasons, long-term increases in exposure to TACs would be considered less than significant.

Based on the evaluations of short-term construction and long-term operational activities and emission sources, impacts would be *less than significant*, and mitigation is not necessary.

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

Less than Significant Impact. Other emissions potentially associated with the proposed project would be predominantly associated to the generation of odors during project construction. 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 sensitivity of the receptors. While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and regulatory agencies.

Operation of the project would comply with SJVAPCD permitting requirements and would not include processes that would be considered a major source of odorous emissions. Construction of the proposed project would involve the use of a variety of gasoline or diesel-powered equipment that would emit exhaust fumes. Exhaust fumes, particularly diesel-exhaust, may be considered objectionable by some people. However, construction-generated emissions would occur intermittently throughout the workday and would dissipate rapidly within increasing distance from the source. The nearest sensitive land uses are rural residential dwellings located in excess of 1,000 feet from the proposed pelletizing plant. The nearest on-site worker housing is approximately 650 feet north of the project. The project would not introduce any new types of odors to the project area, and would potentially reduce odors by converting existing manure present in the project area to pellets. As a result, the proposed project would not expose a substantial number of people to frequent odorous emissions. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

Conclusion

The proposed project would result in minimal criteria pollutant emissions during construction and operation and would not exceed any SJVAPCD thresholds. The project would not expose sensitive

receptors to substantial pollutant concentrations and would not be a source of odors or other adverse emissions. Therefore, impacts related to air quality would be less than significant.

Mitigation Measures

Mitigation is not necessary.

IV. Biological Resources

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

Setting

The federal Endangered Species Act of 1973 provides legislation to protect federally listed plant and wildlife species and requires that the responsible agency or individual consult with the U.S. Fish and Wildlife Service (USFWS) to determine the extent of impact to a particular species. If the USFWS determines that impacts to a species would likely occur, alternatives and measures to avoid or reduce impacts must be identified.

The Migratory Bird Treaty Act of 1918 (MBTA) protects all migratory birds, including their eggs, nests, and feathers. The MBTA was originally drafted to put an end to the commercial trade of bird feathers, popular in the latter part of the 1800s. The MBTA is enforced by the USFWS, and potential impacts to

species protected under the MBTA are evaluated by the USFWS in consultation with other federal agencies.

The California Endangered Species Act (CESA) of 1970 ensures legal protection for plants and wildlife formally listed as endangered or threatened by the State of California. California Fish and Game Code (CFGC) Sections 2080 and 2081 prohibit the take (defined as hunting, pursuing, catching, capturing, or killing) of endangered, threatened, or candidate species unless otherwise authorized by a permit. The California Department of Fish and Wildlife (CDFW) regulates activities that may result in the "take" of such species. The CESA has a much less inclusive definition of "take" (limited to direct take such as hunting, shooting, capturing, etc.) that does not include the broad "harm" and "harassment" definitions in federal law.

CFGC Sections 3511, 4700, 5050, and 5515 include provisions to protect Fully Protected species, such as: (1) prohibiting the take or possession "at any time" of the species listed in the statute, with few exceptions; (2) stating that "no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to "take" the species;" and (3) stating that no previously issued permits or licenses for take of the species "shall have any force or effect" for authorizing take or possession. The CDFW is unable to authorize incidental take of Fully Protected species when activities are proposed in areas inhabited by those species; therefore, project-related activities must avoid the take of Fully Protected species.

The CDFW also maintains a list of California Species of Special Concern (SSC). Species are given this designation based on limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational, or educational value. Under state law, the CDFW is empowered to review projects for their potential to impact state-listed and SSC species and their habitats.

CFGC Section 3503, Protections of Bird's Nests, includes provisions to protect the nests and eggs of birds. CFGC Section 3503 states: "It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto." In addition, CFGC Section 3513 states that it is unlawful to take or possess any migratory bird as designated in the MBTA or any part of such migratory birds except as provided by rules and regulations under provisions of the MBTA.

BIOLOGICAL RESOURCES ASSESSMENT

The following analysis is based on the Biological Resources Assessment (BRA) prepared for the project (SWCA Environmental Consultants [SWCA] 2025) (Appendix B). The BRA includes findings and recommendations based on a background literature review and a biological field survey of a 9.9-acre Biological Study Area (BSA) on November 13, 2025. The BRA evaluated a 9.9-acre BSA, which slightly exceeds the 8.7-acre project footprint in order to account for survey buffers and ensure that adjacent habitats potentially affected by project activities were included in the analysis.

Existing Conditions

The majority of the project site consists of an actively managed agricultural field (approximately 8.7 acres) planted as a monoculture of Sudan grass (*Sorghum drummondii*) intended for livestock fodder. A few weeds, such as common mallow (*Malva parviflora*), common sow thistle (*Sonchus oleraceus*), field bindweed (*Convolvulus arvensis*), pigweed (*Amaranthus palmeri*), telegraph weed *(Heterotheca grandiflora*), and short pod mustard (*Hirschfeldia incana*) can be found along the edges of the field. A 1.2-acre portion of the project site located in the southeastern corner is characterized as ruderal/disturbed and is used for parking and storage of farm equipment; this area includes patches of bare ground and common ruderal weeds.

No federally listed critical habitat or Essential Fish Habitat is present within the project site, which also does not contain any aquatic features or wetlands. As noted above, the project site is dominated by upland agricultural weeds and crops. The nearest aquatic feature to the project site is the irrigation pond approximately 40 feet to the south. This feature was constructed in approximately 2019 and lacks a surface connection to any nearby jurisdictional feature.

Special-Status Species

Special-Status Plants

The background research identified 28 special-status plants known from the region surrounding the project site, as described in the BSA. There is no suitable habitat for any of these special-status plants within the project site, which consists of heavily disturbed agricultural land in active cultivation and dominated by nonnative crops and/or weeds. There are also no recent nearby or overlapping special-status plant occurrences. None of these species are likely to occur in the project site. Most species returned in the background research are associated with vernal pools, wetlands, and other habitats characterized by mesic and alkaline conditions. The habitat within the project site has been highly altered and disturbed by years of agricultural activities and does not provide suitable habitat for many special-status plants. Therefore, no impacts to special-status plants are anticipated and special-status plants are not discussed further in this document.

Special-Status Animals

Based on a California Natural Diversity Database (CNDDB) query and review of existing literature, 27 special-status wildlife species are known from the region surrounding the project site. None of these species were observed during the field survey. Of the 27 special-status wildlife species evaluated, the following two special-status wildlife species were determined likely to occur within the project site:

- Swainson's hawk (*Buteo swainsoni*); CESA Threatened
- Tricolored blackbird (*Agelaius tricolor*); CESA Threatened, CDFW SSC

The remaining 25 species are either unlikely to occur, have no potential to occur in the project site due to a lack of suitable foraging and/or breeding habitat, aestivating habitat, and/or other biotic considerations, or the project area is outside of the species' current known range. These species will not be discussed further in this document.

Environmental Evaluation

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

Less than Significant with Mitigation Incorporated. Based on the BRA prepared for the project, the project site does not support suitable habitat for special-status plants, and no special-status plants are expected to occur within the disturbance footprint. Therefore, there would be no impacts to special-status plants.

The BRA concludes the project site provides suitable foraging habitat for Swainson's hawk and tricolored blackbird, and construction activities occurring during the breeding season could disturb nesting individuals if nests occur within the vicinity (e.g., in nearby trees or within dense emergent vegetation at

the irrigation pond south of the BSA). In addition, nesting birds protected under the MBTA and CFGC could establish nests in or near the project site prior to construction, and construction activities could result in nest abandonment or mortality if active nests are present within or adjacent to work areas Implementation of Mitigation Measure (MM) BIO-1 and MM BIO-2 would ensure active nests are identified and avoided, with construction temporarily halted or modified if disturbance is observed, thereby preventing nest abandonment or mortality of protected species. With clear survey protocols identified in MM BIO-1 and MM BIO-2, impacts to nesting special-status wildlife and nesting birds would be reduced to *less than significant with mitigation*.

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

No Impact. The BRA describes the project site as consisting of an actively cultivated Sudan grass hay field and a small disturbed equipment/parking area and did not identify any riparian habitat or sensitive natural communities within the BSA. Riparian habitat and sensitive natural communities are not present within the BSA. Therefore, *no impact* would occur.

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

No Impact. The BRA concluded the project site does not contain wetlands or other jurisdictional waters. The nearest aquatic feature is an irrigation pond approximately 40 feet south of the project site. The BRA notes this pond was constructed around 2019 and does not have a surface connection to nearby jurisdictional features. The project would not directly remove or fill wetlands or waters. Therefore, *no impact* would occur.

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

No Impact. The BRA concluded that the project site is not within or adjacent to any known terrestrial wildlife migration corridor, and surrounding land uses are predominantly agricultural. The project site itself is cultivated and disturbed and does not function as a wildlife movement corridor. Further, there are existing roadways and other infrastructure located in close proximity to the project site. The project site does not provide unimpeded access to natural areas and is not a wildlife corridor. The project is not expected to increase the current level of habitat fragmentation in the region nor is it expected to create a significant barrier to wildlife movement. Therefore, *no impact* would occur.

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

No Impact. The BRA did not identify any biological resources, such as oak woodland or riparian areas, that are protected by local policies and ordinances. Therefore, *no impact* would occur.

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

No Impact. Based on the records and literature research conducted for the project, the project site does not overlap with any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other conservation plans. The project would not conflict with any approved local, regional, or state habitat conservation plans. Therefore, *no impact* would occur.

Conclusion

MM BIO-1 and MM BIO-2 have been included to reduce potentially significant impacts related to Swainson's hawk and nesting birds to a less-than-significant level. All other impacts would be less than significant without mitigation.

Mitigation Measures

MM BIO-1 **Swainson's Hawk.** The following measures are recommended to reduce or eliminate potentially significant impacts to nesting Swainson's hawk:

a. If construction must occur during the Swainson's hawk nesting season (approximately March 1–September 15), a Qualified Biologist shall conduct a preconstruction survey, consistent with CDFW *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000).

b. The survey effort shall include at a minimum one survey for Swainson's hawk within 15 days prior to ground disturbance. The survey area will include the project site (which contains no potential nest trees) and a 0.25-mile radius around the project site.

c. If a nesting Swainson's hawk is found within 0.25 mile of the Project, then a Qualified Biologist experienced with Swainson's hawk behavior will establish a 0.25-mile protection buffer.

d. If construction activities that may cause nest abandonment or forced fledging are necessary within the buffer, then the biologist shall monitor the nest for signs of disturbance on a daily basis during construction. Routine disturbances such as agricultural activities, commuter traffic, and routine facility maintenance would generally not be prohibited within the buffer.

e. If the Swainson's hawk is showing agitated behavior, then construction will cease or be reduced to a point that it does not disturb the hawks.

f. Monitoring may be reduced if the on-site biologist determines, in coordination with CDFW, that construction is not disturbing the nesting hawks.

MM BIO-2 **Nesting Birds.** The following measures are recommended to reduce or eliminate potentially significant impacts to nesting birds:

a. If construction begins outside the February 1 to August 31 breeding season, there shall be no need to conduct a preconstruction survey for active bird nests.

b. If construction begins during nesting bird season (February 1–September 15), then a Qualified Biologist shall conduct a preconstruction survey for protected nesting.

c. The preconstruction survey shall be conducted within 7 days prior to the start of construction. The survey shall cover the project site and areas within 500 feet for bird-of-prey nests, within 300 feet for tricolored blackbird, and within 100 feet for other (non-bird-of-prey) nests. Inaccessible areas and private lands shall be surveyed from accessible (public) areas with binoculars.

d. If active nests are found, they shall be avoided and protected as follows: If a bird-of-prey nest is found, an appropriately sized Environmentally Sensitive Area shall be established around the nest in coordination with CDFW.

e. If an active nest is found, active nests should be avoided, and a no-disturbance buffer shall be determined by a Qualified Biologist and marked in the field as directed by the Qualified Biologist. The buffer shall be kept in place until after the breeding nesting season or the Qualified Biologist confirms the young have fledged, are foraging independently, and the nest is no longer active for the season. The extent of these buffers shall be determined by the Qualified Biologist and will depend on the species present, the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographic or artificial barriers.

f. If a 14-day lapse in construction work occurs during the nesting season, then another preconstruction survey for nesting birds shall be conducted prior to the resumption of work. If an active nest is found, the above measures shall be implemented.

V. Cultural Resources

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

Setting

PRC Section 5024.1 requires that any properties that can be expected to be directly or indirectly affected by a proposed project be evaluated for California Register of Historical Resources (CRHR) eligibility. The purpose of the CRHR is to maintain listings of the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from material impairment and substantial adverse change.

As defined by CEQA, a historical resource includes:

1. A resource listed in or determined to be eligible for listing in the CRHR.
2. Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant. The architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural records of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence.

Resources are evaluated for eligibility for the CRHR under the following four criteria:

- **Criterion 1:** The resource is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- **Criterion 2:** The resource is associated with the lives of persons important in our past;
- **Criterion 3:** The resource embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; and
- **Criterion 4:** The resource has yielded, or may be likely to yield, information important in prehistory or history.

Merced County occupies an archaeologically and historically rich portion of the San Joaquin Valley, where archaeological, historical, architectural, paleontological, and Native American cultural resources must be considered in all phases of planning and subsequent development projects. The *2030 Merced General Plan Recreation and Cultural Resources Element* includes Goal RCR-2 to protect and preserve these resources to maintain the unique character of Merced County (County of Merced 2013). The project site has historically been used for agricultural purposes and previously supported agricultural facilities associated with historical dairy operations. These facilities have been removed, and the site is currently undeveloped. As a result, the project site does not contain any buildings, structures, or other built features that are listed in or eligible for listing in the CRHR. The project site is in an agricultural and industrial area of Merced County and has been historically used for agricultural purposes. Existing improvements associated with the former dairy use at the project site have been removed, and the site is currently undeveloped. A prior cultural resources records search conducted for the project site did not identify any known prehistoric or historic cultural resources within the project site.

Environmental Evaluation

a) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?

No Impact. The project site does not contain any buildings, structures, or other built features that are listed in or eligible for listing in any federal, state, or local historic resource inventory. Former agricultural facilities associated with historical dairy operations have been removed, and the site is currently undeveloped. The project would not result in a substantial adverse change in the significance of a historical resource. Therefore, *no impact* would occur.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?

Less than Significant with Mitigation Incorporated. Project construction would involve ground-disturbing activities across the site, including grading, excavation for utilities, and foundation installation. Although no known archaeological resources have been recorded within the project site, subsurface archaeological materials could be present and remain undiscovered. If previously unidentified

archaeological resources are encountered during construction, MM CR-1 would be implemented to ensure appropriate evaluation and treatment. If the resource is determined to be significant under applicable criteria, the archaeologist would recommend and oversee appropriate treatment measures, such as avoidance, preservation in place, or data recovery, pursuant to PRC Section 15064.5. With implementation of MM CR-1, potential impacts to archaeological resources would be *less than significant with mitigation*.

c) Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

Less than Significant Impact. There are no known cemeteries, or recorded human remains within the project site. Additionally, the project would be required to comply with California Health and Safety Code Section 7050.5, which outlines the protocol for the discovery of human remains. Section 7050.5 states that in the event of an accidental discovery or recognition of any human remains in any location other than a cemetery, no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. The County Coroner must be notified of the find immediately. If the human remains are determined to be Native American, the County Coroner will notify the Native American Heritage Commission (NAHC) within 24 hours. The NAHC shall then determine and notify a Most Likely Descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials. Based on required compliance with California Health and Safety Code Section 7050.5, impacts related to the disturbance of human remains would be *less than significant*.

Conclusion

The project would not have the potential to adversely affect any historical resources. With the implementation of MM CR-1 and required compliance with California Health and Safety Code 7050.5, the proposed project would not adversely affect archaeological resources or human remains, and impacts related to cultural resources would be less than significant.

Mitigation Measures

MM CR-1 **Inadvertent Discovery of Cultural Resources.** In the event that cultural resources are encountered during project activities, all ground-disturbing activities within a 25-foot radius of the find shall cease and the County of Merced shall be notified immediately. Work shall not continue until a qualified archaeologist assesses the find and determines the need for further study. If the find includes Native American-affiliated materials, a local Native American Tribal representative will be contacted to work in conjunction with the approved archaeologist to determine the need for further study. A standard inadvertent discovery clause shall be included in every grading and construction contract to inform contractors of this requirement.

VI. Energy

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

Setting

The project site is in Merced County within the Pacific Gas and Electric Company's (PG&E) service area. PG&E provides electricity and natural gas service to rural agricultural and industrial users in the Hilmar area. PG&E's most recent publicly available power content label indicates that a substantial portion of its retail electricity portfolio is derived from renewable and GHG-free energy sources, consistent with California's Renewables Portfolio Standard (PG&E 2024).

California regulates building energy efficiency through Title 24 of the California Code of Regulations. The current Building Energy Efficiency Standards (Title 24, Part 6) establish mandatory requirements for nonresidential and industrial facilities, including lighting efficiency, ventilation standards, and performance-based energy compliance pathways (California Energy Commission [CEC] 2023). Agricultural processing facilities such as the project are subject to applicable nonresidential standards where conditioned or permanently occupied structures are constructed.

California has also adopted statewide strategies to reduce transportation-related fuel consumption and GHG emissions. The CARB administers the Advanced Clean Cars II program and the Low Carbon Fuel Standard, which promote cleaner vehicle technologies and lower-carbon transportation fuels (CARB 2024). In addition, CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation applies to self-propelled off-road diesel equipment 25 horsepower or greater used in California and establishes fleet-average emission standards and reporting requirements (CARB 2023).

The *2030 Merced County General Plan Natural Resources Element* (County of Merced 2013) provides the following goal and policies related to the energy resources that would be applicable to the proposed project:

Goal NR-2. Provide adequate and efficient energy supplies by increasing renewable energy production and energy conservation.

Policy NR-2.1: **Renewable Energy Use.** Promote the development and use of renewable energy resources to reduce dependency on petroleum-based energy sources.

Policy NR-2.2: **Clean Alternative Energy Requirement.** Encourage new electricity providers to use only clean alternative energy sources (e.g., solar, thermal, wind).

Environmental Evaluation

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

Less than Significant Impact. During construction, fossil fuels, electricity, and natural gas would be used by construction vehicles and equipment. The energy consumed during construction would be temporary in nature and typical of other similar construction activities in the county. Federal and state regulations in place require the use of fuel-efficient equipment and vehicles and require wasteful activities, such as diesel idling, to be limited. Construction contractors, in an effort to ensure cost efficiency, would not be expected to engage in wasteful or unnecessary energy and fuel practices. Additionally, construction equipment would be required to comply with CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation, which limits idling, establishes emission performance standards, and phases out older, higher-emitting engines (CARB 2023). Compliance with this regulation reduces inefficient fuel consumption and promotes the use of newer, more fuel-efficient equipment. Construction would be temporary and limited in duration; therefore, fuel use would not represent a long-term or wasteful consumption of energy resources.

The project would process manure generated by existing dairy operations into stabilized fertilizer pellets. Operational energy use would consist primarily of:

- Electricity for pelletizing equipment, conveyors, dryers, and support systems;
- Natural gas (if required) for drying operations;
- Fuel use associated with truck trips transporting manure and finished pellets.

The pelletizing process would convert manure generated by existing dairy operations into a stabilized fertilizer product at the project site, thereby reducing the need to transport raw, untreated manure to off-site disposal or processing locations. According to the project's Transportation Impact Analysis, the facility is estimated to generate 54 net new vehicle trips per weekday using conservative Institute of Transportation Engineer (ITE) rates, including six AM peak hour trips and 19 PM peak hour trips; the applicant further estimates approximately 30 trips per day under typical operations (CCTC 2025). This level of trip generation is well below applicable CEQA screening thresholds for vehicle miles traveled (VMT) and would not represent a substantial or wasteful increase in regional fuel consumption relative to existing agricultural operations in the area.

Any new buildings or enclosed operational areas would be required to comply with the California Building Energy Efficiency Standards (CEC 2023), which establish minimum energy performance requirements for nonresidential facilities. Compliance with Title 24 ensures that lighting, ventilation, and mechanical systems operate efficiently and do not result in unnecessary energy consumption.

For these reasons, construction and operation of the proposed project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less than Significant Impact. As evaluated in the impact discussion in item (a) above, the energy consumed during the construction and operation of the project would not represent a significant or

wasteful demand on available resources, which is consistent with applicable state and local energy efficiency objectives.

The *2030 Merced County General Plan Natural Resources Element* identifies goals and policies to increase the use of renewable and clean energy resources in the county. The project would result in the construction and operation of a manure pelletizing facility and associated equipment, which would require the use of natural gas and electricity provided by PG&E, whose energy portfolio includes renewable and GHG-free sources in compliance with California's Renewables Portfolio Standard (PG&E 2024). The project would not preclude the use of renewable electricity and would be eligible to participate in utility renewable energy programs. Further, the project would result in a marginal increase in vehicle trips to and from the project site associated with worker vehicles and trucks and would not increase vehicle trips in a manner that would substantially increase the use of fossil fuels. The project would also be required to comply with the California Building Energy Efficiency Standards (CEC 2023), ensuring energy-efficient design and operation. Additionally, any diesel-powered construction equipment would comply with CARB's Off-Road Diesel Regulation (CARB 2023), and transportation fuel consumption would be subject to statewide clean vehicle and fuel standards administered by CARB (CARB 2024).

For these reasons, the proposed project would be consistent with the goals and policies of the *2030 Merced County General Plan* related to the use of renewable and clean energy resources in the county. The project would be consistent with renewable energy goals included in the Natural Resources Element. Therefore, *impacts would be less than significant*, and mitigation is not necessary.

Conclusion

The project would not result in excessive energy use during construction or operation and would be consistent with applicable energy efficiency plans; therefore, impacts related to energy would be less than significant, and mitigation is not necessary.

Mitigation Measures

Mitigation is not necessary.

VII. Geology and Soils

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
(i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
(ii) Strong seismic ground shaking?	☐	☐	☒	☐

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
(iv) Landslides?	☐	☐	☒	☐
(b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
(c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
(d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
(e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
(f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

Setting

Ground shaking refers to the motion that occurs in response to regional and local earthquakes. Seismic ground shaking is influenced by the proximity of the site to an earthquake fault, the intensity of the seismic event, and the underlying soil composition. Ground shaking can endanger life and safety due to damage or collapse of structures or lifeline facilities. Liquefaction is the sudden loss of soil strength due to a rapid increase in soil pore water pressure resulting from ground shaking during an earthquake. Landslides and slope instability can occur as a result of wet weather, weak soils, improper grading, improper drainage, steep slopes, adverse geologic structures, earthquakes, or a combination of these factors.

According to the *Merced County Multi-Jurisdictional Hazard Mitigation Plan*, the nearest faults of major significance are the San Andreas Fault, approximately 15 miles west from the western county line; Hayward and Calaveras Faults, approximately 50 miles northwest; White Wolf, Garlock, and Sierra Nevada Faults to the south; and Bear Mountain Fault zone approximately 5 miles east of the respective county lines (County of Merced 2021). According to the CDOC Fault Activity Map of California, the nearest potentially active fault to the project site is the San Joaquin fault approximately 16 miles southwest of the project site (CDOC 2015). According to the Final Program Environmental Impact Report for the *2030 Merced County General Plan*, overall seismic-related risk, including the risk of liquefaction and landslide, in the county is low (County of Merced 2013b).

Highly erodible soils are those that are easily carried by water and, to a lesser extent, by wind. Surface erosion is more commonly visible, but subsurface erosion can lead to damage to pipes, roads, foundations, and other structural elements. Expansive soils are largely comprised of clays, which expand in volume when water is absorbed and shrink as the soil dries. Expansion is measured by shrink-swell potential, which is the volume change in soil with an increase in moisture. If the shrink-swell potential is rated moderate to high, then damage to buildings, roads, structural foundations, and pipes can occur. In the northern portion of the county, there are some areas of expansive clay soil that require special

construction standards for foundations and infrastructure. Expansive clay problems can be surmounted by appropriate engineering design and construction techniques.

According to the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) Web Soil Survey, soils underlying the project site consist primarily of Hilmar sand, 0 to 3 percent slopes. Hilmar sand is characterized by sandy surface soils overlying stratified very fine sandy loam to silt loam at depth. This soil has somewhat poorly drained conditions, a high seasonal water table, and is classified as a hydric soil. Runoff potential is medium, and permeability ranges from moderately low to moderately high. Delhi sand, which occurs in a very limited portion of the site, is somewhat excessively drained, has very low runoff potential, and is not classified as hydric (NRCS 2026).

The project site is relatively flat, with slopes ranging from 0% to 3%, and is underlain by Pleistocene-age alluvial deposits typical of the San Joaquin Valley, which generally have low to moderate paleontological sensitivity (Wills et al. 2022).

Environmental Evaluation

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

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

No Impact. The project site is not within an Alquist-Priolo Earthquake Fault Zone and is not underlain by any known active faults (CDOC 2015). Rupture of a known earthquake fault would not occur within the project site. Therefore, *no impact* would occur.

a-ii) Strong seismic ground shaking?

Less than Significant Impact. Seismic ground shaking can occur throughout California; however, regional seismic risk in Merced County is low (County of Merced 2021). The project includes the construction and operation of a manure pelletizing facility and associated equipment. New occupiable buildings would be required to be constructed in accordance with the most recent California Building Code (CBC) to address seismic risk. Based on required compliance with the CBC, the project would not result in the risk of loss, injury, or death as a result of seismic-induced hazards, including seismic ground shaking. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

a-iii) Seismic-related ground failure, including liquefaction?

Less than Significant Impact. According to the *Final Program Environmental Impact Report for the 2030 Merced County General Plan*, the risk of liquefaction in the county is low (County of Merced 2013b). The project includes the construction and operation of manure pelletizing facility and associated equipment. New occupiable buildings would be required to be constructed in accordance with the most recent CBC to address seismic risk. Based on required compliance with the CBC, the project would not result in the risk of loss, injury, or death as a result of seismic-induced hazards, including liquefaction; therefore, impacts would be less than significant.

a-iv) Landslides?

Less than Significant Impact. According to the *Final Program Environmental Impact Report for the 2030 Merced County General Plan*, the risk of landslides in the county is low (County of Merced 2013b). In addition, the project site consists entirely of flat topography, which further reduces risk of landslides. The project includes the construction and operation of a manure pelletizing facility and associated equipment. New occupiable buildings would be required to be constructed in accordance with the most recent CBC to address seismic risk. Based on required compliance with the CBC, the project would not result in the risk of loss, injury, or death as a result of seismic-induced hazards, including landslides. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

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

Less than Significant Impact. Construction activities would result in approximately 8 acres of ground disturbance. Proposed ground-disturbing activities would have the potential to increase erosion or loss of topsoil at the project site. The project would disturb more than one (1) acre of soil and would be required to comply with State Water Resources Control Board (SWRCB) general construction permit requirements to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) with best management practices (BMPs) to address erosion and other pollutant control at the project site. Because the project would disturb more than one (1) acre of soil, the project would also be required to comply with the County's Stormwater Ordinance (Merced County Code Section 9.53.010), which requires preparation and implementation of an Erosion Control Plan (ECP). Following construction activities, the project site would be covered with hardscapes to reduce the potential for erosion or loss of topsoil to occur at the project site. Based on required compliance with SWRCB and County requirements, implementation of the proposed project would not result in substantial soil erosion or the loss of topsoil. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

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

Less than Significant Impact. According to the *Final Program Environmental Impact Report for the 2030 Merced County General Plan*, there is a low risk of landslide and liquefaction within the county (County of Merced 2013b). The project site is not in an area with known land subsidence (USGS 2024). New occupiable buildings would be required to be constructed in accordance with the most recent CBC to address geologic risk. Based on required compliance with the CBC, the project would not result in the risk associated with ground failure. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

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

Less than Significant Impact. Soils at the project site contain clay components that may exhibit moderate expansion and contraction with changes in moisture content (NRCS 2026). Compliance with the CBC, including implementation of appropriate foundation design and soil preparation measures, would adequately address expansive soil conditions. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

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

No Impact. Water service would be provided by an existing on-site well. Wastewater would be managed through existing on-site septic systems, and no industrial wastewater discharge is anticipated. The project does not propose the installation of new septic tanks or alternative wastewater disposal systems. Therefore, *no impact* would occur.

f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less than Significant Impact. The project site is on relatively flat terrain underlain by Quaternary alluvial deposits typical of the San Joaquin Valley. These deposits consist of sediments transported and deposited by fluvial processes over geologic time. Portions of these deposits may date to the Pleistocene epoch (approximately 2.58 million to 11,700 years ago), which can locally contain fossil remains; however, the potential for encountering significant paleontological resources in shallow, previously disturbed alluvial soils is generally considered low to moderate depending on depositional context (SVP 2010). The proposed project would involve primarily surface-level construction activities associated with the installation of agricultural processing equipment and site improvements within an area that has been historically disturbed by prior dairy operations and agricultural use. Ground disturbance would be limited to shallow grading and minor trenching typical of agricultural facility construction and would not involve deep excavation into older undisturbed geologic formations where paleontological resources are more likely to occur. The project would have a low likelihood of encountering significant paleontological resources. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

Conclusion

Based on required compliance with the CBC, the project would not result in the risk associated with seismic-related or ground failure events. Based on required compliance with SWRCB and County requirements, implementation of the proposed project would not result in substantial soil erosion or the loss of topsoil. The project does not include the installation of septic tanks or alternative wastewater disposal systems. The project would not adversely affect paleontological resources. Therefore, impacts related to geology and soils would be less than significant, and mitigation is not necessary.

Mitigation Measures

Mitigation is not necessary.

VIII. Greenhouse Gas Emissions

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

Setting

This section summarizes the findings of the Air Quality and Greenhouse Gas Impact Analysis prepared for the project (AMBIENT 2026), which evaluated potential project-related air pollutant and GHG emissions.

REGULATORY FRAMEWORK

Federal

At the federal level, GHG emissions are regulated primarily under the FCAA. In 2007, the U.S. Supreme Court ruled in *Massachusetts v. U.S. Environmental Protection Agency* that GHGs are air pollutants under the CAA and that the U.S. EPA has authority to regulate them if they are found to endanger public health or welfare. In 2009, the EPA issued an Endangerment Finding, concluding that six key GHGs—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride—contribute to climate change and pose a threat to public health and welfare. This determination allows the EPA to regulate GHG emissions from major sources, including motor vehicles and stationary sources such as power plants and industrial facilities (U.S. EPA 2018; AMBIENT 2026).

State

California has adopted a comprehensive set of policies and regulations intended to reduce GHG emissions statewide. The California Global Warming Solutions Act of 2006 (Assembly Bill 32) requires the CARB to reduce statewide GHG emissions to 1990 levels. The CARB developed the Climate Change Scoping Plan, which identifies statewide strategies and regulatory measures to reduce emissions from transportation, energy generation, industry, and other sectors.

Subsequent legislation strengthened California's GHG-reduction targets. Senate Bill 32 (2016) requires statewide GHG emissions to be reduced to 40% below 1990 levels by 2030, while Executive Order B-55-18 established a statewide goal of achieving carbon neutrality by 2045. CARB periodically updates the Climate Change Scoping Plan to identify strategies to meet these targets.

Additional statewide regulations also contribute to reducing GHG emissions, including the California Building Energy Efficiency Standards (Title 24), which establish energy efficiency requirements for buildings, and the California Green Building Standards Code (CALGreen), which requires measures to reduce energy consumption, water use, and other environmental impacts associated with development (AMBIENT 2026).

Regional

The project site is within the jurisdiction of the SJVAPCD. The SJVAPCD has adopted *Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* to assist lead agencies in evaluating project-level GHG impacts. The guidance recognizes that individual project

emissions contribute incrementally to global climate change and therefore emphasizes reducing emissions through project design features, operational measures, and mitigation strategies.

The SJVAPCD guidance includes Best Performance Standards (BPS) that identify project design measures intended to reduce GHG emissions. Projects that incorporate applicable BPS or demonstrate equivalent reductions may be considered to have less-than-significant cumulative GHG impacts. If BPS are not implemented, the guidance recommends quantifying project GHG emissions and demonstrating that emissions are reduced consistent with the statewide reduction targets identified in CARB's Climate Change Scoping Plan (SJVAPCD 2009; AMBIENT 2026).

EXISTING CONDITIONS

GHGs are atmospheric gases that absorb and emit infrared radiation, contributing to the greenhouse effect and global climate change. The primary GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and several high-global-warming-potential gases such as hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride. These gases vary widely in atmospheric lifetimes and global warming potential, with some persisting in the atmosphere for thousands of years.

Human activities such as fuel combustion, industrial processes, transportation, agriculture, and energy production are major sources of GHG emissions. Accumulation of these gases in the atmosphere contributes to global climate change, which may result in increased temperatures, changes in precipitation patterns, altered water supply conditions, and other environmental effects that can influence ecosystems, agriculture, and economic systems

Environmental Evaluation

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

Less than Significant Impact.

Short-Term Construction GHG Emissions

Estimated increases in GHG emissions associated with the construction of the proposed project are summarized in Table 6. Based on the modeling conducted, construction-related GHG emissions would total approximately 271 metric tons (MT) of carbon dioxide equivalent (CO_2e). Amortized GHG emissions, when averaged over the assumed 30-year minimum life of the project, would total approximately 9.0 $MTCO_2e$/year. There would also be a small amount of GHG emissions from waste generated during construction; however, this amount is speculative. Actual emissions may vary, depending on the final construction schedules, equipment required, and activities conducted. (Amortized construction-generated GHG emissions are included with operational GHG emissions for evaluation of project impacts, as discussed below.)

Table 6. Construction-Generated GHG Emissions

Construction Year	GHG Emissions ($MTCO_2e$/Year)[1]
2026	57.0
2027	211.8
Construction Total- Unadjusted	**268.8**

Construction Total – Adjusted[2]	**271.0**
Amortized Construction Emissions	***9.0***

[1] Emissions were calculated using the CalEEMod computer program.

[2] Includes EmFac2021 off-model adjustment factors.

Long-Term Operational GHG Emissions

Estimated long-term increases in GHG emissions associated with the proposed project are summarized in Table 7. As depicted, operational GHG emissions for the proposed project, with the inclusion of amortized construction GHGs, would total approximately 251.3 $MTCO_2e$/year during the initial year operation. Emissions in future years would decrease with improvements in energy efficiency requirements. A majority of the operational GHG emissions would be associated with energy use, off-road equipment use, and on-road mobile sources.

Table 7. Operational GHG Emissions

Source	GHG Emissions ($MTCO_2e$/Year)
Electricity[1]	47.9
Natural Gas[2]	78.1
Water[3]	17.9
Waste[4]	15.4
Refridgerants[5]	<0.1
Off-Road Equipment[6]	41.2
Mobile[7]	41.8
Total Operational Emissions	**242.3**
Amortized Construction Emissions	**9.0**
Total with Amortized Construction Emissions	***251.3***

[1] Based on estimated energy use provided for the pelletizing plant. All other uses (e.g., parking area, office) are based on model defaults.

[2] Natural gas use based on model defaults for light industrial land use.

[3] Water use include water-efficient fixtures in accordance with current regulatory requirements.

[4] Waste generation based on model defaults.

[5] Refrigerants based on model defaults.

[6] Off-road equipment includes the operation of a front-end loader, 8 hours/day, 6 operational days/week.

[7] Mobile emissions assume an estimated 15 employees (30 trips/day), 6 operational days/week. Includes EmFac2021 off-model adjustment factors. Refer to Appendix A for modeling results and assumptions.

Consistency with Applicable Plans

Applicable GHG-reduction plans include the MCAG 2022 RTP/SCS and the State's Climate Change Scoping Plan. Project consistency with these plans is discussed in greater detail below.

MCAG 2022 RTP/SCS

The MCAG 2022 RTP/SCS is supported by a combination of transportation and land use strategies that outline how the County can achieve California's GHG emission reduction goals and FCAA requirements. Local jurisdictions in California, including the County, adopt VMT thresholds to align with SB 743 mandate, which requires consistency with the GHG-reduction targets outlined in the applicable MCAG

2022 RTP/SCS. Projects are reviewed to ensure consistency with adopted VMT thresholds and to ensure consistency with the SB 743 mandate and the State's GHG-reduction goals.

As noted earlier in this report, the project would result in an increase of approximately 15 employees. Based on this estimate and assuming two trips/day/employee, the project would generate approximately 30 vehicle trips/day. The project would not have a significant VMT impact and would not conflict with regional VMT-reduction efforts. In addition, the project would not conflict with regional plans to integrate the transportation network and related strategies with an overall land use patterns that respond to projected future regional growth, housing needs, changing demographics, or transportation demands. For these reasons, the project would be consistent with or otherwise would not conflict with VMT-reduction and transportation circulation goals identified in the MCAG 2022 RTP/SCS.

State's 2022 Climate Change Scoping Plan

The 2022 Scoping Plan for Achieving Carbon Neutrality (Scoping Plan) lays out a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85% below 1990 levels no later than 2045. As discussed above, the proposed project would not conflict with regional VMT-reduction goals. In addition, based on the energy analysis prepared for this project, the project would not result in wasteful, inefficient, or unnecessary energy use. As a result, the proposed project would be considered consistent with the State's 2022 Scoping Plan. It is also important to recognize that the proposed project would help to reduce GHG emissions that are often associated with typical farm practices, such as open-air manure storage ponds and lagoons. The pelletizing of manure would result in reductions in ammonia emissions, which would indirectly lower emissions of GHGs, when compared to typical farm practices (CDFA 2026). The proposed project would not conflict with implementation of the 2022 Scoping Plan.

Impact Summary

The proposed project would not conflict with the County's VMT threshold and, therefore, would be consistent with or otherwise would not conflict with any of the goals identified in MCAG 2022 RTP/SCS. The pelletizing of manure would result in reductions in ammonia emissions, which would indirectly lower emissions of GHGs, when compared to typical farm practices (CDFA 2026), and the project would not conflict with the implementation of the 2022 Scoping Plan. As a result, impacts would be *less than significant*, and mitigation is not necessary.

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

Less than Significant Impact. See *Impact Discussion VIII.a*.

Conclusion

The project would not exceed the SJVAPCD annual GHG threshold and would be consistent with the SJVAPCD Climate Change Action Plan. As such, the project would not result in a conflict with an applicable plan or policy adopted for reducing GHG emissions. Therefore, GHG emissions-related impacts would be less than significant, and mitigation is not necessary.

Mitigation Measures

Mitigation is not necessary.

IX. Hazards and Hazardous Materials

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

Setting

The Hazardous Waste and Substances Site (Cortese) List is a planning tool used by the state, local agencies, and developers to comply with CEQA requirements related to the disclosure of information about the location of hazardous materials release sites. California Government Code Section 65962.5 requires the California Environmental Protection Agency to develop an updated Cortese List at least annually. Various state and local government agencies are required to track and document hazardous material release information for the Cortese List. The California Department of Toxic Substance Control (DTSC) EnviroStor database tracks DTSC cleanup, permitting, enforcement, and investigation efforts at hazardous waste facilities and sites with known contamination, such as federal superfund, state response, voluntary cleanup, school cleanup, school investigation, and military evaluation sites (DTSC 2026). The SWRCB GeoTracker database contains records for sites that impact, or have the potential to impact, water in California, such as Leaking Underground Storage Tank, Department of Defense, and Cleanup Program Sites (SWRCB 2026). The remaining data regarding facilities or sites identified as meeting the "Cortese List" requirements can be located on the California Environmental Protection Agency website.

A review of the DTSC EnviroStor and SWRCB GeoTracker databases indicates that no hazardous materials sites listed pursuant to Government Code Section 65962.5 (Cortese List) are within or

immediately adjacent to the project site (DTSC 2026; SWRCB 2026). The nearest identified Cortese-listed site is approximately 1.65 miles north of the project site.

The project site was historically used for a dairy operation that was removed from the Dairy General Order in 2021, and the former dairy facilities, including the manure lagoon, were remediated and cleared from regulatory oversight prior to the proposed project.

No schools are within one-quarter mile of the project site. The nearest schools to the project site include Elim Elementary School, Hilmar Elementary School, Hilmar Middle School, and Hilmar High School, all located within the Hilmar Unified School District approximately 1.5 to 2 miles south of the project site.

Environmental Evaluation

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

Less than Significant Impact. Construction of the proposed project would involve the temporary use of limited quantities of hazardous materials commonly associated with construction activities, such as fuels, oils, hydraulic fluids, solvents, and paints. The use, storage, transport, and disposal of these materials would be required to comply with applicable federal, state, and local regulations, including California Code of Regulations (CCR) Title 22 and occupational safety requirements.

During operation, the facility would use fertilizer additives that may be classified as hazardous materials under applicable regulations and would be stored in outdoor silos with appropriate containment and handling procedures. Poultry manure itself is not classified as a hazardous material. Truck trips associated with manure delivery and finished product transport would occur in accordance with applicable hazardous materials transportation and workplace safety regulations. Based on compliance with existing regulations, impacts related to the routine transport, use, or disposal of hazardous materials would be *less than significant*, and mitigation is not necessary.

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

Less than Significant Impact. As described above, construction activities would involve the use of fuels, lubricants, and other hazardous materials typical of construction projects. These materials would be stored and handled in accordance with regulatory requirements and standard industry practices designed to minimize the potential for spills or releases.

The project would involve excavation to depths of up to approximately 6 feet for utility installation and foundation piers. The project site is not within a heavily traveled roadway corridor and is therefore not expected to disturb aerially deposited lead. In addition, the project site is not within an area mapped by the California Geological Survey as having a high potential for NOA, and the project would not require demolition of existing structures that could contain asbestos-containing materials or lead-based paint (California Geological Survey [CGS] 2011).

Operational activities would include vehicle and truck trips associated with manure delivery, product transport, and employee commuting. Project operations are expected to generate approximately 30 total vehicle trips per day, including employee commute trips, deliveries of manure to the facility, and

outbound truck trips associated with transport of finished fertilizer pellets. These activities would be conducted in compliance with applicable hazardous materials handling and transportation regulations. Based on required compliance with CCR Title 22 and related regulations, the project would not create a significant hazard through reasonably foreseeable upset or accident conditions. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact. A review of surrounding land uses indicates that no existing or proposed schools are within one-quarter mile of the project site. The project would not emit hazardous emissions or handle hazardous or acutely hazardous materials within one-quarter mile of a school. Therefore, *no impact* would occur.

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

No Impact. Based on a review of the DTSC EnviroStor and SWRCB GeoTracker databases, the project site is not included on the Cortese List and is not on or adjacent to a listed hazardous materials site (DTSC 2026; SWRCB 2026). Although the site historically supported a dairy operation, that use has been remediated and cleared from regulatory oversight. As such, the project would not create a significant hazard related to disturbance of a known hazardous materials site. Therefore, *no impact* would occur.

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

No Impact. The project site is not within an adopted airport land use plan (Merced County Airport Land Use Commission 2018). The nearest public airport is the Merced Regional Airport located approximately 20 miles southeast of the project site. Because the project site is not within the boundaries of the Merced County Airport Land Use Compatibility Plan and would not introduce uses incompatible with airport operations, the project would not result in a safety hazard or excessive noise related to airport operations. Therefore, *no impact* would occur.

f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less than Significant Impact. According to California Department of Forestry and Fire Protection (CAL FIRE) maps, the project site is within a Local Responsibility Area (LRA) (CAL FIRE 2026). The project consists of the construction and operation of an agricultural processing facility that would receive manure from nearby farms and convert it into stabilized, pelletized organic fertilizer for commercial distribution. The project would be accessed via existing roadways that meet applicable fire access and emergency response standards, including the California Fire Code (CFC) and Merced County Department of Public Works Improvement Standards and Specifications for access roads to ensure adequate emergency access to and from the project site. Further, the proposed project activities would be limited to the boundaries of the project site, and would not require any temporary or permanent road closures that could affect emergency response or evacuation efforts in the project area. All new structures would be required to comply with the CFC and applicable County standards. Based on required compliance with the CFC and

County of Merced Department of Public Works Improvement Standards and Specifications, the project would not substantially impair an adopted emergency response plan or emergency evacuation plan. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

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

Less than Significant Impact. The project site is within an LRA and consists of relatively flat agricultural land that is actively managed. The project would include construction of new occupiable buildings that would be required to comply with the CFC and applicable fire safety standards. In addition, utility improvements would reduce ignition potential associated with above-ground infrastructure. Based on compliance with applicable fire safety requirements, the project would not exacerbate wildfire risk. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

Conclusion

Based on required compliance with the CCR, the project would not result in significant hazards related to the routine transport, use, or disposal of hazardous materials. The project is not within 0.25 mile of a school, within 2 miles of an airport, or within or adjacent to a previously recorded hazardous materials site. The project would not impair the implementation of an adopted emergency response plan or emergency evacuation plan and would not expose people or structures to a significant risk involving wildfires. Therefore, impacts related to hazards and hazardous materials would be less than significant, and mitigation is not necessary.

Mitigation Measures

Mitigation is not necessary.

X. Hydrology and Water Quality

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
(b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
(c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
(i) Result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
(ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☐	☒	☐

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(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?	☐	☐	☒	☐

Setting

The project site is in the Merced Subbasin of the San Joaquin Valley Groundwater Basin. The Merced Subbasin encompasses approximately 801 square miles of Merced County and key municipalities within the subbasin include Merced County and the cities of Merced, Livingston, and Atwater. The subbasin consists of lands south of the Merced River, between the San Joaquin River to the west and the crystalline basement rock of the Sierra Nevada foothills to the east. The southern subbasin boundary extends west along the Chowchilla River (Merced–Madera County boundary) and along the northern edge of the sphere of influence boundary of Chowchilla Water District. Geologic units in the Merced Subbasin consist of consolidated rocks and unconsolidated deposits. The Merced Subbasin is heavily reliant on groundwater, and users recognize the subbasin has been in overdraft for a long period of time. The subbasin is under the jurisdiction of three Groundwater Sustainability Agencies (GSAs), including the Merced Irrigation-Urban Groundwater Sustainability Agency (MIUGSA), the Merced Subbasin Groundwater Sustainability Agency (MSGSA), and the Turner Island Water District Groundwater Sustainability Agency #1 (TIWD GSA-1). The *Merced Groundwater Subbasin Groundwater Sustainability Plan* (GSP) identifies sustainable management goals and practices to achieve sustainable groundwater management on a long-term average basis by increasing recharge and/or reducing groundwater pumping while avoiding undesirable results (Woodard & Curran 2022).

An irrigation pond is adjacent to the southern boundary of the project site. In addition, the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) Wetlands Mapper identifies Palustrine wetlands to the north of the project site; however, field investigations conducted for the project did not identify wetlands meeting federal or state jurisdictional criteria within the project footprint (SWCA 2025).

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel 06047C0175G (effective December 2, 2008), the project site is within Flood Zone X, an area of minimal flood hazard (FEMA 2026).

Environmental Evaluation

a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less than Significant Impact. Construction of the proposed project would result in ground disturbance across the 9.9-acre project site. Because the project would disturb more than one acre, it would be required to comply with the County of Merced Stormwater Ordinance (Merced County Code Section 9.53.010), including preparation and implementation of an ECP and construction BMPs. In addition, the project would be required to obtain coverage under the Central Valley Regional Water Quality Control Board (RWQCB) General Construction Permit and implement a Stormwater Pollution Prevention Plan (SWPPP) to control sedimentation, erosion, and pollutant discharges (Central Valley RWQCB 2026).

Operational activities associated with the project would occur within enclosed structures. The project does not include well drilling, increased groundwater extraction, or wastewater discharges that could adversely affect groundwater quality. Compliance with County and RWQCB requirements, as well as applicable hazardous materials handling regulations, would minimize the potential for spills or discharges. The project would not violate water quality standards or substantially degrade surface or groundwater quality. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

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

Less than Significant Impact. Construction-related water use (e.g., dust suppression) would be temporary and limited in volume. Operational water demand would be associated with general facility uses (e.g., sanitation and routine facility needs) and would be supplied by an on-site well. As described in the *Impact Discussion XIX.a*, from Section XIX, *Utilities and Service Systems*, the project does not involve development of new water-intensive uses, expansion of agricultural irrigation, or connection to a municipal water system. Water use would be managed in accordance with appliable County and RWQCB requirements, and no substantial increase in groundwater extraction beyond typical agricultural practice is anticipated. The project would be required to comply with the County's Stormwater Ordinance (Merced County Code Section 9.53.010) and the County's Improvement Standards and Specifications to ensure proper drainage at the project site, which would maintain drainage conditions and stormwater flows in the project area.

Given the project's reduced water demand in comparison with previous agricultural use of the site, the adequacy of available supplies, and compliance with County regulations, the project would not substantially decrease groundwater supplies or interfere with groundwater recharge in a manner that would impede MSGSA implementation. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

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

c-i) Result in substantial erosion or siltation on- or off-site?

Less than Significant Impact. The project would not result in direct alteration of any drainages or surface water features. The project would require ground-disturbing activities during project construction, which has the potential to result in an increase in erosion that could run off from the site to surrounding areas. Construction of the proposed project would result in approximately 9.9 acres of site disturbance and would be required to comply with the County Stormwater Ordinance (Merced County Code Section 9.53.010), which requires implementation of BMPs during project construction and preparation of an ECP. The project would also be required to comply with Central Valley RWQCB General Construction Permit requirements. Following project construction, the project site would be covered with hardscapes, which would reduce the potential for long-term erosion to occur at the project site. Based on required compliance with RWQCB and County requirements, the project would not result in substantial erosion or siltation. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

c-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. Implementation of the proposed project would result in the installation of 6.1 acres of new impervious surfaces over the project site, which could result in an increase in surface flows. The project would be required to comply with the County's Stormwater Ordinance (Merced County Code Section 9.53.010) and the County's Improvement Standards and Specifications, which requires the implementation of postconstruction stormwater control measures to address long-term drainage conditions at the project site. Based on required compliance with County requirements, the project would not increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

c-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?

Less than Significant Impact. The project includes the construction and operation of a manure pelletizing facility and associated equipment. Implementation of the proposed project would result in ground disturbance over the entire 9.9-acre project site and the installation of new impervious surfaces over most of the project site. The project would be required to comply with the County's Stormwater Ordinance (Merced County Code Section 9.53.010), which requires implementation of BMPs during project construction and preparation of an ECP, and Central Valley RWQCB General Construction Permit requirements to address pollutant runoff at the project site. The project would also be required to comply with the County's Stormwater Ordinance and the County's Improvement Standards and Specifications, which require the implementation of postconstruction stormwater control measures to address long-term drainage conditions at the project site. Compliance with County and RWQCB requirements would reduce the potential for short- and long-term pollutants to occur at the project site that could run off into surrounding areas. Based on required compliance with RWQCB and County requirements, the project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

c-iv) Impede or redirect flood flows?

Less than Significant Impact. The project site is within FEMA Flood Zone X, an area of minimal flood hazard, and is not within a mapped floodway (FEMA 2008). The project would not alter a mapped flood channel or impede flood flows. Further, the project would be required to comply with the County's Stormwater Ordinance and the County's Improvement Standards and Specifications, which require the implementation of postconstruction stormwater control measures to address drainage conditions at the project site. Based on existing site conditions and required compliance with County requirements, the project would not impede or redirect flood flows. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

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

No Impact. The project site is mapped within Flood Zone X (minimal flood hazard) (FEMA 2008). The site is also located inland and is not within a tsunami inundation area; and it is not adjacent to an impounded waterbody where seiche hazards would be expected. Therefore, the project would not risk the release of pollutants due to inundation. Therefore, no impact would occur.

e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less than Significant Impact. The project site is within the Merced Subbasin and subject to sustainable management goals under the GSP (DWR 2026; Woodard and Curran 2022). As described above, the project would not substantially increase groundwater demand or interfere with groundwater recharge in a manner that would impede MSGSA implementation. The project would also comply with applicable stormwater permitting requirements for construction and County stormwater standards, which are intended to protect receiving water quality. Therefore, the project would not conflict with or obstruct implementation of applicable water quality control planning or sustainable groundwater management. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

Conclusion

The project would not result in adverse impacts related to water quality, groundwater quality, or stormwater runoff. The project would not be located in an area that would be subject to inundation. The project would be consistent with the sustainable management practices of the San Joaquin Valley Groundwater Basin and the *Water Quality Control Plan for the Central Valley Region*. Therefore, impacts related to hydrology and water quality would be less than significant, and mitigation is not necessary.

Mitigation Measures

Mitigation is not necessary.

XI. Land Use and Planning

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

Setting

The *2030 Merced County General Plan* consists of 11 elements that serve as the County's "blueprint" or "constitution" for all future land use, development, preservation, and resource conservation decisions. The *2030 Merced County General Plan Land Use and Community Character Element* identifies goals, policies, and standards for future land use, development, community design, energy efficiency, and agriculture/resource protection in the county. The Land Use and Community Character Element also describes standards for land use designations within the county.

The project site is designated Agriculture under the *2030 Merced County General Plan* Land Use Diagram. The Agriculture land use designation is intended to preserve and support agricultural activities and allows for agricultural production, processing, and related support uses that are compatible with surrounding farmland (County of Merced 2013). The site is zoned A-1 (General Agriculture) under the Merced County Zoning Code, which permits a range of agricultural uses and agricultural support facilities, subject to discretionary review where applicable (Merced County Code Title 18).

Surrounding land uses consist primarily of active agricultural operations, orchards, row crops, and agricultural infrastructure, along with scattered rural residences and agri-industrial facilities associated with food processing and farm operations. This land use pattern reflects the agricultural character of the area and the County's emphasis on preserving farmland while accommodating value-added agricultural activities.

Environmental Evaluation

a) Would the project physically divide an established community?

No Impact. Implementation of the project would result in the construction and operation of a manure pelletizing operation. The proposed project would be limited to development on one existing parcel and would not result in the removal or blockage of existing public roadways or other circulation paths and would not otherwise include any features that would physically divide an established community. Therefore, *no impact* would occur.

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

Less than Significant with Mitigation Incorporated. As evaluated throughout this IS/MND, the project would be consistent with standards and policies set forth in the *2030 Merced County General Plan*, *2018 Plan for the 1997, 2006, and 2012 PM2.5 Standards* (SJVAPCD 2018 $PM_{2.5}$ Plan) (SJVAPCD 2018), SJVAPCD Climate Change Action Plan, and MCAG 2022 RTP/SCS. The project would be required to implement Mitigation Measures BIO-1 and BIO-2 and CR-1 to mitigate potential impacts associated with biological resources and cultural and tribal cultural resources, which is consistent with the identified plans and policies intended to avoid or mitigate adverse environmental effects. Upon implementation of the identified mitigation, the project would not conflict with other local policies or regulations adopted for the purpose of avoiding or mitigating environmental effects. Therefore, impacts would be *less than significant with mitigation*.

Conclusion

The project would not physically divide an established community. Upon implementation of mitigation measures identified throughout this IS/MND, the project would be consistent with the *2030 Merced County General Plan*, SJVAPCD 2018 $PM_{2.5}$ Plan, SJVAPCD Climate Change Action Plan, and MCAG 2022 RTP/SCS, and other applicable documents. Therefore, with implementation of Mitigation Measures BIO-1 through BIO-4 and CR-1, impacts related to land use and planning would be less than significant.

Mitigation Measures

Implement MM BIO-1 and MM BIO-2, included in Section IV, *Biological Resources*, MM CR-1, included in Section V, *Cultural Resources*, and MM N-1, included in Section XIII, *Noise*.

XII. Mineral Resources

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

Setting

The California Surface Mining and Reclamation Act (SMARA) of 1975 requires that the State Geologist classify land into mineral resource zones (MRZs) according to the known or inferred mineral potential of the land (PRC Sections 2710–2796). The five MRZs used in the SMARA classification designation process for Merced County are defined below (CGS 2021):

MRZ-1: Areas where available geologic information indicates that little likelihood exists for the presence of significant concrete aggregate resources.

MRZ-2: Areas where geologic information indicates the presence of significant concrete aggregate resources.

MRZ-3 cs: Areas containing known or inferred concrete aggregate resources of undetermined mineral resource significance (crushed stone).

MRZ-3 sg: Areas containing known or inferred concrete aggregate resources of undetermined mineral resource significance (sand and gravel).

MRZ-4: Areas where available geologic information is inadequate to assign to any other mineral resource zone category.

The project site is in an MRZ-4 area and is not near any existing mining operations (CGS 2021). The surrounding area is predominantly agricultural in nature, and no active or permitted mineral extraction or aggregate mining operations are on or adjacent to the project site.

Environmental Evaluation

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

No Impact. The project site is in an MRZ-4 area and is not identified as containing significant mineral resources of regional or statewide importance (CGS 2021). The proposed project would involve agricultural processing structures and associated infrastructure and would not preclude access to known mineral resources. The project would not result in the loss of availability of a known mineral resource. Therefore, *no impact* would occur.

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

No Impact. The *2030 Merced County General Plan* does not identify the project site as a locally important mineral resource recovery area, nor does it designate the site for mineral extraction or aggregate resource protection (County of Merced 2013). No locally important mineral resource sites or active mining operations are on or adjacent to the project site. Accordingly, implementation of the proposed project would not result in the loss of availability of a locally important mineral resource recovery site. Therefore, *no impact* would occur.

Conclusion

No impacts to mineral resources would occur as a result of the project, and mitigation is not necessary.

Mitigation Measures

Mitigation is not necessary.

XIII. Noise

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

Setting

This section summarizes the findings of the Noise and Groundborne Vibration Impact Analysis prepared for the project (AMBIENT 2026), which evaluated potential project-related noise and groundborne vibration impacts.

Regulatory Framework

Noise in Merced County is regulated through the *2030 Merced County General Plan* and the Merced County Municipal Code. The General Plan establishes noise standards for stationary (non-transportation) sources to protect sensitive land uses such as residences, schools, and hospitals. For residential outdoor activity areas, allowable noise levels are 55 dBA L50 during daytime hours (7:00 a.m.–10:00 p.m.) and 50 dBA L50 during nighttime hours (10:00 p.m.–7:00 a.m.), with corresponding maximum noise limits also established for various land uses. These standards are applied at the property line of noise-sensitive land uses.

The Merced County Code (Title 18 – Zoning Code, Chapter 18.40) implements these standards and regulates noise considered a public nuisance. The code also restricts construction activities to the hours of 7:00 a.m. to 6:00 p.m. daily, unless otherwise permitted by the County.

GROUNDBORNE VIBRATION

Groundborne vibration can result from construction activities or heavy equipment operation and may affect nearby structures or sensitive receptors. Vibration levels are typically measured in peak particle velocity (ppv). According to Caltrans guidance, vibration from continuous sources such as construction equipment becomes perceptible to people at approximately 0.04 inches per second (in/sec) ppv and may be considered annoying at about 0.2 in/sec ppv. Structural damage to typical buildings is generally not expected below 0.5 in/sec ppv, which is commonly used as a conservative threshold for potential building damage.

PROJECT SETTING

Noise-Sensitive Land Uses

Noise-sensitive receptors in the project area consist predominantly of rural residential dwellings and employee housing. The nearest employee housing is approximately 650 feet north of the project site. The nearest residential land use is approximately 1,020 feet northwest of the proposed pelletizing plant. Additional residential dwellings are south of the project site, along Johnson Avenue, and east of the project site, across SR 162.

Ambient Noise Environment

To document existing ambient noise levels at the project site, short-term ambient noise measurements were conducted on January 14, 2026. Noise measurements were conducted using a Larson Davis Laboratories, Type I, Model LxT sound-level meter positioned at a height of approximately 5 feet above ground level. Noise measurement equipment was calibrated prior to and upon completion of the noise measurement survey. Short-term measured ambient noise levels are summarized in Table 8.

Based on the noise measurements conducted, daytime ambient noise levels in the vicinity of nearby noise-sensitive land uses range from approximately 54 to 67 dBA L_{eq}. Ambient noise levels were influenced primarily by vehicle traffic on area roadways.

Table 8. Summary of Short-term Measured Ambient Noise Levels

Location	Location Description	Monitoring Period	Noise Levels (dBA)	
			L_{eq}	L_{max}
ST1	SR 165 at Fowler Road. Approximately 45 feet from SR 165.	0710–0720	65.2	81.4
ST2	Fowler Road. Near the northwestern project site boundary. Approximately 25 feet from road centerline.	0745–0755	57.6	60.3
ST3	Johnson Avenue. Near the northwestern project site boundary. Approximately 25 feet from road centerline.	0900–0910	54.1	57.3
ST4	Near the southeastern project site boundary.	0803–0813	53.7	55.4
ST5	SR 165 at Johnson Avenue. Approximately 43 feet from SR 165.	0920–0930	67.1	79.4

Note: Ambient noise measurements were conducted using a Larson Davis Laboratories, Type I, LxT integrating sound-level meter placed at a height of approximately 5 feet above ground level. Equipment was calibrated prior to and upon completion of the noise measurements.

Environmental Evaluation

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

Less than Significant Impact with Mitigation Incorporated. Potential short-term and long-term noise impacts associated with the proposed project are discussed below.

Short-Term Construction Noise Impacts

Construction noise typically occurs intermittently and varies depending upon the phase (e.g., land clearing, grading, excavation, and erection). Noise generated by construction equipment, including earthmovers, material handlers, and portable generators can reach high levels. Noise levels commonly associated with off-road equipment anticipated to be used during project construction are summarized in Table 9.

As noted in Table 9, instantaneous noise levels generated by individual pieces of off-road equipment anticipated to be required for this project would range from approximately 75 to 80 dBA L_{max} at 50 feet. Typical operating cycles may involve 2 minutes of full power, followed by 3 or 4 minutes at lower settings. Based on typical off-road equipment usage rates, average hourly noise levels for individual equipment would be approximately 79 dBA L_{eq}, or less, at 50 feet. Assuming that multiple pieces of equipment could be operating simultaneously, predicted average hourly noise levels could reach levels of approximately 85 dBA at 50 feet.

Table 9. Typical Construction Equipment Noise Levels

Equipment	Typical Noise Level (dBA) at 50 Feet from Source	
	L_{max}	L_{eq}
Backhoe	78	74
Concrete Truck	79	75
Trencher	80	77
Forklift	83	79
Scissor Lift	75	68
Paver	77	74
Roller	80	73

Source: Federal Highway Administration (FHWA) Roadway Construction Noise Model

Notes: dBA = A-weighted decibels; L_{max} = Maximum sound level; L_{eq} = Equivalent sound level

The nearest noise-sensitive land uses located in the vicinity of the proposed project site is a residential dwelling located approximately 1,020 feet northwest of the project site. The nearest worker housing is approximately 650 feet north of the project site. Based on the equipment noise levels noted in Table 9 and assuming all equipment would be operating simultaneously, predicted noise levels at this nearest existing off-site residence would be 58 dBA L_{eq}, or less. Predicted noise levels at the nearest on-site worker housing would be 62 dBA L_{eq}. With regard to residential land uses, activities occurring during the more noise-sensitive evening and nighttime hours are of increased concern. Increases in ambient noise levels during these hours could result in increased levels of annoyance and potential sleep disruption to building occupants. Based on the modeling conducted, predicted construction noise levels would not exceed the daytime or nighttime noise standards of 80 and 70 dBA L_{eq}, respectively. However, with regard to residential land uses, increases in ambient noise levels during the more noise-sensitive evening and nighttime hours would be of particular concern. Substantial increases in ambient noise levels associated with project construction during these more noise-sensitive periods of the day could result in increased levels of annoyance and potential sleep disruption to building occupants. As a result, this impact would be considered potentially significant.

Use of mufflers would reduce individual equipment noise levels by approximately 10 dBA (Federal Highway Administration [FHWA] 2025). Implementation of MM NO-1 below would limit construction activities to the less noise-sensitive periods of the day and require the use of mufflers and other best

practices. With implementation of MM NOI-1 and because activities would be short-term, this impact would be considered *less than significant with mitigation incorporated*.

Long-Term Operational Noise Impacts

The proposed pelletizing plant would include the installation of multiple electrical motors associated with various pelletizing processes and equipment (e.g., loading hopper, sieves, mixers, feeding bins, pellet mill, line dust recovery). Electrical motors would range from less than 30 amps to as large as approximately 100 amps for motors associated with the pellet mill. Predicted operational noise levels were calculated for major processes and equipment based on representative noise levels derived from manufacturer data, which were estimated to range from approximately 95 to 98 dBA at one meter, depending on motor size. To be conservative, all process motors were assumed to operate simultaneously. An average building attenuation of 15 dB was applied. Based on the modeling conducted, the highest combined operational noise levels within the exterior of the pelletizing plant would be approximately 92 dBA L_{50}/L_{eq}.

The nearest off-site noise-sensitive land use is a residential dwelling located approximately 1,020 feet northwest of the pelletizing plant. Based on this distance and assuming a maximum noise level of 92 dBA L_{eq}/L_{50} at the plant, predicted exterior operational noise levels at this nearest residence would be approximately 41 dBA L_{50}/L_{eq}. Predicted noise levels at the nearest on-site worker housing, which is approximately 650 feet north of the project, would be 45 dBA L_{eq}/L_{50}. Predicted noise levels would not exceed the County's daytime or nighttime noise standards (i.e., 55 and 50 dBA L_{50}/L_{eq}, respectively). As a result, this impact would be considered *less than significant*, and mitigation is not necessary.

On-Road Vehicle Traffic

Typically a doubling of vehicle traffic would be required before a noticeable increase in ambient noise levels would occur, which is often defined as an increase of 3 dB. The proposed project is estimated to require the addition of approximately 15 employees. Assuming a total of approximately 15 employees and two daily trips per employee, implementation of the proposed project would be anticipated to result in approximately 30 vehicle trips per day along area roadways. Primary access to the project site would be via SR 165. Vehicle trips along SR 165 average approximately 1,500 to 1,700 vehicles during peak hour operations (Caltrans 2026). The project would not result in increases in truck trips. As a result, implementation of the proposed project would not be anticipated to result in a substantial increase in vehicle traffic that would result in noticeable increases in ambient noise levels This impact would be considered *less than significant*, and mitigation is not necessary.

b) Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Less than Significant Impact. In comparison to existing operations, operational activities associated with the proposed project would not involve the use of any new equipment or processes that would result in potentially significant levels of ground vibration. Increases in groundborne vibration levels attributable to the proposed project would be primarily associated with short-term construction-related activities. Construction equipment required for proposed project typically includes smaller equipment (e.g., concrete trucks, backhoes, trenchers, forklifts, scissor lifts, roller compactors). Groundborne vibration levels associated with these types of construction equipment would be approximately 0.003 to 0.076 in/sec ppv at 25 feet (Caltrans 2020).

The nearest existing off-site structures in relation to proposed on-site construction areas would be located approximately 1,020 feet, or more, from on-site construction areas. Based on this distance and assuming a maximum vibration level of 0.076 in/sec ppv at 25 feet, predicted vibration levels at the nearest off-site

structures would be approximately 0.001 in/sec ppv. Predicted groundborne vibration levels at the nearest on-site worker housing would be approximately 0.002 in/sec ppv. Predicted vibration levels at the nearest existing off-site structures would not be projected to exceed commonly applied criteria for structural damage (i.e., 0.5 in/sec ppv). Predicted vibration levels at the nearest occupied off-site and on-site residences would not exceed the threshold for human annoyance (i.e., 0.2 in/sec ppv). Therefore, impacts would be *less than significant*, and mitigation is not necessary.

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

No Impact. The project site is not within 2 miles of a public airport or private airstrip. The nearest airport is the Turlock Airport located approximately 1.9 miles north of the project site. The proposed project site is not within the projected noise contours of Turlock Airport (County of Merced 2012). Implementation of the proposed project would not result in the exposure of sensitive receptors to aircraft noise levels, nor would the proposed project affect airport operations. Therefore, *no impact* would occur.

Conclusion

The project would not generate a substantial increase in temporary or permanent ambient noise levels and would not generate groundborne noise in a manner that would result in disturbance. Implementation of the mitigation measure MM N-1 would limit construction activities to the less noise-sensitive periods of the day. With implementation of MM N-1 and because activities would be short-term, noise disturbance from construction would be less than significant. Additionally, the project site is not within an airport land use plan or within 2 miles of an airport. Therefore, with implementation of MM N-1, potential impacts related to noise would be less than significant.

Mitigation Measures

MM N-1 The following measures shall be implemented to reduce short-term construction-related noise impacts:

a. Noise sources associated with construction shall be limited to between 7:00 a.m. and 6:00 p.m., daily.

b. Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.

XIV. Population and Housing

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

Setting

As of 2023, Merced County had a population of approximately 241,402 residents. The average population per household is approximately 3.37 persons in the county (U.S. Census Bureau 2024). By 2046, Merced County is projected to increase by approximately 82,000 persons (a 29% increase), 34,000 households (a 42% increase), and 27,000 jobs (a 32% increase) (MCAG 2022a). There are no existing residences located on the project site.

The project site is in an unincorporated, agricultural area designated Agriculture under the *2030 Merced County General Plan* and zoned A-1 (General Agriculture). The immediate vicinity of the project site is characterized by active agricultural operations, agricultural support facilities, and scattered rural residences, including existing worker housing associated with farming activities (County of Merced 2013).

Environmental Evaluation

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

Less than Significant Impact. The proposed project would involve the construction and operation of an agricultural manure pelletizing facility intended to process poultry manure generated by nearby farms. The project does not include residential development, expansion of public infrastructure, or extension of utilities that would enable new housing or population growth in the area. The project site is designated Agriculture in the *2030 Merced County General Plan* and zoned A-1 (General Agriculture), and the proposed use is consistent with growth projections already accounted for in the General Plan.

Project operations would employ approximately 10 to 15 workers. These positions would primarily be filled by existing local workers. Given the limited number of employees and the agricultural nature of the use, the project would not induce substantial population growth, either directly or indirectly. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

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

No Impact. The project site does not contain existing residential dwellings or occupied housing units within the proposed area of disturbance. No residential structures would be demolished or relocated as part of project construction. While worker housing exists elsewhere on the broader parcel, the proposed project would be sited within an area historically used for agricultural operations and would not require removal or displacement of existing housing.

Accordingly, the project would not displace any residents or housing units and would not necessitate the construction of replacement housing. Therefore, *no impact* would occur.

Conclusion

The project would not induce substantial planned or unplanned population growth and would not necessitate the construction of replacement housing elsewhere. Therefore, impacts related to population and housing would be less than significant, and mitigation is not necessary.

Mitigation Measures

Mitigation is not necessary.

XV. Public Services

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

Setting

The project site is in an unincorporated area of Merced County. The surrounding area is characterized by agricultural operations and related agri-industrial uses, with nearby communities including Hilmar approximately 1.5 miles to the south, the City of Turlock approximately 2 miles to the north, and the community of Delhi approximately 3 miles to the east.

Fire protection services in unincorporated areas of Merced County are provided by the Merced County Fire Department (MCFD). Emergency response to the project site would be provided by MCFD resources serving the Hilmar area, with the nearest staffed fire station located at 20021 Falke Street in Hilmar, approximately 2.5 miles south (Merced County Fire Department 2026).

Law enforcement services for the project site are provided by the Merced County Sheriff's Office (MCSO), which is responsible for public safety and law enforcement in unincorporated areas of the county. Sheriff's Office services to the project site are provided through regional patrol operations serving the Hilmar area, with administrative and support facilities located at 9481 Shanks Road in Delhi, approximately 3.70 miles east of the project site (MCSO 2026).

Educational services in Merced County are provided by multiple public school districts and post-secondary institutions. Countywide, there are approximately 20 school districts with about 90 public schools, one community college district with two campuses, and one public university. There are seven schools under the Hilmar Unified School District (Merced County Office of Education 2026).

Parks and recreational services in Merced County are provided by county, state, and federal agencies. The county contains approximately 114,000 acres of parks and recreational facilities, including regional parks, wildlife refugees, and open space lands that provide recreational opportunities such as picnicking, boating, hunting, wildlife viewing, and hiking. No parks or recreational facilities are adjacent to the project site (County of Merced 2013).

Environmental Evaluation

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

Fire protection?

Less than Significant Impact. The proposed project would involve construction and operation of an agricultural manure pelletizing facility on an existing agricultural parcel. The project would not include residential development and would employ a limited number of workers (approximately 10 to 15 employees). The facility would be required to comply with applicable fire codes and permitting requirements, including review by MCFD and adherence to the CFC. Given the limited employment increase and compliance with fire safety standards, the project would not result in a substantial increase in demand for fire protection services or require the construction of new or expanded fire facilities. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

Police protection?

Less than Significant Impact. The project would not introduce residential uses or large public-serving facilities that would substantially increase demand for law enforcement services. Project operations would occur on private property with controlled access and would be consistent with surrounding agricultural and agri-industrial uses. The limited number of employees and truck trips associated with the project would not significantly affect law enforcement service demands or response times. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

Schools?

No Impact. The project does not include residential development and would not directly or indirectly generate new permanent residents. Employment associated with the project would be limited and would largely draw from the existing local workforce. The project would not increase student enrollment or require new or expanded school facilities. Therefore, *no impact* would occur.

Parks?

Less than Significant Impact. The project would not generate new residential population or substantially increase demand for parks or recreational facilities. Employees would represent a small number of workers and would not materially affect park usage levels. The project would not require the construction or expansion of parks or recreational facilities. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

Other public facilities?

Less than Significant Impact. The project would not increase demand for libraries, emergency medical facilities, or other public facilities beyond existing service capacities. No new or physically altered public facilities would be required to serve the project. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

Conclusion

The project would not increase demand for fire or police protection services, schools, parks, libraries, or other public facilities. Therefore, impacts related to public services as a result of the project would be less than significant, and mitigation is not necessary.

Mitigation Measures

Mitigation is not necessary.

XVI. Recreation

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

Setting

Merced County contains several federal, state, and county parks and recreational areas in addition to public open space areas. There are approximately 114,000 acres of parks and recreational facilities in the county that offer a variety of amenities, such as picnicking, swimming, boating, hunting, bird-watching,

playgrounds, sports fields, and hiking. The nearest recreational opportunities are off-site within nearby communities, including Hilmar, Turlock, and Delhi, as well as regional parks and open space areas throughout Merced County (County of Merced 2013). The area surrounding the project site is characterized by agricultural operations and agri-industrial land uses. There are no designated public parks, recreational facilities, or recreational trails located on or immediately adjacent to the project site.

Environmental Evaluation

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

Less than Significant Impact. The proposed project would involve the construction and operation of an agricultural manure pelletizing facility and would not include residential development. Project operations would employ approximately 10 to 15 workers, most of whom would be drawn from the existing local workforce. The limited number of employees associated with the project would not result in a substantial increase in demand for recreational facilities.

Given the project's nonresidential nature and small workforce, the project would not significantly increase the use of nearby neighborhood or regional parks or recreational facilities, nor would it accelerate physical deterioration of existing facilities. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

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

No Impact. The project does not include the construction of recreational facilities, nor does it require the expansion or modification of existing parks or recreational amenities. The project site would remain a private, agricultural support facility with controlled access and would not be available for public recreational use.

Because no recreational facilities are proposed and no expansion of recreational services would be required to serve the project, the project would not result in adverse physical effects related to recreation. Therefore, *no impact* would occur.

Conclusion

The project would not increase the use of existing recreational facilities in a manner that would lead to substantial deterioration of existing recreational facilities or require the development of new or expanded recreational facilities. Therefore, impacts are less than significant, and mitigation is not necessary.

Mitigation Measures

Mitigation is not necessary.

XVII. Transportation

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

Setting

The project site is at 20167 Fowler Road in an unincorporated area of Merced County, near the community of Hilmar. Fowler Road is an east/west two-lane undivided road with no posted speed limit or pedestrian or bicycle facilities in the vicinity of the project. The nearest cross street is SR 165, which is a north/south two-lane highway with left turn lanes at the Fowler Road intersection. The surrounding circulation network includes local rural roads designed to accommodate agricultural equipment, heavy trucks, and commodity transport typical of the region.

The MCAG 2022 RTP/SCS identifies strategies to maintain efficient operation of the regional transportation system, support agricultural and goods movement, and manage VMT consistent with Senate Bill 743 (MCAG 2022).

The *2030 Merced County General Plan Transportation and Circulation Element* establishes goals and policies to meet the needs of motorists, bicyclists, and pedestrians, as well as the movement of farm equipment and agricultural commodities (County of Merced 2013). Rural roadways in agricultural areas are intended to accommodate truck traffic and agricultural operations consistent with the County's functional roadway classification system.

A Transportation Impact Analysis (TIA) for the project was prepared by CCTC (2025). The TIA evaluated project trip generation, site access, roadway operations, and VMT consistency with State CEQA Guidelines Section 15064.3.

Environmental Evaluation

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

No Impact. As documented in the *2030 Merced County General Plan Land Use and Community Character Element*, the project would be consistent with the project site's General Plan land use designation and zoning designation. Therefore, the project is consistent with the assumptions of the MCAG 2022 RTP/SCS and *2030 Merced County General Plan Transportation and Circulation Element*.

The proposed use is consistent with the County's agricultural land use designation and rural roadway classifications, which are intended to accommodate heavy vehicles and agricultural commodity transport (County of Merced 2013). The project does not propose to remove or alter existing transit, roadway, bicycle, or pedestrian facilities. The project would use existing transportation facilities and the project's proposed internal roadways and parking spaces would not conflict with planned circulation improvements for the area. As discussed below in *Impact Discussion XVII.b*, vehicle trips generated by the project would be minimal and would have a less-than-significant impact, and therefore would not conflict with roadway programs, plans, ordinances or policies. Therefore, the project would not conflict with a program plan, ordinance, or policy addressing the circulation system, and *no impact* would occur.

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

Less than Significant Impact. State CEQA Guidelines Section 15064.3 covers the evaluation of a project's transportation impacts and requires that the TIA consider VMT. State CEQA Guidelines Section 15064.3(a), states, "For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project." Here, the term "automobile" refers to on-road passenger vehicles, specifically cars and light trucks, as defined in the *Technical Advisory on Evaluating Transportation Impact in CEQA* (California Governor's Office of Planning and Research [OPR]2018). Heavy-duty trucks, such as those associated with materials and equipment delivery, would not be considered in the evaluation of VMT impacts under the requirements of State CEQA Guidelines Section 15064.3.

OPR's Technical Advisory notes that projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant impact. The County has not adopted VMT thresholds at this time but is expected to consider and possibly adopt the *VMT Thresholds and Implementation Guidelines* prepared for the MCAG (MCAG 2022). These guidelines recommend a screening threshold of 1,000 trips per day for projects consistent with the lead agency's General Plan.

The proposed facility is anticipated to operate up to 6 days per week and 24 hours per day. The facility will initially operate Monday through Thursday from 6:00 a.m. to 6:00 p.m.. Eventually the facility will operate Monday through Saturday with two shifts (5:00 a.m.–5:00 p.m. and 5:00 p.m.–5:00 a.m.) with approximately 15 employees. The number of vehicle trips generated by the project was estimated using the ITE *Trip Generation Manual 12th Edition*. Table 10 summarizes the trip generation for the proposed manure pelletizing facility.

Table 10. Trip Generation

Land Use	Size	Weekday Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Manufacturing	15 Employees	54	4	2	6	6	13	19

Source: ITE *Trip Generation Manual, 12th Edition*. Land Use Code #140, Manufacturing; fitted curve equations used.

The proposed project would generate 54 net new vehicle trips per weekday, including six AM peak hour trips and 19 PM peak hour trips using ITE rates. The estimated project trip generation is well below the recommended screening thresholds from both OPR and MCAG. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

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

Less than Significant Impact. The project site would be accessed via Fowler Road, which routinely accommodates agricultural trucks and farm equipment, similar to the types of hauling trucks and vehicles that would access the project site. No improvements to this driveway would be required for the proposed project; therefore, the proposed project would not introduce new hazardous roadway design features. The project would be consistent with surrounding land uses and would not introduce new incompatible uses (i.e., farm equipment) along nearby roadways. Therefore, the project would not increase roadway hazards. This impact would be *less than significant*, and mitigation is not necessary.

d) Would the project result in inadequate emergency access?

Less than Significant Impact. The project would maintain direct access to Fowler Road and would provide internal circulation areas sufficient for emergency vehicle access. The existing driveway provides adequate emergency and worker access to the project site and no improvements are necessary. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

Conclusion

The project would not conflict with a program plan, ordinance, or policy addressing the circulation system or generate a substantial increase in VMT or new vehicle trips. The proposed project would not introduce new hazardous roadway design features or incompatible land uses or result in inadequate emergency access. Therefore, impacts related to traffic and transportation would be less than significant, and mitigation is not necessary.

Mitigation Measures

Mitigation is not necessary.

XVIII. Tribal Cultural Resources

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
(i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☐	☒

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

Setting

Approved in 2014, AB 52 added tribal cultural resources to the categories of resources that must be evaluated under CEQA. Tribal cultural resources are defined as either of the following:

1. Sites, features, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
    a. Included or determined to be eligible for inclusion in the CRHR; or
    b. Included in a local register of historical resources as defined in PRC Section 5020.1(k).
2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in PRC Section 5024.1(c). In applying these criteria for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American Tribe.

Recognizing that tribes have expertise with regard to their Tribal history and practices, AB 52 requires lead agencies to provide notice to tribes that are traditionally and culturally affiliated with the geographic area of a proposed project if they have requested notice of projects proposed within that area. If the Tribe requests consultation within 30 days of receipt of the notice, the lead agency must consult with the Tribe regarding the potential for adverse impacts on tribal cultural resources as a result of a project. Consultation may include discussing the type of environmental review necessary, the presence and/or significance of tribal cultural resources, the level of significance of a project's impacts on the tribal cultural resources, and available project alternatives and mitigation measures recommended by the Tribe to avoid or lessen potential impacts on tribal cultural resources.

Environmental Evaluation

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

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

No Impact. The project site is currently undeveloped and the project does not include the demolition or removal of any built resources; therefore, the project would not have the potential to adversely affect any historical resources, and *no impact* would occur.

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

Less than Significant with Mitigation Incorporated. Pursuant to AB 52, the County provided notice to local California native tribes with geographic and/or cultural ties to the project region. Referral letters were sent to Tribal representatives on April 7, 2026. No tribes requested consultation or provided information regarding significant tribal cultural resources to date.

There are no known resources present at the project site. However, Mitigation Measure CR-1 has been included in the unlikely event that previously unidentified cultural resources are uncovered during proposed ground-disturbing activities. In addition, the project would be required to comply with California Health and Safety Code Section 7050.5, which outlines the protocol for unanticipated discovery of human remains. Based on the implementation of Mitigation Measure CR-1 and required compliance with California Health and Safety Code Section 7050.5, the project would not result in adverse impacts to known or unknown cultural resources, and impacts would be *less than significant with mitigation*.

Conclusion

With the implementation of MM CR-1 and required compliance with California Health and Safety Code Section 7050.5, the project would not result in adverse impacts to known or unknown tribal cultural resources. Therefore, with the implementation of MM CR-1, impacts related to tribal cultural resources would be less than significant.

Mitigation Measures

Implement MM CR-1.

XIX. Utilities and Service Systems

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

Setting

The project site is near the unincorporated community of Hilmar in the Merced Subbasin of the San Joaquin Valley Groundwater Basin in Merced County, California. There are nine water and sewer districts that provide potable water and sewer collection services to residents in the county. The project site would be provided with water and wastewater services by an existing well and septic system located at the Gemperle Family Farms operation. There are two active solid waste landfills within the county that are owned and operated by the Merced County Regional Waste Management Authority. The Highway 59 Landfill is at 7040 North Highway 59 and accepts mixed municipal waste, green and wood materials, tires, and household hazardous wastes. (California Department of Resources Recycling and Recovery 2005). The Billy Wright Landfill is at 17173 South Billy Wright Road in Los Banos and accepts mixed municipal waste, construction and demolition waste, and agricultural waste (California Department of Resources Recycling and Recovery 2010).

Existing utilities present at the project site include electricity, natural gas, solid waste disposal services, and telecommunications. Utilities serving the project would include extended underground electrical lines, natural gas service to support dryers or heating systems, and water service provided by an on-site well. Wastewater would be managed through on-site septic systems, and no industrial wastewater discharge is anticipated.

The project site, located at 20167 Fowler Road near the unincorporated community of Hilmar in Merced County, is served by existing utility infrastructure typical of rural agricultural and industrial uses. Utilities available in the vicinity include electricity, natural gas, solid waste disposal services, and telecommunications. Water supply and wastewater services in the project area are not provided by a

municipal system; instead, agricultural and industrial uses in the vicinity typically rely on on-site water supply systems and on-site wastewater management practices consistent with County of Merced and RWQCB requirements.

Environmental Evaluation

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

Less than Significant with Mitigation Incorporated. The project would connect to existing utility infrastructure present within the footprint of the project site, and in compliance with applicable utility provider and County standards. The potential environmental effects of the project's ground-disturbing activities, including the construction of utility connections, have been evaluated throughout this Initial Study, and found to be less than significant with the mitigation measures identified herein. Further, given the size of the project, nature of the proposed uses, and adequacy of existing utilities as discussed in *Impact Discussions XIX.b through XIX.d*, the project and associated consumption of resources would not necessitate new facilities that could result in significant impacts. The project would not require new or expanded utility facilities that could result in significant environmental effects. Impacts would be less than significant with implementation of MM CR-1.

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

Less than Significant Impact. The project would rely on on-site water supply systems, with water demand typical of an agricultural processing facility and limited to equipment washdown, dust suppression, and domestic uses. The project does not involve the development of new water-intensive uses, expansion of agricultural irrigation, or connection to a municipal water system. Water use would be managed in accordance with applicable County and RWQCB requirements, and no substantial increase in groundwater extraction beyond typical agricultural practices is anticipated. Sufficient water supplies would be available to serve the project during normal, dry, and multiple dry years. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

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

No Impact. The project site is not served by a municipal wastewater treatment provider. Wastewater generated by the proposed project would be diverted to on-site wastewater septic tanks, which would be periodically emptied by private services. Because the project would not discharge wastewater to a municipal system, and no new centralized wastewater treatment facilities are proposed, no determination of capacity is required and therefore, no impact would occur.

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

Less than Significant Impact. Construction of the project may result in a temporary increase in solid waste, which would be disposed of in accordance with applicable state and local laws and regulations, such as California Green Building Standards Code (CALGreen) Sections 4.408 and 5.408, which require diversion of at least 75% of construction waste. Based on required compliance with CALGreen regulations, the construction of the project would not generate solid waste in excess of local infrastructure capacity. The project includes the construction and operation of a manure pelletizing facility and associated equipment, which would result in a marginal increase in operational solid waste. Solid waste generated during project construction and operation would be disposed of at either the Highway 59 Landfill or Billy Wright Landfill, which have adequate capacity to accept the marginal amount of solid waste generated by the proposed project. The proposed project would not generate waste in excess of state or local standards or in excess of the capacity of local infrastructure. Therefore, impacts would be *less than significant*, and mitigation is not necessary.

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

No Impact. As previously described, the operation of the project would result in a marginal increase in solid waste, and construction-related waste (i.e., demolished materials) would be disposed of according to federal and state regulations, including CALGreen standards for diversion of construction waste. Operational and construction-related solid waste would be disposed of in accordance with applicable federal, state, and local waste requirements. Therefore, *no impact* would occur.

Conclusion

There would be adequate water supply and wastewater treatment capacity to serve the project. Further, the proposed project would not generate waste in excess of state or local standards or in excess of the capacity of local infrastructure and would be consistent with applicable federal, state, and local waste requirements. With the implementation of the identified mitigation measures, impacts related to utilities and service systems would be less than significant.

Mitigation Measures

Implement MM CR-1.

XX. Wildfire

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
(a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

	Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(b)	Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
(c)	Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
(d)	Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

Setting

According to the California Department of Forestry and Fire Protection (CAL FIRE) Fire Hazard Severity Zone mapping, the project site is not within a State Responsibility Area (SRA) and is not classified as a Very High Fire Hazard Severity Zone (VHFHSZ) (CAL FIRE 2024). The nearest VHFHSZ are over 15 miles away from the project site.

Environmental Evaluation

a) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

No Impact. The project site is not in or near an SRA or lands classified as a VHFHSZ. Therefore, *no impact* would occur.

b) Due to slope, prevailing winds, and other factors, if located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

No Impact. See *Impact Discussion XX.a*.

c) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

No Impact. See *Impact Discussion XX.a*.

d) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact. See *Impact Discussion XX.a*.

Conclusion

The project is not in or near an SRA or a VHFHSZ. Therefore, no impact related to wildfire would occur.

Mitigation Measures

Mitigation is not necessary.

XXI. Mandatory Findings of Significance

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

Setting

Environmental Evaluation

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

Less than Significant with Mitigation Incorporated. As discussed in Section IV, *Biological Resources*, the BRA identified the potential for two special-status wildlife species, Swainson's hawk and tricolored blackbird, to occur at the project site. The BRA also identified the potential for nesting birds protected under the MBTA and CFGC to be present. MM BIO-1 and MM BIO-2 would require preconstruction nesting surveys conducted by a Qualified Biologist, the establishment of species-appropriate avoidance buffers (including a 0.25-mile buffer for active Swanson's hawk nests), and monitoring or work restrictions if construction activities have the potential to disturb active nests. With implementation of these measures, the project would not substantially reduce the number or restrict the range of a rare or endangered plant or animal. The project would not result in the loss of wetlands, riparian habitat, or wildlife corridors, nor would it substantially reduce the habitat of a fish, wildlife species, and special-status plants or cause populations to drop below self-sustaining levels.

As discussed in Section V, *Cultural Resources*, and Section XVIII, *Tribal Cultural Resources*, analyses determined that no known historical or archaeological resources are present within the project area. Standard inadvertent discovery measures (MM CR-1) and compliance with California Health and Safety Code Section 7050.5 would ensure protection of previously unidentified cultural materials or human remains. Therefore, the project would not eliminate important examples of California history or prehistory.

Based on the implementation of MM BIO-1, MM BIO-2, and MM CR-1, the cumulative effects of the proposed project would be *less than significant with mitigation*.

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. When project impacts are considered alone or in combination with other impacts, the project-related impacts may be significant. Construction and operation of the project would contribute to cumulative impacts related to biological resources and cultural and tribal cultural resources. Mitigation measures have been incorporated into the project to reduce project-related impacts to a less-than-significant level. Based on the implementation of MM BIO-1, MM BIO-2, MM CR-1, and MM NOI-1, the cumulative effects of the proposed project would be *less than significant with mitigation*.

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

There are no significant and unavoidable project-specific impacts related to air emissions, GHG emissions, hazards and hazardous materials, noise, or other impacts that could result in substantial adverse effects on human beings, either directly or indirectly. Therefore, impacts would be *less than significant*.

Conclusion

Based on the analysis contained in this IS/MND and the incorporation of identified mitigation measures for biological and cultural resources, the proposed Gemperle Family Manure Pelletizing Facility would not result in significant adverse environmental impacts. The project would not substantially degrade environmental quality, would not result in cumulatively considerable impacts, and would not cause substantial adverse effects on human beings.

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APPENDIX A

Air Quality and Greenhouse Gas Impact Analysis

AIR QUALITY & GREENHOUSE GAS IMPACT ANALYSIS

FOR

GEMPERLE FAMILY FARMS MANURE-BASED FERTILIZER PELLETIZING FACILITY PROJECT

MERCED COUNTY, CA

MARCH 2026

PREPARED BY:

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APPENDICES

Appendix A: Emissions Modeling

LIST OF COMMON TERMS & ACRONYMS

AAM	Annual Arithmetic Mean
AHERA	Asbestos Hazard Emergency Response Act
ATCM	Airborne Toxic Control Measure
BAAQMD	Bay Area Air Quality Management District
CAAQS	California Ambient Air Quality Standards
ARB	California Air Resources Board
CCAA	California Clean Air Act
CEQA	California Environmental Quality Act
CH_4	Methane
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
DPM	Diesel-Exhaust Particulate Matter or Diesel-Exhaust PM
DRRP	Diesel Risk Reduction Plan
FCAA	Federal Clean Air Act
GHG	Greenhouse Gases
HAP	Hazardous Air Pollutant
IPCC	Intergovernmental Panel on Climate Change
LOS	Level of Service
N_2O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NESHAPs	National Emission Standards for HAPs
NO_x	Oxides of Nitrogen
O_3	Ozone
Pb	Lead
PM	Particulate Matter
PM_{10}	Particulate Matter (less than 10 µm)
$PM_{2.5}$	Particulate Matter (less than 2.5 µm)
ppb	Parts per Billion
ppm	Parts per Million
ROG	Reactive Organic Gases
SIP	State Implementation Plan
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	Sulfur Dioxide
TAC	Toxic Air Contaminant
TSCA	Toxic Substances Control Act
µg/m^3	Micrograms per cubic meter
U.S. EPA	United State Environmental Protection Agency

INTRODUCTION

This report describes the existing environment in the project vicinity and identifies potential air quality and greenhouse gas impacts associated with the proposed project. Project impacts are evaluated relative to applicable thresholds of significance.

PROPOSED PROJECT SUMMARY

The project site consists of an 8-acre portion of an approximately 40-acre parcel ("parent parcel") located at 20167 Fowler Road, near the community of Hilmar, in unincorporated Merced County, California (Assessor's Parcel Number 045-100-033). The project site is situated on the south side of West Fowler Road, approximately 730 feet west of North Lander Avenue (State Route 165).

The project site occupies the rear (southern) portion of the larger parcel and is set back from Fowler Road and away from existing agricultural buildings and worker housing units that are located on the northern portion of the property. Access to the project site would be provided via an internal private driveway system connecting to Fowler Road to the north and Johnson Road to the south.

PROPOSED PROJECT

Project Description

Gemperle Family Farms proposes to construct and operate a manure-based fertilizer pelletizing facility on an approximately 8-acre portion of a 40.55-acre property in unincorporated Merced County. The project would centralize the storage of poultry manure from nearby applicant-owned egg-layer farms and process the material, along with fertilizer amendments, into stabilized, pelletized fertilizer products for commercial sale.

The project involves construction and operation of three primary buildings totaling approximately 162,000 square feet, along with associated equipment, internal driveways, parking, utilities, and supporting infrastructure necessary to produce organic fertilizer pellets. The overall site layout, building locations, access routes, and supporting improvements. The project site plan is depicted in Figure 1.

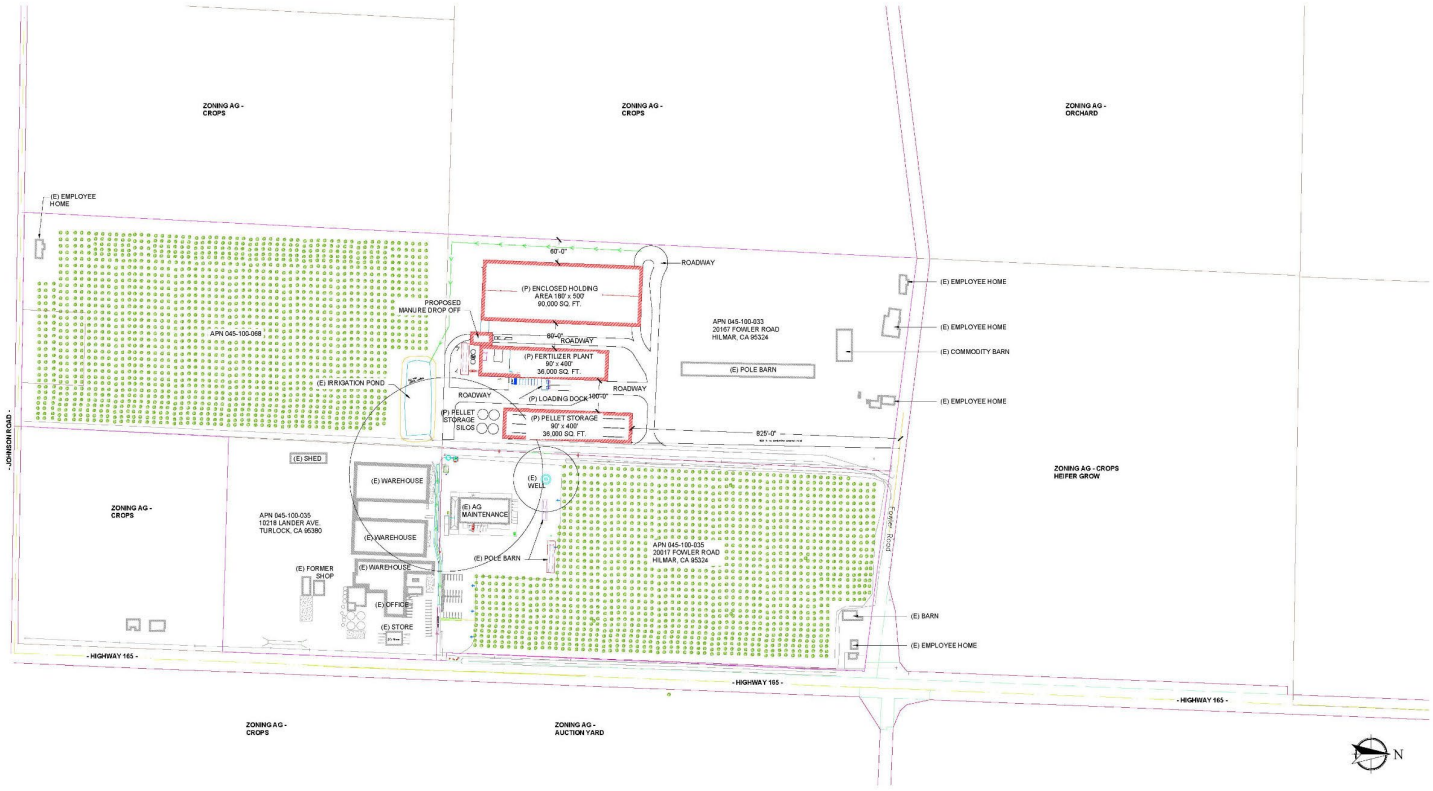
Buildings

The project would include construction of three primary buildings to support manure processing and fertilizer pellet production. A manure storage building, with an approximate footprint of 90,000 square feet, would be used to receive and temporarily store poultry manure delivered daily from adjacent Gemperle Family Farms prior to processing. The structure would be fully enclosed and designed as a low-occupancy agricultural facility. Features would include measures intended to minimize odor emissions and a designated manure offloading area located adjacent to internal circulation roadways to facilitate truck access.

The project would also include construction of a pelletizing plant, or processing building, with a footprint ranging from approximately 39,000 square feet, as depicted on the site plan and described in the project materials. This building would house the mechanical equipment required for screening, blending, pelletizing, drying, cooling, and stabilizing manure-based fertilizer products. The pelletizing plant would be designed as a commercial or industrial structure and would include a fire-sprinkler system, loading docks, and interior areas for temporary storage of finished, palletized products.

A bulk pellet storage warehouse, with an approximate footprint of 37,000 square feet, would be constructed to store finished fertilizer pellets in bulk form prior to off-site transport. This warehouse would be fully enclosed and generally unoccupied during normal operations, except for periodic loading activities. A conveyance system would connect the processing building to the storage warehouse to transfer finished pellets.

Figure 1. Project Site Plan



SWCA ENVIRONMENTAL CONSULTANTS

Source: Baez Design Group, September 2024

Other Structures and Equipment

The project would include a small administrative office, either within an existing structure or as a new building, to support employee functions, recordkeeping, and facility oversight. The exact size and location of the office would be finalized during detailed design.

Employee parking would be provided on site in close proximity to the processing building. A total of eight parking spaces, including one Americans with Disabilities Act compliant space, would accommodate employees working both daytime and nighttime shifts.

Storage areas would include exterior silos used to store fertilizer amendments that are classified as hazardous materials under applicable regulations. Additional storage for bagged and palletized finished products would be located within the processing building, while bulk storage of finished pellets would occur exclusively within the dedicated pellet storage warehouse.

Perimeter fencing would be installed around operational areas to provide site security and ensure safety. Exterior lighting would be limited to low-intensity, downward-directed fixtures located at building entrances, access points, and circulation areas, consistent with applicable County lighting standards and operational safety requirements.

Utilities serving the project would include new or extended underground electrical lines, natural gas service to support dryers or heating systems, and water service provided by an on-site well. Wastewater would be managed through on-site septic systems, and no industrial wastewater discharge is anticipated. Stormwater would be managed through site grading, drainage improvements, and implementation of best management practices in compliance with the Construction General Permit and applicable post-construction stormwater requirements.

Construction

Construction activities would include site preparation and minor grading within the project footprint, including the import of fill material to raise portions of the pellet storage warehouse building pad. Excavation would occur to depths of up to approximately 6 feet to accommodate installation of utilities and foundation piers. Construction would also involve erection of project buildings, development of internal driveways, and installation of paved or compacted hardscape, resulting in approximately 76,000 square feet of new impervious surface, as shown on the site plans. In addition, mechanical processing equipment and associated material conveyance systems would be installed within the processing buildings as part of facility construction.

Construction duration is anticipated to be 12 months, occurring during daytime hours in compliance with County construction-noise standards. Construction traffic would consist of haul trucks, worker trips, delivery vehicles, and material transport.

Operation

Operational activities at the proposed facility would occur on a variable schedule depending on production demand. At a minimum, the facility would operate up to four days per week for approximately 12 hours per day. At peak capacity, operations could occur up to six days per week on a continuous 24-hour basis. Initial operations are anticipated to occur Monday through Thursday between 6:00 a.m. and 6:00 p.m. Full-capacity operations would consist of two shifts, with the first shift operating from approximately 5:00 a.m. to 5:00 p.m. and the second shift operating from approximately 5:00 p.m. to 5:00 a.m.

The project would employ approximately 10 to 15 employees, including equipment operators and support staff. Truck drivers associated with manure transport and product distribution would primarily operate from adjacent Gemperle Family Farms facilities rather than being permanently stationed at the project site.

Project operations would not result in a net increase in manure haul trips from nearby poultry ranches, as manure that is currently transported off-site would instead be delivered to the on-site manure storage facility for processing. Average daily vehicle activity associated with operations is estimated to include

approximately seven truck trips per day for manure deliveries, five to six truck trips per day for off-site transport of finished fertilizer products, and 20 to 30 employee vehicle trips per day. When averaged over a seven-day week, total operational traffic is estimated at approximately 30 vehicle trips per day.

Processing equipment at the facility would include screening equipment, mixers and amendment silos, pellet mills, dryers used for product sterilization, coolers for product stabilization, and associated material-handling equipment such as conveyors, crumblers, bagging equipment, palletizers, and load-out systems. Finished products would consist of standard manure-based fertilizer pellets as well as custom blended organic fertilizer products. Products may be bagged, placed in totes, crumbled, or stored in bulk prior to off-site distribution.

Some fertilizer additives used in the production process are classified as hazardous materials under applicable regulations and would be stored in outdoor silos with appropriate containment and handling measures. Poultry manure itself is not classified as a hazardous material.

AIR QUALITY

EXISTING SETTING

The project is located within the San Joaquin Valley Air Basin (SJVAB). The SJVAB is within the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). Air quality in the SJVAB is influenced by a variety of factors, including topography, local and regional meteorology. Factors affecting regional and local air quality are discussed below.

Topography, Meteorology, and Pollutant Dispersion

The dispersion of air pollution in an area is determined by such natural factors as topography, meteorology, and climate, coupled with atmospheric stability conditions and the presence of inversions. The factors affecting the dispersion of air pollution with respect to the SJVAB are discussed below.

Topography

The SJVAB occupies the southern half of the Central Valley. The SJVAB is open to the north and is surrounded by mountain ranges on all other sides. The Coast Ranges, which have an average elevation of 3,000 feet, are along the western boundary of the SJVAB, while the Sierra Nevada Mountains (8,000 to 14,000 feet in elevation) are along the eastern border. The San Emigdio Mountains, which are part of the Coast Ranges, and the Tehachapi Mountains, which are part of the Sierra Nevada, form the southern boundary, and have an elevation of 6,000 to 8,000 feet. The SJVAB is mostly flat with a downward gradient in terrain to the northwest.

Meteorology and Climate

The SJVAB has an inland Mediterranean climate that is strongly influenced by the presence of mountain ranges. The mountain ranges to the west and south induce winter storms from the Pacific Ocean to release precipitation on the western slopes producing a partial rain shadow over the valley. In addition, the mountain ranges block the free circulation of air to the east, trapping stable air in the valley for extended periods during the cooler half of the year.

Winter in the SJVAB is characterized as mild and fairly humid, while the summer is typically hot, dry, and cloudless. The climate is a result of the topography and the strength and location of a semi permanent, subtropical high-pressure cell. During the summer months, the Pacific high-pressure cell is centered over the northeastern Pacific Ocean, resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below to the surface as a result of the northwesterly flow produces a band of cold water off the California coast. In winter, the Pacific high-pressure cell weakens and shifts southward, resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms.

The annual temperature, humidity, precipitation, and wind patterns reflect the topography of the SJVAB and the strength and location of the semi permanent, subtropical high-pressure cell. Summer temperatures that often exceed 100 degrees Fahrenheit (°F) and clear sky conditions are favorable to ozone formation. Most of the precipitation in the valley occurs as rainfall during winter storms. The winds and unstable atmospheric conditions associated with the passage of winter storms result in periods of low air pollution and excellent visibility. However, between winter storms, high pressure and light winds lead to the creation of low-level temperature inversions and stable atmospheric conditions, which can result in higher pollutant concentrations. The orientation of the wind flow pattern in the SJVAB is parallel to the valley and mountain ranges. Summer wind conditions promote the transport of ozone and precursors from the San Francisco Bay Area through the Carquinez Strait, a gap in the Coast Ranges, and low-mountain passes such as Altamont Pass and Pacheco Pass. During the summer, predominant wind direction is from the northwest. During the winter, the predominant wind direction is from the southeast. Calm conditions are also predominant during the winter (ARB 1992).

The climate in the project area is semi-arid, with an annual normal precipitation of approximately 12.21 inches. Temperatures in the project area range from an average minimum of approximately 36 degrees Fahrenheit (°F), in January, to an average maximum of 97°F, in July (WRCC 2017).

Atmospheric Stability and Inversions

Stability describes the resistance of the atmosphere to vertical motion. The stability of the atmosphere is dependent on the vertical distribution of temperature with height. Stability categories range from "Extremely Unstable" (Class A), through Neutral (Class D), to "Stable" (Class F). Unstable conditions often occur during daytime hours when solar heating warms the lower atmospheric layers sufficiently. Under Class A stability conditions, large fluctuations in horizontal wind direction occur coupled with large vertical mixing depths. Under Class B stability conditions, wind direction fluctuations and the vertical mixing depth are less pronounced because of a decrease in the amount of solar heating. Under Class C stability conditions, solar heating is weak along with horizontal and vertical fluctuations because of a combination of thermal and mechanical turbulence. Under Class D stability conditions, vertical motions are primarily generated by mechanical turbulence. Under Class E and Class F stability conditions, air pollution emitted into the atmosphere travels downwind with poor dispersion. The dispersive power of the atmosphere decreases with progression through the categories from A to F.

With respect to the SJVAB, Classes D through F are predominant during the late fall and winter because of cool temperatures and entrapment of cold air near the surface. March and August are transition months with equally occurring percentages of Class F and Class A. During the spring months of April and May and the summer months of June and July, Class A is predominant. The fall months of September, October, and November have comparable percentages of Class A and Class F.

An inversion is a layer of warmer air over a layer of cooler air. Inversions influence the mixing depth of the atmosphere, which is the vertical depth available for diluting air pollution near the ground, thus significantly affecting air quality conditions. The SJVAB experiences both surface-based and elevated inversions. The shallow surface-based inversions are present in the morning but are often broken by daytime heating of the air layers near the ground. The deep elevated inversions occur less frequently than the surface-based inversions but generally result in more severe stagnation. The surface-based inversions occur more frequently in the fall, and the stronger elevated inversions usually occur during December and January.

Air Pollutants of Concern

Criteria Air Pollutants

For the protection of public health and welfare, the Federal Clean Air Act (FCAA) required that the United States Environmental Protection Agency (U.S. EPA) establish National Ambient Air Quality Standards (NAAQS) for various pollutants. These pollutants are referred to as "criteria" pollutants because the U.S. EPA publishes criteria documents to justify the choice of standards. These standards define the maximum amount of an air pollutant that can be present in ambient air. An ambient air quality standard is generally specified as a concentration averaged over a specific time period, such as one hour, eight hours, 24 hours, or one year. The different averaging times and concentrations are meant to protect against different

exposure effects. Standards established for the protection of human health are referred to as primary standards; whereas, standards established for the prevention of environmental and property damage are called secondary standards. The FCAA allows states to adopt additional or more health-protective standards. The air quality regulatory framework and ambient air quality standards are discussed in greater detail later in this report.

The following provides a summary discussion of the primary and secondary criteria air pollutants of primary concern. In general, primary pollutants are directly emitted into the atmosphere, and secondary pollutants are formed by chemical reactions in the atmosphere.

Ozone (O_3) is a reactive gas consisting of three atoms of oxygen. In the troposphere, it is a product of the photochemical process involving the sun's energy. It is a secondary pollutant that is formed when NO_X and volatile organic compounds (VOC) react in the presence of sunlight. Ozone at the earth's surface causes numerous adverse health effects and is a criteria pollutant. It is a major component of smog. In the stratosphere, ozone exists naturally and shields Earth from harmful incoming ultraviolet radiation.

High concentrations of ground level ozone can adversely affect the human respiratory system and aggravate cardiovascular disease and many respiratory ailments. Ozone also damages natural ecosystems such as forests and foothill communities, agricultural crops, and some man-made materials, such as rubber, paint, and plastics.

Reactive Organic Gas (ROG) is a reactive chemical gas, composed of hydrocarbon compounds that may contribute to the formation of smog by their involvement in atmospheric chemical reactions. No separate health standards exist for ROG as a group. Because some compounds that make up ROG are also toxic, like the carcinogen benzene, they are often evaluated as part of a toxic risk assessment. Total Organic Gases (TOGs) includes all of the ROGs, in addition to low reactivity organic compounds like methane and acetone. ROGs and VOC are subsets of TOG.

Volatile Organic Compounds (VOC) are hydrocarbon compounds that exist in the ambient air. VOCs contribute to the formation of smog and may also be toxic. VOC emissions are a major precursor to the formation of ozone. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints.

Oxides of Nitrogen (NO_X) are a family of gaseous nitrogen compounds and is a precursor to the formation of ozone and particulate matter. The major component of NO_X, nitrogen dioxide (NO_2), is a reddish-brown gas that is toxic at high concentrations. NO_X results primarily from the combustion of fossil fuels under high temperature and pressure. On-road and off-road motor vehicles and fuel combustion are the major sources of this air pollutant.

Particulate Matter (PM), also known as particle pollution, is a complex mixture of extremely small particles and liquid droplets. Particle pollution is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health problems. U.S. EPA is concerned about particles that are 10 micrometers in diameter or smaller because those are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. U.S. EPA groups particle pollution into three categories based on their size and where they are deposited:

- "Inhalable coarse particles ($PM_{2.5}$- PM_{10})," such as those found near roadways and dusty industries, are between 2.5 and 10 micrometers in diameter. $PM_{2.5-10}$ is deposited in the thoracic region of the lungs.
- "Fine particles ($PM_{2.5}$)," such as those found in smoke and haze, are 2.5 micrometers in diameter and smaller. These particles can be directly emitted from sources such as forest fires, or they can form when gases emitted from power plants, industries and automobiles react in the air. They penetrate deeply into the thoracic and alveolar regions of the lungs.

- "Ultrafine particles (UFP)," are very small particles less than 0.1 micrometers in diameter largely resulting from the combustion of fossils fuels, meat, wood and other hydrocarbons. While UFP mass is a small portion of $PM_{2.5}$, its high surface area, deep lung penetration, and transfer into the bloodstream can result in disproportionate health impacts relative to their mass.

PM_{10}, $PM_{2.5}$, and UFP include primary pollutants (emitted directly to the atmosphere) as well as secondary pollutants (formed in the atmosphere by chemical reactions among precursors). Generally speaking, $PM_{2.5}$ and UFP are emitted by combustion sources like vehicles, power generation, industrial processes, and wood burning, while PM_{10} sources include these same sources plus roads and farming activities. Fugitive windblown dust and other area sources also represent a source of airborne dust.

Numerous scientific studies have linked both long- and short-term particle pollution exposure to a variety of health problems. Long-term exposures, such as those experienced by people living for many years in areas with high particle levels, have been associated with problems such as reduced lung function and the development of chronic bronchitis and even premature death. Short-term exposures to particles (hours or days) can aggravate lung disease, causing asthma attacks and also acute (short-term) bronchitis, and may also increase susceptibility to respiratory infections. In people with heart disease, short-term exposures have been linked to heart attacks and arrhythmias. Healthy children and adults have not been reported to suffer serious effects from short term exposures, although they may experience temporary minor irritation when particle levels are elevated.

Carbon Monoxide (CO) is an odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels and is emitted directly into the air (unlike ozone). The main source of CO is on-road motor vehicles. Other CO sources include other mobile sources, miscellaneous processes, and fuel combustion from stationary sources. Because of the local nature of CO problems, the California Air Resources Board (ARB) and U.S. EPA designate urban areas as CO nonattainment areas instead of the entire basin as with ozone and PM_{10}. Motor vehicles are by far the largest source of CO emissions. Emissions from motor vehicles have been declining since 1985, despite increases in vehicle miles traveled, with the introduction of new automotive emission controls and fleet turnover.

Sulfur Dioxide (SO_2) is a colorless, irritating gas with a "rotten egg" smell formed primarily by the combustion of sulfur-containing fossil fuels. However, like airborne NO_X, suspended SO_X particles contribute to the poor visibility. These SO_X particles can also combine with other pollutants to form $PM_{2.5}$. The prevalence of low-sulfur fuel use has minimized problems from this pollutant.

Lead (Pb) is a metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. The health effects of lead poisoning include loss of appetite, weakness, apathy, and miscarriage. Lead can also cause lesions of the neuromuscular system, circulatory system, brain, and gastrointestinal tract. Gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels. The use of leaded fuel has been mostly phased out, with the result that ambient concentrations of lead have dropped dramatically.

Hydrogen Sulfide (H_2S) is associated with geothermal activity, oil and gas production, refining, sewage treatment plants, and confined animal feeding operations. Hydrogen sulfide is extremely hazardous in high concentrations; especially in enclosed spaces (800 ppm can cause death). The Occupational Safety and Health Administration (OSHA) regulates workplace exposure to H_2S.

Other Pollutants

The State of California has established air quality standards for some pollutants not addressed by Federal standards. The ARB has established State standards for hydrogen sulfide, sulfates, vinyl chloride, and visibility reducing particles. The following section summarizes these pollutants and provides a description of the pollutants' physical properties, health and other effects, sources, and the extent of the problems.

Sulfates (SO_4^{2-}) are the fully oxidized ionic form of sulfur. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to SO_2 during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The

conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features.

The ARB sulfates standard is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in ventilator function, aggravation of asthmatic symptoms, and an increased risk of cardio-pulmonary disease. Sulfates are particularly effective in degrading visibility, and, due to the fact that they are usually acidic, can harm ecosystems and damage materials and property.

Visibility Reducing Particles: Are a mixture of suspended particulate matter consisting of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. The standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

Vinyl Chloride (C_2H_3Cl or **VCM)** is a colorless gas that does not occur naturally. It is formed when other substances such as trichloroethane, trichloroethylene, and tetrachloro-ethylene are broken down. Vinyl chloride is used to make polyvinyl chloride (PVC) which is used to make a variety of plastic products, including pipes, wire and cable coatings, and packaging materials.

Odors

Typically 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 the psychological (i.e. irritation, anger, or anxiety) to the physiological, including circulatory and respiratory effects, nausea, vomiting, and headache.

The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor and in fact an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word strong to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

Neither the state nor the federal governments have adopted rules or regulations for the control of odor sources. The SJVAPCD does not have an individual rule or regulation that specifically addresses odors; however, odors would be subject to SJVAPCD *Rule 4102, Nuisance*. Any actions related to odors would be based on citizen complaints to local governments and the SJVAPCD.

Toxic Air Contaminants

Toxic air contaminants (TACs) are air pollutants that may cause or contribute to an increase in mortality or serious illness, or which may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air, but due to their high toxicity, they may pose a threat to public health even at very low concentrations. Because there is no threshold level below which adverse health impacts are not expected to occur, TACs differ from criteria pollutants for which acceptable levels of exposure can be determined and for which state and federal governments have set ambient air quality standards. TACs, therefore, are not considered "criteria pollutants" under either the FCAA or the California Clean Air Act (CCAA), and are

thus not subject to National or California ambient air quality standards (NAAQS and CAAQS, respectively). Instead, the U.S. EPA and the ARB regulate Hazardous Air Pollutants (HAPs) and TACs, respectively, through statutes and regulations that generally require the use of the maximum or best available control technology to limit emissions. In conjunction with SJVAPCD rules, these federal and state statutes and regulations establish the regulatory framework for TACs. At the national levels, the U.S. EPA has established National Emission Standards for HAPs (NESHAPs), in accordance with the requirements of the FCAA and subsequent amendments. These are technology-based source-specific regulations that limit allowable emissions of HAPs.

Within California, TACs are regulated primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for ARB to designate substances as TACs. The following provides a summary of the primary TACs of concern within the State of California and related health effects:

Diesel Particulate Matter (DPM) was identified as a TAC by the ARB in August 1998. DPM is emitted from both mobile and stationary sources. In California, on-road diesel-fueled vehicles contribute approximately 40% of the statewide total, with an additional 57 percent attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and transport refrigeration units. Stationary sources, contributing about 3 percent of emissions, include shipyards, warehouses, heavy equipment repair yards, and oil and gas production operations. Emissions from these sources are from diesel-fueled internal combustion engines. Stationary sources that report DPM emissions also include heavy construction, manufacturers of asphalt paving materials and blocks, and diesel-fueled electrical generation facilities (ARB 2013).

In October 2000, the ARB issued a report entitled: *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*, which is commonly referred to as the Diesel Risk Reduction Plan (DRRP). The DRRP provides a mechanism for combating the DPM problem. The goal of the DRRP is to reduce concentrations of DPM by 85 percent by the year 2020, in comparison to year 2000 baseline emissions. The key elements of the DRRP are to clean up existing engines through engine retrofit emission control devices, to adopt stringent standards for new diesel engines, and to lower the sulfur content of diesel fuel to protect new, and very effective, advanced technology emission control devices on diesel engines. When fully implemented, the DRPP will significantly reduce emissions from both old and new diesel fueled motor vehicles and from stationary sources that burn diesel fuel. In addition to these strategies, the ARB continues to promote the use of alternative fuels and electrification. As a result of these actions, DPM concentrations and associated health risks in future years are projected to decline (ARB 2013). In comparison to year 2010 inventory of statewide DPM emissions, ARB estimates that emissions of DPM in 2035 will be reduced by more than 50 percent.

DPM is typically composed of carbon particles ("soot", also called black carbon, or BC) and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene. Diesel exhaust also contains gaseous pollutants, including volatile organic compounds and oxides of nitrogen (NO_x). NO_x emissions from diesel engines are important because they can undergo chemical reactions in the atmosphere leading to formation of $PM_{2.5}$ and ozone (ARB, 2016d).

In California, diesel exhaust particles have been identified as a carcinogen accounting for an estimated 70% of the total known cancer risks in California. DPM is estimated to increase statewide cancer risk by 520 cancers per million residents exposed over an estimated 70-year lifetime. Non-cancer health effects associated with exposure to DPM include premature death, exacerbated chronic heart and lung disease, including asthma, and decreased lung function in children. Short-term exposure to diesel exhaust can also have immediate health effects. Diesel exhaust can irritate the eyes, nose, throat and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. In studies with human volunteers, diesel exhaust particles made people with allergies more susceptible to the materials to which they are allergic, such as dust and pollen. Exposure to diesel exhaust also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks (ARB, 2016d).

Individuals most vulnerable to non-cancer health effects of DPM are children whose lungs are still developing and the elderly who often have chronic health problems. The elderly and people with emphysema, asthma, and chronic heart and lung disease are especially sensitive to DPM (ARB, 2016d). In addition to its health effects, DPM significantly contributes to haze and reduced visibility. DPM also plays an important role in climate change. As noted above, a large proportion of DPM is composed of BC. Recent studies cited in the Intergovernmental Panel on Climate Change report estimate that emissions of BC are the second largest contributor to global warming, second only to emissions of carbon dioxide (ARB, 2016d). (Refer to the Greenhouse Gas section of this report for additional discussion of BC and climate change.)

Acetaldehyde is a federal hazardous air pollutant. The ARB identified acetaldehyde as a TAC in April 1993. Acetaldehyde is both directly emitted into the atmosphere and formed in the atmosphere as a result of photochemical oxidation. Sources of acetaldehyde include emissions from combustion processes such as exhaust from mobile sources and fuel combustion from stationary internal combustion engines, boilers, and process heaters. A majority of the statewide acetaldehyde emissions can be attributed to mobile sources, including on-road motor vehicles, construction and mining equipment, aircraft, recreational boats, and agricultural equipment. Area sources of emissions include the burning of wood in residential fireplaces and wood stoves. The primary stationary sources of acetaldehyde are from fuel combustion from the petroleum industry (ARB 2013).

Acute exposure to acetaldehyde results in effects including irritation of the eyes, skin, and respiratory tract. Symptoms of chronic intoxication of acetaldehyde resemble those of alcoholism. The U.S. EPA has classified acetaldehyde as a probable human carcinogen. In California, acetaldehyde was classified on April 1, 1988, as a chemical known to the state to cause cancer (U.S. EPA 2014; ARB 2013).

Benzene is highly carcinogenic and occurs throughout California. The ARB identified benzene as a TAC in January 1985. A majority of benzene emitted in California (roughly 88 percent) comes from motor vehicles, including evaporative leakage and unburned fuel exhaust. These sources include on-road motor vehicles, recreational boats, off-road recreational vehicles, and lawn and garden equipment. Benzene is also formed as a partial combustion product of larger aromatic fuel components. To a lesser extent, industry-related stationary sources are also sources of benzene emissions. The primary stationary sources of reported benzene emissions are crude petroleum and natural gas mining, petroleum refining, and electric generation that involves the use of petroleum products. The primary area sources include residential combustion of various types such as cooking and water heating (ARB 2013).

Acute inhalation exposure of humans to benzene may cause drowsiness, dizziness, headaches, as well as eye, skin, and respiratory tract irritation, and, at high levels, unconsciousness. Chronic inhalation exposure has caused various disorders in the blood, including reduced numbers of red blood cells and aplastic anemia, in occupational settings. Reproductive effects have been reported for women exposed by inhalation to high levels, and adverse effects on the developing fetus have been observed in animal tests. Increased incidences of leukemia (cancer of the tissues that form white blood cells) have been observed in humans occupationally exposed to benzene. The U.S. EPA has classified benzene as known human carcinogen for all routes of exposure (U.S. EPA 2014).

1,3-butadiene was identified by the ARB as a TAC in 1992. Most of the emissions of 1,3-butadiene are from incomplete combustion of gasoline and diesel fuels. Mobile sources account for a majority of the total statewide emissions. Additional sources include agricultural waste burning, open burning associated with forest management, petroleum refining, manufacturing of synthetics and man-made materials, and oil and gas extraction. The primary natural sources of 1,3-butadiene emissions are wildfires (ARB 2013).

Acute exposure to 1,3-butadiene by inhalation in humans results in irritation of the eyes, nasal passages, throat, and lungs. Epidemiological studies have reported a possible association between 1,3-butadiene exposure and cardiovascular diseases. Epidemiological studies of workers in rubber plants have shown an association between 1,3-butadiene exposure and increased incidence of leukemia. Animal studies have reported tumors at various sites from 1,3-butadiene exposure. In California, 1,3-butadiene has been identified as a carcinogen.

Carbon Tetrachloride was identified by the ARB as a TAC in 1987 under California's TAC program (ARB 2013). The primary stationary sources reporting emissions of carbon tetrachloride include chemical and allied product manufacturers and petroleum refineries. In the past, carbon tetrachloride was used for dry cleaning and as a grain-fumigant. Usage for these purposes is no longer allowed in the United States. Carbon tetrachloride has not been registered for pesticidal use in California since 1987. Also, the use of carbon tetrachloride in products to be used indoors has been discontinued in the United States. The statewide emissions of carbon tetrachloride are small (about 1.96 tons per year), and background concentrations account for most of the health risk (ARB 2013).

The primary effects of carbon tetrachloride in humans are on the liver, kidneys, and central nervous system. Human symptoms of acute inhalation and oral exposures to carbon tetrachloride include headache, weakness, lethargy, nausea, and vomiting. Acute exposures to higher levels and chronic (long-term) inhalation or oral exposure to carbon tetrachloride produces liver and kidney damage in humans. Human data on the carcinogenic effects of carbon tetrachloride are limited. Studies in animals have shown that ingestion of carbon tetrachloride increases the risk of liver cancer. In California, carbon tetrachloride has been identified as a carcinogen.

Hexavalent chromium was identified as a TAC in 1986. Sources of Hexavalent chromium include industrial metal finishing processes, such as chrome plating and chromic acid anodizing, and firebrick lining of glass furnaces. Other sources include mobile sources, including gasoline motor vehicles, trains, and ships (ARB 2013).

The respiratory tract is the major target organ for hexavalent chromium toxicity, for acute and chronic inhalation exposures. Shortness of breath, coughing, and wheezing were reported from a case of acute exposure to hexavalent chromium, while perforations and ulcerations of the septum, bronchitis, decreased pulmonary function, pneumonia, and other respiratory effects have been noted from chronic exposure. Human studies have clearly established that inhaled hexavalent chromium is a human carcinogen, resulting in an increased risk of lung cancer. In California, hexavalent chromium has been identified as a carcinogen.

Para-Dichlorobenzene was identified by the ARB as a TAC in April 1993. The primary area-wide sources that have reported emissions of para-dichlorobenzene include consumer products such as non-aerosol insect repellants and solid/gel air fresheners. These sources contribute nearly all of the statewide para-dichlorobenzene emissions (ARB 2013).

Acute exposure to paradichlorobenzene via inhalation results in irritation to the eyes, skin, and throat in humans. In addition, long-term inhalation exposure may affect the liver, skin, and central nervous system in humans. The U.S. EPA has classified para-dichlorobenzene as a possible human carcinogen.

Formaldehyde was identified by the ARB as a TAC in 1992. Formaldehyde is both directly emitted into the atmosphere and formed in the atmosphere as a result of photochemical oxidation. Photochemical oxidation is the largest source of formaldehyde concentrations in California ambient air. Directly emitted formaldehyde is a product of incomplete combustion. One of the primary sources of directly-emitted formaldehyde is vehicular exhaust. Formaldehyde is also used in resins, can be found in many consumer products as an antimicrobial agent, and is also used in fumigants and soil disinfectants. The primary area sources of formaldehyde emissions include wood burning in residential fireplaces and wood stoves (ARB 2013).

Exposure to formaldehyde may occur by breathing contaminated indoor air, tobacco smoke, or ambient urban air. Acute and chronic inhalation exposure to formaldehyde in humans can result in respiratory symptoms, and eye, nose, and throat irritation. Limited human studies have reported an association between formaldehyde exposure and lung and nasopharyngeal cancer. Animal inhalation studies have reported an increased incidence of nasal squamous cell cancer. Formaldehyde is classified as a probable human carcinogen.

Methylene Chloride was identified by the ARB as a TAC in 1987. Methylene chloride is used as a solvent, a blowing and cleaning agent in the manufacture of polyurethane foam and plastic fabrication, and as a

solvent in paint stripping operations. Paint removers account for the largest use of methylene chloride in California, where methylene chloride is the main ingredient in many paint stripping formulations. Plastic product manufacturers, manufacturers of synthetics, and aircraft and parts manufacturers are stationary sources reporting emissions of methylene chloride (ARB 2013).

The acute effects of methylene chloride inhalation in humans consist mainly of nervous system effects including decreased visual, auditory, and motor functions, but these effects are reversible once exposure ceases. The effects of chronic exposure to methylene chloride suggest that the central nervous system is a potential target in humans and animals. Human data are inconclusive regarding methylene chloride and cancer. Animal studies have shown increases in liver and lung cancer and benign mammary gland tumors following the inhalation of methylene chloride. In California, methylene chloride has been identified as a carcinogen.

Perchloroethylene was identified by the ARB as a TAC in 1991. Perchloroethylene is used as a solvent, primarily in dry cleaning operations. Perchloroethylene is also used in degreasing operations, paints and coatings, adhesives, aerosols, specialty chemical production, printing inks, silicones, rug shampoos, and laboratory solvents. In California, the stationary sources that have reported emissions of perchloroethylene are dry cleaning plants, aircraft part and equipment manufacturers, and fabricated metal product manufacturers. The primary area sources include consumer products such as automotive brake cleaners and tire sealants and inflators (ARB 2013).

Acute inhalation exposure to perchloroethylene vapors can result in irritation of the upper respiratory tract and eyes, kidney dysfunction, and at lower concentrations, neurological effects, such as reversible mood and behavioral changes, impairment of coordination, dizziness, headaches sleepiness, and unconsciousness. Chronic inhalation exposure can result in neurological effects, including sensory symptoms such as headaches, impairments in cognitive and motor neurobehavioral functioning, and color vision decrements. Cardiac arrhythmia, liver damage, and possible kidney damage may also occur. In California, perchloroethylene has been identified as a carcinogen.

Asbestos

Asbestos is a term used for several types of naturally-occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in California. Serpentine rock often contains chrysotile asbestos. Serpentine rock, and its parent material, ultramafic rock, is abundant in the Sierra foothills, the Klamath Mountains, and Coast Ranges. The project site, however, is not located in an area of known ultramafic rock.

Asbestos is commonly found in ultramafic rock, including serpentine, and near fault zones. The amount of asbestos that is typically present in these rocks range from less than 1 percent up to about 25 percent, and sometimes more. Asbestos is released from ultramafic and serpentine rock when it is broken or crushed. This can happen when cars drive over unpaved roads or driveways which are surfaced with these rocks, when land is graded for building purposes, or at quarrying operations. It is also released naturally through weathering and erosion. Once released from the rock, asbestos can become airborne and may stay in the air for long periods of time.

Additional sources of asbestos include building materials and other manmade materials. The most common sources are heat-resistant insulators, cement, furnace or pipe coverings, inert filler material, fireproof gloves and clothing, and brake linings. Asbestos has been used in the United States since the early 1900's; however, asbestos is no longer allowed as a constituent in most home products and materials. Many older buildings, schools, and homes still have asbestos containing products.

Naturally-occurring asbestos was identified by ARB as a TAC in 1986. The ARB has adopted two statewide control measures which prohibits the use of serpentine or ultramafic rock for unpaved surfacing and controls dust emissions from construction, grading, and surface mining in areas with these rocks. Various other laws have also been adopted, including laws related to the control of asbestos-containing materials during the renovation and demolition of buildings.

All types of asbestos are hazardous and may cause lung disease and cancer. Health risks to people are dependent upon their exposure to asbestos. The longer a person is exposed to asbestos and the greater the intensity of the exposure, the greater the chances for a health problem. Asbestos-related disease, such as lung cancer, may not occur for decades after breathing asbestos fibers. Cigarette smoking increases the risk of lung cancer from asbestos exposure.

Valley Fever

Valley fever is an infection caused by the fungus Coccidioides. The scientific name for valley fever is "coccidioidomycosis," and it's also sometimes called "desert rheumatism." The term "valley fever" usually refers to Coccidioides infection in the lungs, but the infection can spread to other parts of the body in severe cases.

Coccidioides spores circulate in the air after contaminated soil and dust are disturbed by humans, animals, or the weather. The spores are too small to see without a microscope. When people breathe in the spores, they are at risk of developing valley fever. After the spores enter the lungs, the person's body temperature allows the spores to change shape and grow into spherules. When the spherules get large enough, they break open and release smaller pieces (called endospores) which can then potentially spread within the lungs or to other organs and grow into new spherules. In extremely rare cases, the fungal spores can enter the skin through a cut, wound, or splinter and cause a skin infection. Symptoms of valley fever may appear between 1 and 3 weeks after exposure. Symptoms commonly include fatigue, coughing, fever, shortness of breath, headaches, night sweats, muscle aches and joint pain, and rashes on the upper body or legs.

Approximately 5 to 10 percent of people who get valley fever will develop serious or long-term problems in their lungs. In an even smaller percent of people (about 1 percent), the infection spreads from the lungs to other parts of the body, such as the central nervous system (brain and spinal cord), skin, or bones and joints. Certain groups of people may be at higher risk for developing the severe forms of valley fever, such as people who have weakened immune systems. The fungus that causes valley fever, Coccidioides, can't spread from the lungs between people or between people and animals. However, in extremely rare instances, a wound infection with Coccidioides can spread valley fever to someone else, or the infection can be spread through an organ transplant with an infected organ.

For many people, the symptoms of valley fever will go away within a few months without any treatment. Healthcare providers choose to prescribe antifungal medication for some people to try to reduce the severity of symptoms or prevent the infection from getting worse. Antifungal medication is typically given to people who are at higher risk for developing severe valley fever. The treatment typically occurs over a period of roughly 3 to 6 months. In some instances, longer treatment may be required. If valley fever develops into meningitis life-long antifungal treatment is typically necessary.

Scientists continue to study how weather and climate patterns affect the habitat of the fungus that causes valley fever. Coccidioides is thought to grow best in soil after heavy rainfall and then disperse into the air most effectively during hot, dry conditions. For example, hot and dry weather conditions have been shown to correlate with an increase in the number of valley fever cases in Arizona and in California. The ways in which climate change may be affecting the number of valley fever infections, as well as the geographic range of Coccidioides, isn't known yet, but is a subject for further research (CDC 2016).

Ambient Air Quality

Air pollutant concentrations are measured at several monitoring stations in the SJVAB. The Turlock-S. Minarets Street monitoring stations is the closest representative monitoring station to the proposed project site with sufficient data to meet U.S. EPA and/or ARB criteria for quality assurance. Ambient monitoring data were obtained for the last three years of available measurement data (i.e., 2022 through 2024) and are summarized in Table 1. As depicted, the state and federal ozone and $PM_{2.5}$ standards, as well as, the state PM_{10} standard, were exceeded on numerous occasions during the past three years (ARB 2026a).

Table 1. Summary of Ambient Air Quality Monitoring Data

Pollutant	Monitoring Year		
	2022	2023	2024
Ozone			
Maximum concentration (1-hour/8-hour average)	0.107/0.092	0.102/0.086	0.098/0.085
Number of days state/national 1-hour standard exceeded	2/0	1/0	5/0
Number of days national 2008/2015 8-hour standard exceeded	12/12	17/18	33/31
Nitrogen Dioxide (NO_2)			
Maximum 1-hour concentration (national/state)	45.2/45	47.0/47	37.4/37
Annual average	9	8	7
Number of days state/national standard exceeded	0/0	0/0	0/0
Suspended Particulate Matter ($PM_{2.5}$)			
Maximum 24-hour concentration	47.1	41.2	46.4
Annual Average (national/state)	10.8	10.1	9.3
Number of days national standard exceeded (measured/calculated)[3]	5/5.1	3/3.0	5/5.0
Suspended Particulate Matter (PM_{10})			
Maximum 24-hour concentration (national/state)	54.4/184.7	129.2/128.9	109.1/112.3
Annual Average concentration (national/state)	20.0/NA	29.0/29.4	29.6/29.2
Number of days state standard exceeded (measured/calculated)[3]	53/NA	40/40.1	45/45.0
Number of days national standard exceeded (measured/calculated)[3]	0/NA	0/0	0/0

ppm = parts per million by volume, $\mu g/m^3$ = micrograms per cubic meter, NA=Not Available
1. Based on ambient concentrations obtained from the Turlock-S. Minaret Street Monitoring Station.
2. Measured days are those days that an actual measurement was greater than the standard. Calculated days are estimated days that a measurement would have exceeded the standard had measurements been collected every day.
Source: ARB 2026a

Air Quality Index

The health effects of ambient air pollutant concentrations can be evaluated and presented in various ways. The most common method is the use of the Air Quality Index (AQI). The U.S. EPA developed the AQI as an easy-to-understand measure of health impacts based on measured ambient air quality in comparison to established ambient air quality standards. Tables 2 and 3 present a summary of the health impacts for ozone and fine particulate matter ($PM_{2.5}$), respectively, based on the U.S. EPA's AQI.

A summary of the annual air quality index for the project area, based on monitoring data obtained from the Merced County monitoring area for the last three years of available data, is provided in Table 4. As depicted in Table 4, the project area typically experiences "good" air quality with the total number of days ranging from 58 to 171 days per year. Days classified as "moderate" AQI ranged from 32 to 179 days per year. Days classified as "Unhealthy for Sensitive Groups" AQI ranged from 15 to 34 days per year. Over the last three years of available data, the area has experienced a total of 1 day classified as "Unhealthy", no days classified as "Very Unhealthy" or "Hazardous". (U.S. EPA 2026).

Table 2. Air Quality Index Summary for Ozone & Related Health Effects

Air Quality Index / 8-hour Ozone Concentration	Health Effects Description
AQI 51-100: Moderate Ambient Ozone Concentrations: 55-70 ppb	Sensitive Groups: Children and people with asthma are the groups at most risk. Health Effects Statements: Unusually sensitive individuals may experience respiratory symptoms. Cautionary Statements: Unusually sensitive people should consider limiting prolonged outdoor exertion.
AQI 101-150: Unhealthy for Sensitive Groups Ambient Ozone Concentrations: 71-85 ppb	Sensitive Groups: Children and people with asthma are the groups at most risk. Health Effects Statements: Increasing likelihood of respiratory symptoms and breathing discomfort in active children and adults and people with respiratory disease, such as asthma. Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.
AQI 151–200: Unhealthy Ambient Ozone Concentrations: 86-105 ppb	Sensitive Groups: Children and people with asthma are the groups at most risk. Health Effects Statements: Greater likelihood of respiratory symptoms and breathing difficulty in active children and adults and people with respiratory disease, such as asthma; possible respiratory effects in general population. Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.
AQI 201-300: Very Unhealthy Ambient Ozone Concentrations: 106-200 ppb	Sensitive Groups: Children and people with asthma are the groups at most risk. Health Effects Statements: Increasingly severe symptoms and impaired breathing likely in active children and adults and people with respiratory disease, such as asthma; increasing likelihood of respiratory effects in general population. Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should avoid outdoor exertion; everyone else, especially children, should limit outdoor exertion.
An AQI of 50 and below is categorized as "Good" and air quality is satisfactory, and poses little or no risk. An AQI of 301 or higher is categorized as "Hazardous" having a health warning of emergency conditions: everyone is more likely to be affected. Outdoor activities should be avoided for all individuals. *AQI = Air quality index, ppb = parts per billion* *Source: U.S. EPA 2022*	

Table 3. Air Quality Index Summary for Fine Particulate Matter & Related Health Effects

Air Quality Index / 8-hour Ozone Concentration	Health Effects Description
AQI 51-100: Moderate Ambient Concentrations: 12.1-35.4 µg/m^3	Sensitive Groups: Some people who may be unusually sensitive to particulate. Health Effects Statements: Unusually sensitive people should consider reducing prolonged or heavy exertion. Cautionary Statements: Unusually sensitive people: Consider reducing prolonged or heavy exertion. Watch for symptoms such as coughing or shortness of breath. These are signs to take it easier.
AQI 101-150: Unhealthy for Sensitive Groups Ambient Concentrations: 35.5-55.4 µg/m^3	Sensitive Groups: People with heart or lung disease, older adults, children, and teenagers. Health Effects Statements: Increasing likelihood of respiratory symptoms for sensitive individuals, aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease, and the elderly. Cautionary Statements: If you have heart disease: Symptoms such as palpations, shortness of breath, or unusual fatigue may indicate a serious problem. If you have any of these, contact a health care provider.
AQI 151–200: Unhealthy Ambient Concentrations: 55.5-150.4 µg/m^3	Sensitive Groups: Everyone. Health Effects Statements: Increased aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease, and the elderly; increased respiratory effects in general population. Cautionary Statements: Sensitive groups: Avoid prolonged or heavy exertion. Consider moving activities indoors or rescheduling. Everyone else: Reduce prolonged or heavy exertion. Take more breaks during outdoor activities.
AQI 201-300: Very Unhealthy Ambient Concentrations: 150.5-250.4 µg/m^3	Sensitive Groups: Everyone. Health Effects Statements: Significant aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease, and the elderly; significant increase in respiratory effects in general population. Cautionary Statements: Sensitive groups: Avoid all physical activity outdoors. Move activities indoors or reschedule to a time when air quality is better. Everyone else: Avoid prolonged or heavy exertion. Consider moving activities indoors or reschedule to a time when air quality is better.
An AQI of 50 and below is categorized as "Good" and air quality is satisfactory and poses little or no risk. An AQI of 301 or higher is categorized as "Hazardous" having a health warning of emergency conditions: everyone is more likely to be affected. Outdoor activities should be avoided for all individuals. *AQI = Air quality index, µg/m3 = micrograms per cubic meter* *Source: U.S. EPA 2022*	

Table 4. Air Quality Index Annual Historical Summary

	Air Quality Index (AQI) - Number of Days					
Year	Good	Moderate	Unhealthy for Sensitive Groups	Unhealthy	Very Unhealthy	Hazardous
2025	58	32	0	0	0	0
2024	168	163	34	1	0	0
2023	171	179	15	0	0	0
Represents overall air quality taking into account all criteria pollutants measured. *Source: U.S, EPA 2026*						

REGULATORY FRAMEWORK

Air quality within the SJVAB is regulated by several jurisdictions including the U.S. EPA, ARB, and the SJVAPCD. Each of these jurisdictions develops rules, regulations, and policies to attain the goals or directives imposed upon them through legislation. Although U.S. EPA regulations may not be superseded, both state and local regulations may be more stringent.

Federal

U.S. Environmental Protection Agency

At the federal level, the U.S. EPA has been charged with implementing national air quality programs. The U.S. EPA's air quality mandates are drawn primarily from the FCAA, which was signed into law in 1970. Congress substantially amended the FCAA in 1977 and again in 1990.

Federal Clean Air Act

The FCAA required the U.S. EPA to establish National Ambient Air Quality Standards (NAAQS), and also set deadlines for their attainment. Two types of NAAQS have been established: primary standards, which protect public health, and secondary standards, which protect public welfare from non-health-related adverse effects, such as visibility restrictions. NAAQS are summarized in Table 5.

The FCAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The FCAA Amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. The U.S. EPA has responsibility to review all state SIPs to determine conformance with the mandates of the FCAA, and the amendments thereof, and determine if implementation will achieve air quality goals. If the U.S. EPA determines a SIP to be inadequate, a Federal Implementation Plan (FIP) may be prepared for the nonattainment area that imposes additional control measures.

Toxic Substances Control Act

The Toxic Substances Control Act (TSCA) first authorized the U.S. EPA to regulate asbestos in schools and Public and Commercial buildings under Title II of the law, which is also known as the Asbestos Hazard Emergency Response Act (AHERA). AHERA requires Local Education Agencies (LEAs) to inspect their schools for ACBM and prepare management plans to reduce the asbestos hazard. The Act also established a program for the training and accreditation of individuals performing certain types of asbestos work.

National Emission Standards for Hazardous Air Pollutants

Pursuant to the FCAA of 1970, the U.S. EPA established the National Emission Standards for Hazardous Air Pollutants. These are technology-based source-specific regulations that limit allowable emissions of HAPs.

State

California Air Resources Board

The ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act of 1988. Other ARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control districts and air quality management districts, establishing California Ambient Air Quality Standards (CAAQS), which in many cases are more stringent than the NAAQS, and setting emissions standards for new motor vehicles. The CAAQS are summarized in Table 5. The emission standards established for motor vehicles differ depending on various factors including the model year, and the type of vehicle, fuel and engine used.

California Clean Air Act

The CCAA requires that all air districts in the state endeavor to achieve and maintain CAAQS for Ozone, CO, SO_2, and NO_2 by the earliest practical date. The CCAA specifies that districts focus particular attention on reducing the emissions from transportation and area-wide emission sources, and the act provides districts with authority to regulate indirect sources. Each district plan is required to either (1) achieve a five percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each non-attainment pollutant or its precursors, or (2) to provide for implementation of all feasible measures to

reduce emissions. Any planning effort for air quality attainment would thus need to consider both state and federal planning requirements.

Table 5.
Summary of Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards (Primary)
Ozone (O_3)	1-hour	0.09 ppm	–
	8-hour	0.070 ppm	0.070 ppm
Particulate Matter (PM_{10})	AAM	20 µg/m^3	–
	24-hour	50 µg/m^3	150 µg/m^3
Fine Particulate Matter ($PM_{2.5}$)	AAM	12 µg/m^3	12 µg/m^3
	24-hour	No Standard	35 µg/m^3
Carbon Monoxide (CO)	1-hour	20 ppm	35 ppm
	8-hour	9 ppm	9 ppm
	8-hour (Lake Tahoe)	6 ppm	–
Nitrogen Dioxide (NO_2)	AAM	0.030 ppm	53 ppb
	1-hour	0.18 ppm	100 ppb
Sulfur Dioxide (SO_2)	AAM	–	0.03 ppm
	24-hour	0.04 ppm	0.14 ppm
	3-hour	–	–
	1-hour	0.25 ppm	75 ppb
Lead	30-day Average	1.5 µg/m^3	–
	Calendar Quarter	–	1.5 µg/m^3
	Rolling 3-Month Average	–	0.15 µg/m^3
Sulfates	24-hour	25 µg/m^3	No Federal Standards
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m^3)	
Vinyl Chloride	24-hour	0.01 ppm (26 µg/m^3)	
Visibility-Reducing Particle Matter	8-hour	Extinction coefficient: 0.23/kilometer-visibility of 10 miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70%.	

** For more information on standards visit : https://ww3.arb.ca.gov/research/aaqs/aaqs2.pdf*
Source: ARB 2025

Assembly Bills 1807 & 2588 - Toxic Air Contaminants

Within California, TACs are regulated primarily through AB 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics Hot Spots Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for ARB to designate substances as TACs. This includes research, public participation, and scientific peer review before ARB designates a substance as a TAC. Existing sources of TACs that are

subject to the Air Toxics Hot Spots Information and Assessment Act are required to: (1) prepare a toxic emissions inventory; (2) prepare a risk assessment if emissions are significant; (3) notify the public of significant risk levels; and (4) prepare and implement risk reduction measures.

Assembly Bill 203 – Valley Fever

Assembly Bill (AB) 203 addresses Valley Fever caused by Coccidioides immitis fungus found in soil. It applies to construction employers in highly endemic counties, where soil disturbance activities can release airborne spores. The legislation mandates annual awareness training for employees on Valley Fever risks, prevention methods, and symptom recognition. Employers must conduct the training before work involving substantial dust disturbance and may use existing materials from federal, state, or local agencies for training.

California Assembly Bill 170

Assembly Bill 170, Reyes (AB 170), was adopted by state lawmakers in 2003 creating Government Code Section 65302.1 which requires cities and counties in the San Joaquin Valley to amend their general plans to include data and analysis, comprehensive goals, policies and feasible implementation strategies designed to improve air quality.

California Air Resources Board's Truck and Bus Regulation

This regulation requires fleets that operate in California to reduce diesel truck and bus emissions by retrofitting or replacing existing engines. Amendments were adopted in December 2010 to provide more time for fleets to comply. The amended regulation required installation of PM retrofits beginning January 1, 2012, and replacement of older trucks starting January 1, 2015. By January 1, 2023, nearly all vehicles would need to have 2010 model year engines or equivalent.

The regulation applies to nearly all privately and federally owned diesel fueled trucks and buses and privately and publicly owned school buses with a gross vehicle weight rating greater than 14,000 pounds. The regulation has provisions to provide extra credit for PM filters installed prior to July 2011, has delayed requirements for fleets with 3 or fewer vehicles, provisions for agricultural vehicles and other situations.

Airborne Toxic Control Measure to Limit School Bus Idling at Schools

ARB has approved an airborne toxic control measure (ATCM) that limits school bus idling and idling at or near schools to only when necessary for safety or operational concerns. The ATCM requires a driver of a school bus or vehicle, transit bus, or other commercial motor vehicle to manually turn off the bus or vehicle engine upon arriving at a school and to restart no more than 30 seconds before departing. A driver of a school bus or vehicle is subject to the same requirement when operating within 100 feet of a school and is prohibited from idling more than five minutes at each stop beyond schools, such as parking or maintenance facilities, school bus stops, or school activity destinations. A driver of a transit bus or other commercial motor vehicle is prohibited from idling more than five minutes at each stop within 100 feet of a school. Idling necessary for health, safety, or operational concerns is exempt from these restrictions. In addition, the ATCM requires a motor carrier of an affected bus or vehicle to ensure that drivers are informed of the idling requirements, track complaints and enforcement actions, and keep records of these driver education and tracking activities. This ATCM became effective in July 2003.

San Joaquin Valley Air Pollution Control District

The SJVAPCD is the agency primarily responsible for ensuring that NAAQS and CAAQS are not exceeded and that air quality conditions are maintained in the SJVAB, within which the proposed project is located. Responsibilities of the SJVAPCD include, but are not limited to, preparing plans for the attainment of ambient air quality standards, adopting and enforcing rules and regulations concerning sources of air pollution, issuing permits for stationary sources of air pollution, inspecting stationary sources of air pollution and responding to citizen complaints, monitoring ambient air quality and meteorological conditions, and implementing programs and regulations required by the FCAA and the CCAA. The SJVAPCD Rules and Regulations that are applicable to the proposed project include, but are not limited to, the following (SJVAPCD 2026):

- *Regulation II (Permits)*. Rules that directly govern the permitting process are contained in Regulation II. For instance, Rules 2010 (Permits Required) and 2020 (Exemptions) describe the equipment or operations that must obtain permits. Rule 2201 (New and Modified Source Review) applies to facilities installing or modifying equipment that requires permits.
- *Regulation VIII (Fugitive Dust Prohibitions)*. *Regulation VIII (Rules 8011-8081)*. This regulation is a series of rules designed to reduce particulate emissions generated by human activity, including construction and demolition activities, carryout and trackout, paved and unpaved roads, bulk material handling and storage, unpaved vehicle/traffic areas, open space areas, etc.
- *Rule 4102 (Nuisance)*. Applies to any source operation that emits or may emit air contaminants or other materials.
- *Rule 4601 (Architectural Coatings)*. Limits volatile organic compounds from architectural coatings.
- *Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations)*. This rule applies to the manufacture and use of cutback, slow cure, and emulsified asphalt during paving and maintenance operations.
- *Rule 9510 (Indirect Source Review - ISR)*. Requires developers of larger residential, commercial, recreational, and industrial projects to reduce smog-forming and particulate emissions from their projects' baselines. If project emissions still exceed the minimum baseline reductions, a project's developer will be required to mitigate the difference by paying an off-site fee to the District, which would then be used to fund clean-air projects. For projects subject to this rule, the ISR rule requires developers to mitigate and/or offset emissions sufficient to achieve: (1) 20-percent reduction of construction equipment exhaust NOx; (2) 45-percent reduction of construction equipment exhaust PM_{10}; (3) 33-percent reduction of operational NOx over 10 years; and (4) 50-percent reduction of operational PM_{10} over 10 years. SJVAPCD ISR applications must be filed "no later than applying for a final discretionary approval with a public agency."

REGULATORY ATTAINMENT DESIGNATIONS

Under the CCAA, ARB is required to designate areas of the state as attainment, nonattainment, or unclassified with respect to applicable standards. An "attainment" designation for an area signifies that pollutant concentrations did not violate the applicable standard in that area. A "nonattainment" designation indicates that a pollutant concentration violated the applicable standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. Depending on the frequency and severity of pollutants exceeding applicable standards, the nonattainment designation can be further classified as serious nonattainment, severe nonattainment, or extreme nonattainment, with extreme nonattainment being the most severe of the classifications. An "unclassified" designation signifies that the data does not support either an attainment or nonattainment designation. The CCAA divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category.

The U.S. EPA designates areas for ozone, CO, and NO_2 as "does not meet the primary standards," "cannot be classified," or "better than national standards." For SO_2, areas are designated as "does not meet the primary standards," "does not meet the secondary standards," "cannot be classified," or "better than national standards." However, ARB terminology of attainment, nonattainment, and unclassified is more frequently used. The U.S. EPA uses the same sub-categories for nonattainment status: serious, severe, and extreme. In 1991, U.S. EPA assigned new nonattainment designations to areas that had previously been classified as Group I, II, or III for PM_{10} based on the likelihood that they would violate national PM_{10} standards. All other areas are designated "unclassified."

The state and national attainment status designations pertaining to the SJVAB are summarized in Table 6. The SJVAB is currently designated as a nonattainment area with respect to the state PM_{10} standard, ozone, and $PM_{2.5}$ standards. The SJVAB is designated nonattainment for the national 8-hour ozone and $PM_{2.5}$

standards. On September 25, 2008, the U.S. EPA redesignated the San Joaquin Valley to attainment for the PM_{10} NAAQS and approved the PM_{10} Maintenance Plan (SJVAPCD 2025).

Table 6.
SJVAB Attainment Status Designations

Pollutant	National Designation	State Designation
Ozone, 1 hour	No Standard	Nonattainment/Severe
Ozone, 8 hour	Nonattainment/Extreme	Nonattainment
PM_{10}	Attainment	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
Carbon Monoxide	Attainment/Unclassified	Attainment/Unclassified
Nitrogen dioxide	Attainment/Unclassified	Attainment
Sulfur dioxide	Attainment/Unclassified	Attainment
Lead (particulate)	No Designation/Classification	Attainment
Hydrogen sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility-reducing particulates	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment

For more information visit website URL: https://www.valleyair.org/aqinfo/attainment.htm.
Source: SJVAPCD 2025

SENSITIVE RECEPTORS

One of the most important reasons for air quality standards is the protection of those members of the population who are most sensitive to the adverse health effects of air pollution, termed "sensitive receptors." The term sensitive receptors refer to specific population groups, as well as the land uses where individuals would reside for long periods. Commonly identified sensitive population groups are children, the elderly, the acutely ill, and the chronically ill. Commonly identified sensitive land uses would include facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Residential dwellings, schools, parks, playgrounds, childcare centers, convalescent homes, and hospitals are examples of sensitive land uses.

Sensitive land uses located in the vicinity of the proposed project site consist predominantly of rural residential land uses. The nearest off-site residential land uses are located in excess of 1,000 feet from the proposed plant location. The nearest on-site worker housing is located approximately 650 feet north of the proposed plant.

IMPACTS & MITIGATION MEASURES

Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines Initial Study Checklist, a project would be considered to have a significant impact to climate change if it would:

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.

To assist local jurisdictions in the evaluation of air quality impacts, the SJVAPCD has published the Guide for Assessing and Mitigating Air Quality Impacts (SJVAPCD 2015). This guidance document includes recommended thresholds of significance to be used for the evaluation of short-term construction, long-term operational, odor, toxic air contaminant, and cumulative air quality impacts. Accordingly, the SJVAPCD-recommended thresholds of significance are used to determine whether implementation of the proposed project would result in a significant regional or local air quality impact and related public-health concerns. The thresholds of significance are summarized below.

- Short-term Emissions—Construction impacts associated with the proposed project would be considered significant if project-generated emissions would exceed 100 tons per year (TPY) of CO, 10 TPY of ROG or NO_X, 27 TPY of SO_X, or 15 TPY of PM_{10} or $PM_{2.5}$.
- Long-term Emissions—Operational impacts associated with the proposed project would be considered significant if project generated emissions would exceed 100 TPY of CO, 10 TPY of ROG or NO_X, 27 TPY of SO_X, or 15 TPY of PM_{10} or $PM_{2.5}$.
- Conflict with or Obstruct Implementation of Applicable Air Quality Plan—Due to the region's non-attainment status for ozone, $PM_{2.5}$, and PM_{10}, if project-generated emissions of ozone precursor pollutants (i.e., ROG and NO_x) or PM would exceed the SJVAPCD's significance thresholds, then the project would be considered to conflict with the attainment plans.
- Local Mobile-Source CO Concentrations—Local mobile source impacts associated with the proposed project would be considered significant if the project contributes to CO concentrations at receptor locations in excess of the CAAQS (i.e., 9.0 ppm for 8 hours or 20 ppm for 1 hour).
- Exposure to toxic air contaminants (TAC) would be considered significant if the probability of contracting cancer for the Maximally Exposed Individual (i.e., maximum individual risk) would exceed 20 in 1 million or would result in a Hazard Index greater than 1.
- Odor impacts associated with the proposed project would be considered significant if the project has the potential to frequently expose members of the public to objectionable odors.

In addition to the above thresholds, the SJVAPCD also recommends the use of daily emissions thresholds for the evaluation of project impacts on localized ambient air quality conditions. Accordingly, the proposed project would also be considered to result in a significant contribution to localized ambient air quality if emissions of ROG, NO_X, PM_{10}, $PM_{2.5}$, CO, or SO_2 associated with either short-term construction or long-term operational activities would exceed a daily average of 100 pounds per day (lbs/day) for each of the pollutants evaluated (SJVAPCD 2015).

Methodology

Short-term Construction-Generated Emissions

Emissions associated with the construction of the project were calculated using the California Emissions Estimator Model (CalEEMod), version 2022.1.1.36 computer program. Estimated on-road mobile-source emissions derived from CalEEMod modeling for project construction and operations were adjusted to account for *EMFAC2021 Off-Model Adjustment Factors to Remove the Impact of Advanced Clean Trucks, Zero-Emission Airport Shuttle, Heavy-Duty Omnibus and Warranty Phase I Regulations* (ARB 2026b). To be conservative, the highest EMFAC2021 adjustment factors identified for all fuel types/corresponding vehicle categories were applied. Based on project-specific information provided, construction was estimated to occur over an approximate 12-month period. The project would not require the import or export of soil. No demolition would be required and given that the project site has been previously developed, no grading would be required. Additional construction information such as haul truck trips, worker vehicle trips, and equipment load factors were based on information provided and default parameters contained in the model. Model defaults for worker trips were increased to reflect a total of up to 20 workers (40 worker vehicle trips) during the construction phase, based on information provided. Construction emissions modeling included application of dust control measures, including watering to reduce visible dust plumes

and prevention of track-out onto adjacent paved roadways, in accordance with SJVAPCD Regulation VIII. Modeling assumptions and output files are included in Appendix A of this report.

Long-term Operational Emissions

Long-term operational GHG emissions associated with the proposed project were calculated using the CalEEMod 2022.1.1.36 computer program. Estimated on-road mobile-source emissions derived from CalEEMod modeling for project construction and operations were adjusted to account for *EMFAC2021 Off-Model Adjustment Factors to Remove the Impact of Advanced Clean Trucks, Zero-Emission Airport Shuttle, Heavy-Duty Omnibus and Warranty Phase I Regulations* (ARB 2026b). To be conservative, the highest EMFAC2021 adjustment factors identified for all fuel types/corresponding vehicle categories were applied. To be conservative, building area was based on the maximum estimates identified. Material storage areas were assumed to be enclosed and included in the estimated building square footage assumptions. A total of 39,000 square feet of building area for the proposed pelletizing plant was assumed. Likewise, to be conservative, the proposed office was also assumed to be a separate structure totaling approximately 1,000 square feet. Energy usage rates, including electricity and natural gas use, for heating and cooling of the office were based on model defaults. Electricity usage rates for the pelletizing plant were based on an estimated 208,946 kWh/yr, based on information provided. Usage rates for water use, and waste generation were based on model defaults. Off-road equipment use was assumed to include the use of a front-end loader operating eight hours per day, based on information provided. A total of 15 employees (30 trips per day) and six days per week operational period was assumed, based on information provided. The project would not require the installation of stationary emissions sources, such as boilers or back-up generators. Modeling assumptions and output files are included in Appendix A of this report.

Project Impacts

Impact AQ-A. Would the project conflict with or obstruct implementation of the applicable air quality plan?

In accordance with SJVAPCD-recommended methodology for the assessment of air quality impacts, projects that result in significant air quality impacts at the project level are also considered to have a significant cumulative air quality impact. As noted in Impact AQ-B, short-term construction and long-term operational emissions would not exceed applicable thresholds. In addition, implementation of the proposed project would not result in an increase in population or vehicle miles traveled that would conflict with applicable plans, such as the Merced County Association of Governments' *2022 Regional Transportation Plan/Sustainable Community Strategy* (RTP/SCS). For these reasons, implementation of the proposed project would not conflict with air quality attainment or maintenance planning efforts. This impact would be considered ***less than significant***.

Impact AQ-B. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Short-term construction and long-term air quality impacts associated with the proposed project are discussed, as follows:

Short-term Construction Emissions

Short-term increases in emissions would occur during the construction phase. Construction-generated emissions are temporary, lasting only as long as construction activities occur, but have the potential to represent a significant air quality impact. The construction of the proposed project would result in the temporary generation of emissions associated with site preparation, building construction, and paving. Short-term construction emissions would result in increased emissions of ozone-precursor pollutants (i.e., ROG and NO_X), CO, and emissions of PM. Emissions of ozone-precursors would result from the operation of on-road and off-road motorized vehicles and equipment. Emissions of airborne PM are largely dependent

on the amount of ground disturbance associated with site preparation. Estimated construction-generated annual emissions associated with the proposed project are summarized in Table 7.

Table 7.
Annual Construction Emissions

Construction Year	Uncontrolled Maximum Annual Emissions (tons/year) [1]					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Year 2026	<0.1	0.2	0.3	<0.1	<0.1	<0.1
Year 2027	0.1	0.8	1.1	<0.1	0.1	<0.1
Maximum Annual Emissions:	0.1	0.8	1.1	<0.1	0.1	<0.1
Significance Thresholds:	*10*	*10*	*100*	*27*	*15*	*15*
Exceeds Thresholds/Significant Impact?	*No*	*No*	*No*	*No*	*No*	*No*

1. Based on CalEEMod computer modeling. Totals may not sum due to rounding. Includes compliance with SJVAPCD Regulation VIII for the control of fugitive dust emissions.
Refer to Appendix A for modeling results and assumptions.

As noted in Table 7, construction of the proposed project would generate annual emissions of approximately 0.1 tons/year of ROG, 0.8 tons/year of NO_x, 1.1 tons/year of CO, and 0.1 tons/year of PM_{10}. Emissions of SO2 and $PM_{2.5}$ would be negligible (i.e., 0.1 tons/year, or less. Estimated annual construction-generated emissions would not exceed the SJVAPCD's significance thresholds of 10 tons/year of ROG, 10 tons/year of NO_x, 100 tons/year of CO, 27 tons/year of SOx, 15 tons/year PM_{10}, or 15 tons/year $PM_{2.5}$.

Estimated daily construction emissions are summarized in Table 8. As noted in Table 8, construction of the proposed project would generate maximum daily emissions of approximately 1.8 lbs/day of ROG, 16.7 lbs/day of NO_x, 21.1 lbs/day of CO, 0.1 lbs/day of SO_2, 0.8 lbs/day of PM_{10}, and 0.7 lbs/day of $PM_{2.5}$. Daily on-site construction emissions would not exceed the SJVAPCD's recommended localized ambient air quality significance thresholds of 100 lbs/day for each of the criteria air pollutants evaluated.

Table 8.
Daily Construction Emissions

Construction Year	Uncontrolled Maximum Daily Emissions (lbs/day) [1]					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Year 2026	1.8	16.7	21.1	0.1	0.8	0.7
Year 2027	0.8	7.0	10.6	<0.1	0.6	0.3
Maximum Daily Emissions:	1.8	16.7	21.1	0.1	0.8	0.7
Significance Thresholds:	*100*	*100*	*100*	*100*	*100*	*100*
Exceeds Thresholds/Significant Impact?	*No*	*No*	*No*	*No*	*No*	*No*

1. Based on CalEEMod computer modeling. Totals may not sum due to rounding. Does not include emission control measures. Construction would begin in 2023. Future year emissions would be less.
Refer to Appendix A for modeling results and assumptions.

Short-term construction of the proposed project would not result in a significant impact to regional or local air quality conditions. Furthermore, it is important to note that project construction, including grading activities, would be required to comply with SJVPACD Regulation VIII (Fugitive PM_{10} Prohibitions). In addition, compliance with SJVAPCD Regulation VIII would require implementation of measures for the control of fugitive dust. For these reasons, construction-generated emissions would not be anticipated to result in a substantial increase in localized or regional pollutant concentrations that would have a significant adverse impact to public health. Given that project-generated emissions would not exceed applicable SJVAPCD significance thresholds, this impact would be considered ***less than significant***.

Long-term Operational Emissions

Estimated annual operational emissions for the proposed project are summarized in Table 9. As depicted, the proposed project would result in annual emissions of approximately 0.6 tons/year of ROG, 0.3 tons/year of NO_X, 1.0 tons/year of CO. Emissions of SO_2, PM_{10}, and $PM_{2.5}$ would negligible (less than 0.1 tons/year). Estimated annual operational emissions would not exceed the SJVAPCD's significance thresholds of 10 tons/year of ROG, 10 tons/year of NO_x, 100 tons/year of CO, 27 tons/year of SOx, 15 tons/year PM_{10}, or 15 tons/year $PM_{2.5}$. It is also important to note that the proposed pelletizing facility would not include the installation of major emissions sources (e.g., boilers, backup generators, etc.). The proposed facility would be enclosed and would be designed to minimize operational emissions in accordance with applicable SJVAPCD permitting requirements. It is also important to recognize that the proposed project would help to reduce emissions that are often associated with typical farm practices, such as open-air manure storage ponds and lagoons. The pelletizing of manure would result in reductions in ammonia emissions. Reductions in ammonia emissions from agricultural practices would indirectly result in lower ambient concentrations of $PM_{2.5}$ (CDFA 2026). For these reasons, this impact would be considered ***less than significant***.

Table 9.
Annual Operational Emissions

Operational Category	Uncontrolled Annual Emissions (tons/year)[1]					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Mobile	<0.1	<0.1	0.2	<0.1	<0.1	<0.1
Area Source	0.6	<0.1	0.5	<0.1	<0.1	<0.1
Energy Use	<0.1	0.1	0.1	<0.1	<0.1	<0.1
Total[2]:	0.6	0.3	1.0	<0.1	<0.1	<0.1
Significance Thresholds:	*10*	*10*	*100*	*27*	*15*	*15*
Exceeds Thresholds/Significant Impact?	*No*	*No*	*No*	*No*	*No*	*No*

1. Emissions were calculated using the CalEEMod computer program. Includes installation of water efficient fixtures in accordance with building code requirements.
2. Includes EmFac2021 off-model adjustment factors.
Refer to Appendix A for modeling assumptions and results.

Estimated daily on-site operational emissions are summarized in Table 10. As depicted, the proposed project would result in daily operational emissions of approximately 3.7 lbs/day of ROG, 1.6 lbs/day of NO_X, 8.4 lbs/day of CO, and, 0.2 lbs/day of PM_{10}. Emissions of SO_2 and $PM_{2.5}$ would be negligible (i.e., less than 0.01 lbs/day). Daily operational emissions would not exceed the SJVAPCD's recommended localized ambient air quality significance thresholds of 100 lbs/day for each of the criteria air pollutants evaluated. Long-term operation of the proposed project would not result in a significant impact to local air quality conditions. This impact would be considered ***less than significant***.

Table 10.
Daily Operational Emissions

Operational Category	Uncontrolled Daily Emissions (lbs/day) [1]					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Mobile	0.1	0.2	1.2	<0.1	0.2	0.1
Area Source	3.5	<0.1	5.0	<0.1	<0.1	<0.1
Energy Use	<0.1	0.4	0.3	<0.1	<0.1	<0.1
Off-Road Equipment	0.1	1.0	1.9	<0.1	<0.1	<0.1
Total:	3.7	1.6	8.4	<0.1	0.2	0.1
Significance Thresholds:	*100*	*100*	*100*	*100*	*100*	*100*
Exceeds Thresholds/Significant Impact?	*No*	*No*	*No*	*No*	*No*	*No*

1. *Emissions were calculated using the CalEEMod computer program. Includes installation of water efficient fixtures in accordance with building code requirements.*
2. *Includes EmFac2021 off-model adjustment factors.*

Refer to Appendix A for modeling assumptions and results.

Impact AQ-C. Would the project expose sensitive receptors to substantial pollutant concentrations?

Sensitive land uses located in the vicinity of the proposed project site consist predominantly of residential land uses. The nearest off-site residential land uses are located in excess of 1,000 feet from the proposed plant location. The nearest on-site worker housing is located approximately 650 feet north of the proposed plant. Long-term operational and short-term construction activities and emission sources that could adversely impact these nearest sensitive receptors are discussed, as follows:

Long-term Operation

Localized Mobile-Source CO Emissions

Carbon monoxide is the primary criteria air pollutant of local concern associated with the proposed project. Under specific meteorological and operational conditions, such as near areas of heavily congested vehicle traffic, CO concentrations may reach unhealthy levels. If inhaled, CO can be adsorbed easily by the bloodstream and can inhibit oxygen delivery to the body, which can cause significant health effects ranging from slight headaches to death. The most serious effects are felt by individuals susceptible to oxygen deficiencies, including people with anemia and those suffering from chronic lung or heart disease.

Mobile-source emissions of CO are a direct function of traffic volume, speed, and delay. Transport of CO is extremely limited because it disperses rapidly with distance from the source under normal meteorological conditions. For this reason, modeling of mobile-source CO concentrations is typically recommended for sensitive land uses located near signalized roadway intersections that are projected to operate at unacceptable levels of service (i.e., LOS E or F). Localized CO concentrations associated with the proposed project would be considered less-than-significant impact if: (1) traffic generated by the proposed project would not result in deterioration of a signalized intersection to a LOS of E or F; or (2) the project would not contribute additional traffic to a signalized intersection that already operates at LOS of E or F.

The nearest signalized intersections are located along State Route 165 at Bradbury Road and August Avenue. Assuming a total of approximately 15 employees and two daily trips per employee, implementation of the proposed project would be anticipated to result in approximately 30 vehicle trips per day along area roadways. The project would not result in increases in truck trips. Vehicle trips along State Route 165 average approximately 1,500 to 1,700 vehicles during peak-hour operations (Caltrans 2026). As a result, implementation of the proposed project would not be anticipated to result in a

substantial increase in vehicle traffic that would adversely impact nearby signalized intersection operations. As a result, the project's contribution to localized CO concentrations and potential health-related impacts on nearby receptors would be considered **less than significant**.

Toxic Air Contaminants

Implementation of the proposed project would not result in the long-term operation of any major onsite stationary sources of TACs, nor would project implementation result in a significant increase in diesel-fueled vehicles traveling along area roadways. No major stationary sources of TACs were identified in the project vicinity that would result in increased exposure of residences, students, or staff to TACs. For these reasons, long-term increases in exposure to TACs would be considered ***less than significant***.

Short-term Construction

Naturally Occurring Asbestos

Naturally-occurring asbestos, which was identified by ARB as a TAC in 1986, is located in many parts of California and is commonly associated with ultramafic rock. The project site is not located near any areas that are likely to contain ultramafic rock (DOC 2000). As a result, risk of exposure to asbestos during the construction process would be considered ***less than significant***.

Diesel-Exhaust Emissions

Diesel-exhaust particulate matter (DPM) was identified by the ARB as a TAC in 1998. Health risks associated with DPM are primarily associated with potential cancer risks. The dose to which receptors are exposed is the primary factor used to determine carcinogenic health risks. Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. The calculation of cancer risk associated with exposure to TACs are typically calculated based on a 25- to 30-year period of exposure. However, such assessments should be limited to the period and duration during which exposure occurs. Assuming that construction activities involving the use of diesel-fueled equipment would occur over an approximate 12-month period, project-related construction activities would constitute less than four percent of the typical exposure period. Onsite construction equipment would also be required to comply with State's Off-Road Diesel Regulation, which limits idling of off-road diesel equipment to a maximum of 5 minutes when not in use. As a result, because the use of off-road heavy-duty diesel equipment would be temporary and episodic occurring over a relatively large area, and the highly dispersive properties of DPM, project construction would not expose sensitive receptors to substantial emissions of DPM in excess of applicable thresholds. For these reasons, this impact would be considered ***less than significant***.

Valley Fever

Valley Fever (Coccidioidomycosis) is an infectious disease caused by the fungus Coccidioides immitis. The Valley Fever fungus tends to be found in virgin, undisturbed soil and is not likely to be found in soil that has been disturbed. In addition, the Valley Fever fungus is not likely to be found in active agricultural production lands that are being cultivated, watered, or fertilized. The frequent disturbance of agricultural soils, watering, and the application of manmade fertilizers, inhibit the growth of the Valley Fever fungus. Valley Fever infection is most frequent during the dry summer periods that follow a rainy winter or spring, especially after wind and dust storms. In its primary form, symptoms appear as a mild upper respiratory infection, acute bronchitis, or pneumonia. The most common symptoms are fatigue, cough, chest pain, fever, rash, headache, and joint aches, although 60 percent of people infected are asymptomatic and do not seek medical attention. In the remaining 40 percent, symptoms range from mild to severe. A small percentage, less than one percent, die as a result of the disease (DIR 2026, Ventura County 2003).

Project construction contractor(s) would be required to comply with all applicable laws and regulations related to air quality. California Assembly Bill (AB) 203, adopted in 2019, requires construction employers to provide Valley Fever training for workers located within identified high-risk counties (DPH 2026, DIR 2026). This worker training includes education in topics such as risks, common symptoms, and how best to prevent exposure, including measures to be taken to reduce risk (e.g., use of respirators (N95s); wetting soil;

avoiding airborne dust, particularly in downwind locations; use of equipment cab enclosures; as well as, any measures recommended by Cal/OSHA (DPH 2026, DIR 2026). In addition, the project site consists predominantly of actively disturbed lands. As noted above, the Valley Fever fungus is not likely to be found in actively disturbed lands. Furthermore, compliance with SJVAPCD Regulation VIII, which includes measures to be implemented during project construction for the control of fugitive dust, would further minimize potential increases of entrained fungal spores. For these reasons, potential exposure to fungal spores that would cause Valley Fever would be considered ***less than significant***.

Localized PM Concentrations

Fugitive dust emissions would be primarily associated with site preparation and vehicle travel on unpaved and paved surfaces. On-site off-road equipment and trucks would also result in short-term emissions of diesel-exhaust PM, which could contribute to elevated localized concentration at nearby receptors. The proposed project would not require grading or the import/export of soils. In addition, project construction activities would be required to comply with SJVAPCD Regulation VIII, which includes measures to be implemented during project construction for the control of fugitive dust. As noted in Table 8, daily construction emissions of PM would not exceed the SJVAPCD's recommended localized ambient air quality significance thresholds of 100 lbs/day. For these reasons, localized uncontrolled concentrations of construction-generated PM would be considered to have a ***less than significant*** impact.

Impact AQ-D. Would the project result in other emissions (such as those leading to odors) affecting a substantial number of people?

Other emissions potentially associated with the proposed project would be predominantly associated to the generation of odors during project construction. 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 sensitivity of the receptors. While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and regulatory agencies.

Operation of the project would comply with SJVAPCD permitting requirements and would not include processes that would be considered a major source of odorous emissions. Construction of the proposed project would involve the use of a variety of gasoline or diesel-powered equipment that would emit exhaust fumes. Exhaust fumes, particularly diesel-exhaust, may be considered objectionable by some people. However, construction-generated emissions would occur intermittently throughout the workday and would dissipate rapidly within increasing distance from the source. The nearest sensitive land uses are rural residential dwellings located in excess of 1,000 feet from the proposed pelletizing plant. As a result, the proposed project would not expose a substantial number of people to frequent odorous emissions. In addition, no major sources of odors have been identified in the project area. This impact would be considered ***less than significant***.

GREENHOUSE GASES AND CLIMATE CHANGE

EXISTING SETTING

To fully understand global climate change, it is important to recognize the naturally occurring "greenhouse effect" and to define the greenhouse gases (GHGs) that contribute to this phenomenon. Various gases in the earth's atmosphere, classified as atmospheric GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space and a portion of the radiation is absorbed by the earth's surface. The earth emits this radiation back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation. Greenhouse gases, which are transparent to solar radiation, are effective in absorbing infrared radiation. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect. Among the prominent GHGs contributing to the greenhouse effect are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Primary GHGs attributed to global climate change, are discussed, as follows:

- **Carbon Dioxide**. Carbon dioxide (CO_2) is a colorless, odorless gas. CO_2 is emitted in a number of ways, both naturally and through human activities. The largest source of CO_2 emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, industrial facilities, and other sources. A number of specialized industrial production processes and product uses such as mineral production, metal production, and the use of petroleum-based products can also lead to CO_2 emissions. The atmospheric lifetime of CO_2 is variable because it is so readily exchanged in the atmosphere (U.S. EPA 2018).

- **Methane**. Methane (CH_4) is a colorless, odorless gas that is not flammable under most circumstances. CH_4 is the major component of natural gas, about 87 percent by volume. It is also formed and released to the atmosphere by biological processes occurring in anaerobic environments. Methane is emitted from a variety of both human-related and natural sources. Human-related sources include fossil fuel production, animal husbandry (enteric fermentation in livestock and manure management), rice cultivation, biomass burning, and waste management. These activities release significant quantities of methane to the atmosphere. Natural sources of methane include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and other sources such as wildfires. Methane's atmospheric lifetime is about 12 years (U.S. EPA 2018).

- **Nitrous Oxide**. Nitrous oxide (N_2O) is a clear, colorless gas with a slightly sweet odor. N_2O is produced by both natural and human-related sources. Primary human-related sources of N_2O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, acid production, and nitric acid production. N_2O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N_2O is approximately 114 years (U.S. EPA 2018).

- **Hydrofluorocarbons.** Hydrofluorocarbons (HFCs) are man-made chemicals, many of which have been developed as alternatives to ozone-depleting substances for industrial, commercial, and consumer products. The only significant emissions of HFCs before 1990 were of the chemical HFC-23, which is generated as a byproduct of the production of HCFC-22 (or Freon 22, used in air conditioning applications). The atmospheric lifetime for HFCs varies from just over a year for HFC-152a to 270 years for HFC-23. Most of the commercially used HFCs have atmospheric lifetimes of less than 15 years (e.g., HFC-134a, which is used in automobile air conditioning and refrigeration, has an atmospheric life of 14 years) (U.S. EPA 2018).

- **Perfluorocarbons.** Perfluorocarbons (PFCs) are colorless, highly dense, chemically inert, and nontoxic. There are seven PFC gases: perfluoromethane (CF_4), perfluoroethane (C_2F_6), perfluoropropane (C_3F_8), perfluorobutane (C_4F_{10}), perfluorocyclobutane (C_4F_8), perfluoropentane (C_5F_{12}), and perfluorohexane (C_6F_14). Natural geological emissions have been responsible for the PFCs that have accumulated in the atmosphere in the past; however, the largest current source is aluminum

production, which releases CF_4 and C_2F_6 as byproducts. The estimated atmospheric lifetimes for PFCs ranges from 2,600 to 50,000 years (U.S. EPA 2018).

- **Nitrogen Trifluoride**. Nitrogen trifluoride (NF_3) is an inorganic, colorless, odorless, toxic, nonflammable gas used as an etchant in microelectronics. Nitrogen trifluoride is predominantly employed in the cleaning of the plasma-enhanced chemical vapor deposition chambers in the production of liquid crystal displays and silicon-based thin film solar cells. It has a global warming potential of 16,100 carbon dioxide equivalents (CO_2e). While NF_3 may have a lower global warming potential than other chemical etchants, it is still a potent GHG. In 2009, NF_3 was listed by California as a high global warming potential GHG to be listed and regulated under Assembly Bill (AB) 32 (Section 38505 Health and Safety Code).

- **Sulfur Hexafluoride**. Sulfur hexafluoride (SF_6) is an inorganic compound that is colorless, odorless, nontoxic, and generally nonflammable. SF_6 is primarily used as an electrical insulator in high voltage equipment. The electric power industry uses roughly 80 percent of all SF_6 produced worldwide. Leaks of SF_6 occur from aging equipment and during equipment maintenance and servicing. SF_6 has an atmospheric life of 3,200 years (U.S. EPA 2018).

- **Black Carbon**. Black carbon is the strongest light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. Black carbon contributes to climate change both directly by absorbing sunlight and indirectly by depositing on snow and by interacting with clouds and affecting cloud formation. Black carbon is considered a short-lived species, which can vary spatially and, consequently, it is very difficult to quantify associated global-warming potentials. The main sources of black carbon in California are wildfires, off-road vehicles (locomotives, marine vessels, tractors, excavators, dozers, etc.), on-road vehicles (cars, trucks, and buses), fireplaces, agricultural waste burning, and prescribed burning (planned burns of forest or wildlands) (CCAC 2018, U.S. EPA 2018).

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. Often, estimates of GHG emissions are presented in CO_2e, which weight each gas by its global warming potential (GWP). Expressing GHG emissions in CO_2e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted. Table 11 provides a summary of the GWP for GHG emissions of typical concern with regard to community development projects, based on a 100-year time horizon. As indicated, Methane traps over 25 times more heat per molecule than CO_2, and N_2O absorbs roughly 298 times more heat per molecule than CO_2. Additional GHG with high GWP include Nitrogen trifluoride, Sulfur hexafluoride, Perfluorocarbons, and black carbon.

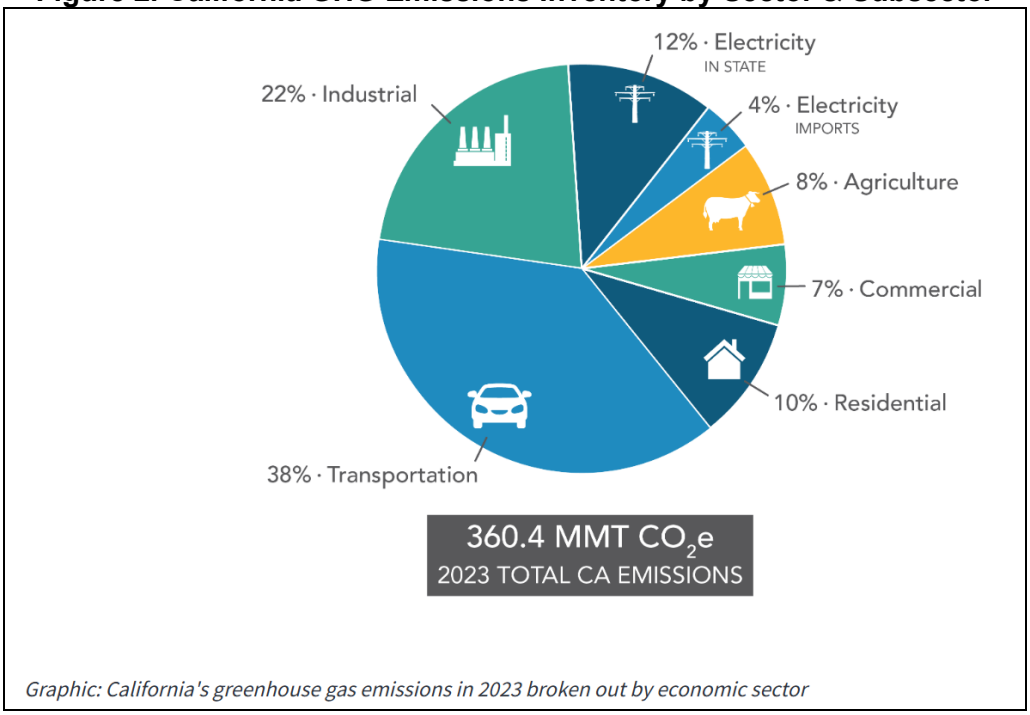
Table 11.
Global Warming Potential for Greenhouse Gases

Greenhouse Gas	Global Warming Potential (100-year)
Carbon Dioxide (CO_2)	1
Methane (CH_4)	25
Nitrous Dioxide (N_2O)	298
**Based on IPCC GWP values for 100-year time horizon* *Source: IPCC 2007*	

Statewide GHG Emissions

In 2023, GHG emissions within California totaled 360.4 million metric tons (MMT) of CO_2e. GHG emissions, by sector, are summarized in Figure 2. Within California, the transportation sector is the largest contributor, accounting for approximately 38 percent of the total state-wide GHG emissions. Emissions associated with industrial uses are the second-largest contributor, totaling roughly 22 percent. Electricity generation totaled roughly 16 percent. Other major emission sources included commercial uses, residential uses, agriculture, and refrigerants (ARB 2026c).

Figure 2. California GHG Emissions Inventory by Sector & Subsector



Graphic: California's greenhouse gas emissions in 2023 broken out by economic sector

Source: ARB 2026c

Short-Lived Climate Pollutants

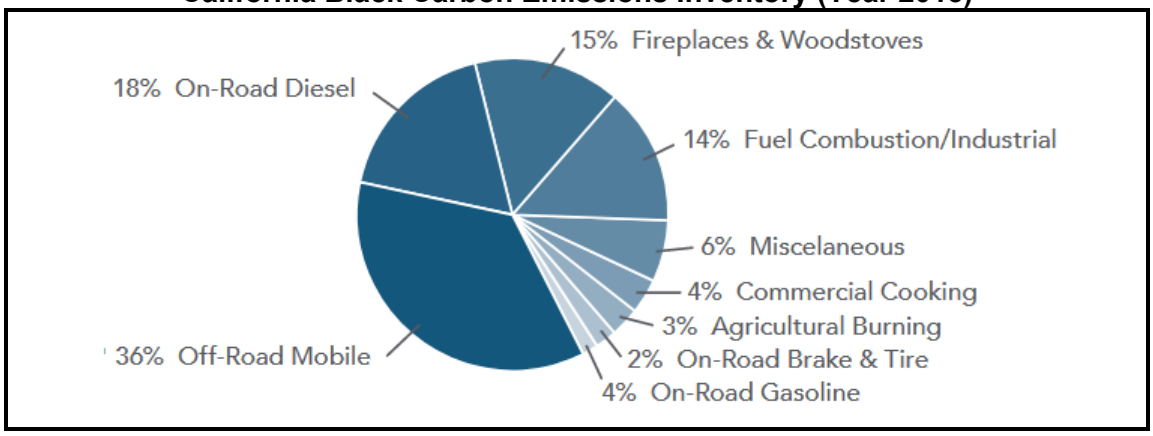
Short-lived climate pollutants (SLCPs), such as black carbon, fluorinated gases, and methane also have a dramatic effect on climate change. Though short-lived, these pollutants create a warming influence on the climate that is many times more potent than that of carbon dioxide.

As part of the ARB's efforts to address SLCPs, the ARB has developed a statewide emission inventory for black carbon. The black carbon inventory will help support the implementation of the SLCP Strategy, but it is not part of the State's GHG Inventory that tracks progress towards the State's climate targets. The most recent inventory for year 2013 conditions is depicted in Figure 3. As depicted, off-road mobile sources account for a majority of black carbon emissions totaling roughly 36 percent of the inventory. Other major anthropogenic sources of black carbon include on-road transportation, residential wood burning, fuel combustion, and industrial processes (ARB 2026d).

Effects of Global Climate Change

There are uncertainties as to exactly what the climate changes will be in various local areas of the earth. There are also uncertainties associated with the magnitude and timing of other consequences of a warmer planet: sea level rise, spread of certain diseases out of their usual geographic range, the effect on agricultural production, water supply, sustainability of ecosystems, increased strength and frequency of storms, extreme heat events, increased air pollution episodes, and the consequence of these effects on the economy.

Figure 3.
California Black Carbon Emissions Inventory (Year 2013)



Source: ARB 2026d

Within California, climate changes would likely alter the ecological characteristics of many ecosystems throughout the state. Such alterations would likely include increases in surface temperatures and changes in the form, timing, and intensity of precipitation. For instance, historical records are depicting an increasing trend toward earlier snowmelt in the Sierra Nevada. This snowpack is a principal supply of water for the state, providing roughly 50 percent of state's annual runoff. If this trend continues, some areas of the state may experience an increased danger of floods during the winter months and possible exhaustion of the snowpack during spring and summer months. An earlier snowmelt would also impact the State's energy resources. Currently, approximately 13 percent of California's electricity comes from hydropower. An early exhaustion of the Sierra snowpack, may force electricity producers to switch to more costly or non-renewable forms of electricity generation during spring and summer months. A changing climate may also impact agricultural crop yields, coastal structures, and biodiversity. As a result, resultant changes in climate will likely have detrimental effects on some of California's largest industries, including agriculture, wine, tourism, skiing, recreational and commercial fishing, and forestry.

REGULATORY FRAMEWORK

Federal

Executive Order 13514

Executive Order 13514 is focused on reducing GHGs internally in federal agency missions, programs, and operations. In addition, the executive order directs federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

On April 2, 2007, in Massachusetts v. U.S. EPA, 549 U.S. 497 (2007), the Supreme Court found that GHGs are air pollutants covered by the FCAA and that the U.S. EPA has the authority to regulate GHG. The Court held that the U.S. EPA Administrator must determine whether or not emissions of GHGs from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision.

On December 7, 2009, the U.S. EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the Clean Air Act:

- Endangerment Finding: The Administrator found that the current and projected concentrations of the six key well-mixed GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) in the atmosphere threaten the public health and welfare of current and future generations.

- Cause or Contribute Finding: The Administrator found that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare.

Although these findings did not themselves impose any requirements on industry or other entities, this action was a prerequisite to finalizing the U.S. EPA's Proposed Greenhouse Gas Emission Standards for Light-Duty Vehicles, which was published on September 15, 2009. On May 7, 2010 the final Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards was published in the Federal Register.

U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations. These steps were outlined by President Obama in a Presidential Memorandum on May 21, 2010.

The final combined U.S. EPA and NHTSA standards that make up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards require these vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile (the equivalent to 35.5 miles per gallon if the automobile industry were to meet this CO_2 level solely through fuel economy improvements). Together, these standards will cut GHG emissions by an estimated 960 MMT and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016). On August 28, 2012, U.S. EPA and NHTSA issued their joint rule to extend this national program of coordinated GHG and fuel economy standards to model years 2017 through 2025 passenger vehicles.

State

Executive Order No. S-3-05

Executive Order S-3-05 (State of California) proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total GHG emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, to the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

The Executive Order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The secretary will also submit biannual reports to the governor and state legislature describing (1) progress made toward reaching the emission targets, (2) impacts of global warming on California's resources, and (3) mitigation and adaptation plans to combat these impacts. To comply with the Executive Order, the secretary of CalEPA created a Climate Action Team made up of members from various state agencies and commissions. The Climate Action Team released its first report in March 2006 and continues to release periodic reports on progress. The report proposed to achieve the targets by building on voluntary actions of California businesses, local government and community actions, as well as through state incentive and regulatory programs.

Assembly Bill 32 - California Global Warming Solutions Act of 2006

AB 32 (Health and Safety Code Sections 38500, 38501, 28510, 38530, 38550, 38560, 38561–38565, 38570, 38571, 38574, 38580, 38590, 38592–38599) requires that statewide GHG emissions be reduced to 1990 levels by the year 2020. The gases that are regulated by AB 32 include CO_2, CH_4, N_2O, HFCs, PFCs, NF_3, and SF_6. The reduction to 1990 levels will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be

implemented, then ARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires that ARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap, institute a schedule to meet the emissions cap, and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

Climate Change Scoping Plan

In October 2008, ARB published its *Climate Change Proposed Scoping Plan*, which is the State's plan to achieve GHG reductions in California required by AB 32. This initial Scoping Plan contained the main strategies to be implemented in order to achieve the target emission levels identified in AB 32. The Scoping Plan included ARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. The largest proposed GHG reduction recommendations were associated with improving emissions standards for light-duty vehicles, implementing the Low Carbon Fuel Standard program, implementation of energy efficiency measures in buildings and appliances, and the widespread development of combined heat and power systems, and developing a renewable portfolio standard for electricity production.

The Scoping Plan states that land use planning and urban growth decisions will play important roles in the state's GHG reductions because local governments have primary authority to plan, zone, approve, and permit how land is developed to accommodate population growth and the changing needs of their jurisdictions. ARB further acknowledges that decisions on how land is used will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emissions sectors. With regard to land use planning, the Scoping Plan expects approximately 5.0 MMT CO_2e will be achieved associated with the implementation of Senate Bill 375, which is discussed further below.

The initial Scoping Plan was first approved by ARB on December 11, 2008, and is updated every five years. The first update of the Scoping Plan was approved by the ARB on May 22, 2014, which looked past 2020 to set mid-term goals (2030-2035) on the road to reaching the 2050 goals. The most recent Scoping Plan is the 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan). The 2022 Scoping Plan lays out a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045. Significant reductions in fossil fuel combustion will be achieved by deploying clean technologies and fuels, requiring further reductions in short-lived climate pollutants, supporting sustainable development, employing technology to capture and store carbon, and taking increased action on natural and working lands to reduce emissions and sequester carbon.

Senate Bill 1078 and Governor's Order S-14-08 (California Renewables Portfolio Standards)

Senate Bill 1078 (Public Utilities Code Sections 387, 390.1, 399.25 and Article 16) addresses electricity supply and requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide a minimum 20 percent of their supply from renewable sources by 2017. This Senate Bill will affect statewide GHG emissions associated with electricity generation. In 2008, Governor Schwarzenegger signed Executive Order S-14-08, which set the Renewables Portfolio Standard target to 33 percent by 2020. It directed state government agencies and retail sellers of electricity to take all appropriate actions to implement this target. Executive Order S-14-08 was later superseded by Executive Order S-21-09 on September 15, 2009. Executive Order S-21-09 directed the ARB to adopt regulations requiring 33 percent of electricity sold in the State come from renewable energy by 2020. Statute SB X1-2 superceded this Executive Order in 2011, which obligated all California electricity providers, including investor-owned utilities and publicly owned utilities, to obtain at least 33 percent of their energy from renewable electrical generation facilities by 2020.

ARB is required by current law, AB 32 of 2006, to regulate sources of GHGs to meet a state goal of reducing GHG emissions to 1990 levels by 2020 and an 80 percent reduction of 1990 levels by 2050. The California Energy Commissions and California Public Utilities Commission serve in advisory roles to help ARB develop the

regulations to administer the 33 percent by 2020 requirement. ARB is also authorized to increase the target and accelerate and expand the time frame.

Mandatory Reporting of GHG Emissions

The California Global Warming Solutions Act (AB 32, 2006) requires the reporting of GHGs by major sources to the ARB. Major sources required to report GHG emissions include industrial facilities, suppliers of transportation fuels, natural gas, natural gas liquids, liquefied petroleum gas, and carbon dioxide, operators of petroleum and natural gas systems, and electricity retail providers and marketers.

Cap-and-Trade Regulation

The cap-and-trade regulation is a key element in California's climate plan. It sets a statewide limit on sources responsible for 85 percent of California's GHG emissions and establishes a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy. The cap-and-trade rules came into effect on January 1, 2013, and apply to large electric power plants and large industrial plants. In 2015, fuel distributors, including distributors of heating and transportation fuels, also became subject to the cap-and-trade rules. At that stage, the program will encompass around 360 businesses throughout California and nearly 85 percent of the state's total GHG emissions.

Under the cap-and-trade regulation, companies must hold enough emission allowances to cover their emissions and are free to buy and sell allowances on the open market. California held its first auction of GHG allowances on November 14, 2012. California's GHG cap-and-trade system is projected to reduce GHG emissions to 1990 levels by the year 2020 and would achieve an approximate 80 percent reduction from 1990 levels by 2050.

Senate Bill 32

SB 32 was signed by Governor Brown on September 8, 2016. SB 32 effectively extends California's GHG emission-reduction goals from year 2020 to year 2030. This new emission-reduction target of 40 percent below 1990 levels by 2030 is intended to promote further GHG-reductions in support of the State's ultimate goal of reducing GHG emissions by 80 percent below 1990 levels by 2050. SB 32 also directs the ARB to update the Climate Change Scoping Plan to address this interim 2030 emission-reduction target.

Senate Bill 375

Senate Bill (SB) 375 requires Metropolitan Planning Organizations (MPOs) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS) that will address land-use allocation in that MPOs regional transportation plan. ARB, in consultation with MPOs, establishes regional reduction targets for GHGs emitted by passenger cars and light trucks for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. ARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, funding for transportation projects may be withheld. In 2018, ARB adopted updated SB 375 targets.

California Building Code

The California Building Code (CBC) contains standards that regulate the method of use, properties, performance, or types of materials used in the construction, alteration, improvement, repair, or rehabilitation of a building or other improvement to real property. The California Building Code is adopted every three years by the Building Standards Commission (BSC). In the interim, the BSC also adopts annual updates to make necessary mid-term corrections. The CBC standards apply statewide; however, a local jurisdiction may amend a CBC standard if it makes a finding that the amendment is reasonably necessary due to local climatic, geological, or topographical conditions.

Green Building Standards

In essence, green buildings standards are indistinguishable from any other building standards. Both standards are contained in the California Building Code and regulate the construction of new buildings

and improvements. The only practical distinction between the two is that whereas the focus of traditional building standards has been protecting public health and safety, the focus of green building standards is to improve environmental performance. The standards are updated periodically to allow for the consideration and possible incorporation of new energy efficiency technologies and methods. These standards are also commonly referred to as CalGreen Standards.

The 2019 Building Energy Efficiency Standards (2019 Standards), which were adopted in May 2018, address several important areas including smart residential photovoltaic systems, updated thermal envelope standards to prevent heat transfer, residential and nonresidential ventilation requirements, and non-residential lighting requirements. While the 2019 standards lead to notable energy reductions, homes may still utilize other energy sources like natural gas. Actual energy savings depend on various factors such as building orientation and sun exposure. Non-residential buildings can expect around 30 percent energy reduction primarily due to lighting upgrades.

More recently, the 2022 Building Energy Efficiency Standards (2022 Standards) were approved in December 2021 to further enhance energy efficiency in buildings. These standards promote efficient electric heat pumps, establish electric-ready requirements when installing natural gas, support future battery storage installation, and expand solar photovoltaic and battery storage standards. Notably, the 2022 standards extend solar PV system requirements and battery storage capabilities to various land uses, including high-rise multi-family and non-residential structures like office buildings, schools, restaurants, warehouses, theaters, and grocery stores. The sizing of solar systems for these structures should aim to meet targets of up to 60 percent of the building's loads. These new solar requirements came into effect on January 1, 2023, aligning with California's goal of achieving a net-zero carbon footprint by 2045. The most recent update to the CalGreen Standards was in 2025, which became effective in January 2026 (CEC 2026).

Senate Bill 97

Senate Bill 97 (SB 97) was enacted in 2007. SB 97 required OPR to develop, and the Natural Resources Agency to adopt, amendments to the CEQA Guidelines addressing the analysis and mitigation of GHG emissions. Those CEQA Guidelines amendments clarified several points, including the following:

- Lead agencies must analyze the GHG emissions of proposed projects and must reach a conclusion regarding the significance of those emissions.
- When a project's GHG emissions may be significant, lead agencies must consider a range of potential mitigation measures to reduce those emissions.
- Lead agencies must analyze potentially significant impacts associated with placing projects in hazardous locations, including locations potentially affected by climate change.
- Lead agencies may significantly streamline the analysis of GHGs on a project level by using a programmatic GHG emissions reduction plan meeting certain criteria.
- CEQA mandates analysis of a proposed project's potential energy use (including transportation-related energy), sources of energy supply and ways to reduce energy demand, including through the use of efficient transportation alternatives.

Short-Lived Climate Pollutant Reduction Strategy

In March 2017, the ARB adopted the *Short-Lived Climate Pollutant Reduction Strategy* (*SLCP Strategy*) establishing a path to decrease GHG emissions and displace fossil-based natural gas use. Strategies include avoiding landfill methane emissions by reducing the disposal of organics through edible food recovery, composting, in-vessel digestion, and other processes; and recovering methane from wastewater treatment facilities, and manure methane at dairies, and using the methane as a renewable source of natural gas to fuel vehicles or generate electricity. The *SLCP Strategy* also identifies steps to reduce natural gas leaks from oil and gas wells, pipelines, valves, and pumps to improve safety, avoid energy losses, and reduce methane emissions associated with natural gas use. Lastly, the *SLCP Strategy* also identifies measures that can reduce hydrofluorocarbon (HFC) emissions at national and international levels, in addition to State-level action that includes an incentive program to encourage the use of low-Global Warming Potential (GWP) refrigerants, and limitations on the use of high-GWP refrigerants in new refrigeration and air-conditioning equipment (ARB 2017).

San Joaquin Valley Air Pollution Control District

SJVAPCD Climate Change Action Plan

On August 21, 2008, the SJVAPCD Governing Board approved the SJVAPCD's *Climate Change Action Plan* with the following goals and actions:

Goals:

- Assist local land-use agencies with California Environmental Quality Act (CEQA) issues relative to projects with GHG emissions increases.
- Assist Valley businesses in complying with mandates of AB 32.
- Ensure that climate protection measures do not cause increase in toxic or criteria pollutants that adversely impact public health or environmental justice communities.

Actions:

- Authorize the Air Pollution Control Officer to develop GHG significance threshold(s) or other mechanisms to address CEQA projects with GHG emissions increases. Begin the requisite public process, including public workshops, and develop recommendations for Governing Board consideration in the spring of 2009.
- Authorize the Air Pollution Control Officer to develop necessary regulations and instruments for establishment and administration of the San Joaquin Valley Carbon Exchange Bank for voluntary GHG reductions created in the Valley. Begin the requisite public process, including public workshops, and develop recommendations for Governing Board consideration in spring 2009.
- Authorize the Air Pollution Control Officer to enhance the SJVAPCD's existing criteria pollutant emissions inventory reporting system to allow businesses subject to AB32 emission reporting requirements to submit simultaneous streamlined reports to the SJVAPCD and the state of California with minimal duplication.
- Authorize the Air Pollution Control Officer to develop and administer voluntary GHG emission reduction agreements to mitigate proposed GHG increases from new projects.
- Direct the Air Pollution Control Officer to support climate protection measures that reduce GHG emissions as well as toxic and criteria pollutants. Oppose measures that result in a significant increase in toxic or criteria pollutant emissions in already impacted area.

SJVAPCD CEQA Greenhouse Gas Guidance.

On December 17, 2009, the SJVAPCD Governing Board adopted "Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA" and the policy, "District Policy—Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency." The SJVAPCD concluded that the existing science is inadequate to support quantification of the impacts that project specific greenhouse gas emissions have on global climatic change. The SJVAPCD found the effects of project-specific emissions to be cumulative, and without mitigation, that their incremental contribution to global climatic change could be considered cumulatively considerable. The SJVAPCD found that this cumulative impact is best addressed by requiring all projects to reduce their greenhouse gas emissions, whether through project design elements or mitigation.

The SJVAPCD's approach is intended to streamline the process of determining if project-specific greenhouse gas emissions would have a significant effect. Projects exempt from the requirements of CEQA, and projects complying with an approved plan or mitigation program would be determined to have a less than significant cumulative impact. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources and have a certified final CEQA document. Best performance standards (BPS) would be established according to performance-based determinations. Projects complying with BPS would not require specific quantification of greenhouse gas emissions and would be determined to have a less than significant cumulative impact for greenhouse gas emissions. Projects not complying with BPS would require quantification of greenhouse gas emissions and demonstration that greenhouse gas emissions have been reduced or mitigated by 29 percent, as targeted by ARB's AB 32 Scoping Plan. Furthermore, quantification of greenhouse gas emissions would be required for all projects for which the lead agency has determined that an Environmental Impact Report is required, regardless of whether the project incorporates Best Performance Standards.

For stationary source permitting projects, best performance standards are "the most stringent of the identified alternatives for control of greenhouse gas emissions, including type of equipment, design of equipment and operational and maintenance practices, which are achieved-in-practice for the identified service, operation, or emissions unit class." For development projects, best performance standards are "any combination of identified greenhouse gas emission reduction measures, including project design elements and land use decisions that reduce project specific greenhouse gas emission reductions by at least 29 percent compared with business as usual." The SJVAPCD proposes to create a list of all approved Best Performance Standards to help in the determination as to whether a proposed project has reduced its GHG emissions by 29 percent.

IMPACTS & MITIGATION MEASURES

Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines Initial Study Checklist, a project would be considered to have a significant impact to climate change if it would:

a) Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or,

b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

The State CEQA Guidelines do not provide numeric or qualitative thresholds of significance for evaluating GHG emissions associated with proposed development projects. Instead, CEQA leaves the determination of the significance of GHG emissions up to the lead agency and authorizes the lead agency to consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts.

In accordance with the SJVAPCD's *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects Under CEQA* (SJVAPCD 2009), a project would be considered to have a less than significant impact on climate change if it would comply with at least one of the following criteria:

- Comply with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located. Such plans or programs must be specified in law or approved by the lead agency with jurisdiction over the affected resource and supported by a CEQA compliant environmental review document adopted by the lead agency, or
- Implement approved best performance standards, or
- Quantify project GHG emissions and reduce those emissions by at least 29 percent compared to "business as usual" (BAU).

As of August 2023, the SJVAPCD has not adopted recommended mass-emissions (e.g., bright-line) or service-population based GHG significance thresholds or Best Performance Standards applicable to development projects. The quantification of project-generated GHG emissions in comparison to BAU conditions to determine consistency with AB 32's reduction goals is considered appropriate in some instances. However, based on the California Supreme Court's decision in *Center for Biological Diversity v. California Department of Fish and Wildlife and Newhall Land and Farming (2015) 224 Cal.App.4th 1105 (CBD vs. CDFW;* also known as the *"Newhall Ranch case")*, substantial evidence would need to be provided to document that project-level reductions in comparison to a BAU approach would be consistent with achieving AB 32's overall statewide reduction goal. Given that AB 32's statewide goal includes reductions that are not necessarily related to an individual development project, the use of this approach may be difficult to support given the lack of substantial evidence to adequately demonstrate a link between the data contained in the AB 32 Scoping Plan and individual development projects. Alternatively, the Court identified potential options for evaluating GHG impacts for individual development projects, which included a qualitative approach based on consistency with statewide, regional, and local plans.

The methodology for evaluating the project's impacts related to GHG emissions focuses on its consistency with statewide, regional, and local plans that have been adopted for the purposes of reducing and mitigating GHG emissions. This approach has been deemed appropriate for analyzing a project's GHG impact by the Governor's Office of Planning and Research (OPR) and has been upheld in court challenges (OPR 2018, Mission Bay Alliance v. Office of Community Investment & Infrastructure, 2016). The evaluation of consistency with such plans serves as the sole basis for determining the significance of the project's GHG-related impacts to the environment. Project-generated construction and operational GHG emissions have been provided for informational purposes.

Methodology

Short-term Construction-Generated Emissions

Emissions associated with the construction of the project were calculated using the California Emissions Estimator Model (CalEEMod), version 2022.1.1.36 computer program. Estimated on-road mobile-source emissions derived from CalEEMod modeling for project construction and operations were adjusted to account for *EMFAC2021 Off-Model Adjustment Factors to Remove the Impact of Advanced Clean Trucks, Zero-Emission Airport Shuttle, Heavy-Duty Omnibus and Warranty Phase I Regulations* (ARB 2026b). To be conservative, the highest EMFAC2021 adjustment factors identified for all fuel types/corresponding vehicle categories were applied. Based on project-specific information provided, construction was estimated to occur over an approximate 12-month period. The project would not require the import or export of soil. No demolition would be required and given that the project site has been previously developed, no grading would be required. Additional construction information such as haul truck trips, worker vehicle trips, and equipment load factors were based on information provided and default parameters contained in the model. Model defaults for worker trips were increased to reflect a total of up to 20 workers (40 worker vehicle trips) during the construction phase, based on information provided. Modeling assumptions and output files are included in Appendix A of this report.

Long-term Operational Emissions

Long-term operational GHG emissions associated with the proposed project were calculated using the CalEEMod 2022.1.1.36 computer program. Estimated on-road mobile-source emissions derived from CalEEMod modeling for project construction and operations were adjusted to account for *EMFAC2021 Off-Model Adjustment Factors to Remove the Impact of Advanced Clean Trucks, Zero-Emission Airport Shuttle, Heavy-Duty Omnibus and Warranty Phase I Regulations* (ARB 2026b). To be conservative, the highest EMFAC2021 adjustment factors identified for all fuel types/corresponding vehicle categories were applied. To be conservative, building area was based on the maximum estimates identified. Material storage areas were assumed to be enclosed and included in the estimated building square footage assumptions. A total of 39,000 square feet of building area for the proposed pelletizing plant was assumed. Likewise, to be conservative, the proposed office was also assumed to be a separate structure totaling approximately 1,000 square feet. Energy usage rates, including electricity and natural gas use, for heating and cooling of the office were based on model defaults. Electricity usage rates for the pelletizing plant were based on an estimated 208,946 kWh/yr, based on information provided. Usage rates for water use, and waste generation were based on model defaults. Off-road equipment use was assumed to include the use of a front-end loader operating eight hours per day, based on information provided. A total of 15 employees (30 trips per day) and six days per week operational period was assumed, based on information provided. The project would not require the installation of stationary emissions sources, such as boilers or back-up generators. Modeling assumptions and output files are included in Appendix A of this report.

Project Impacts

Impact GHG-A. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? and

Impact GHG-B. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Short-term Construction GHG Emissions

Estimated increases in GHG emissions associated with the construction of the proposed project are summarized in Table 12. Based on the modeling conducted, construction-related GHG emissions would total approximately 271 $MTCO_2e$. Amortized GHG emissions, when averaged over the assumed 30-year minimum life of the project, would total approximately 9.0 $MTCO_2e$/year. There would also be a small amount of GHG emissions from waste generated during construction; however, this amount is speculative. Actual emissions may vary, depending on the final construction schedules, equipment required, and activities conducted. (Amortized construction-generated GHG emissions are included with operational GHG emissions for evaluation of project impacts, as discussed below.)

Table 12. Construction-Generated GHG Emissions

Construction Year	GHG Emissions ($MTCO_2e$/Year)[1]
2026	57.0
2027	211.8
Construction Total - Unadjusted:	268.8
Construction Total – Adjusted[2]:	271.0
Amortized Construction Emissions:	9.0

1. *Emissions were calculated using the CalEEMod computer program.*
2. *Includes EmFac2021 off-model adjustment factors.*

Long-term Operational GHG Emissions

Estimated long-term increases in GHG emissions associated with the proposed project are summarized in Table 13. As depicted, operational GHG emissions for the proposed project, with the inclusion of amortized construction GHGs, would total approximately 251.3 $MTCO_2e$/year during the initial year operation. Emissions in future years would decrease with improvements in energy efficiency requirements. A majority of the operational GHG emissions would be associated with energy use, off-road equipment use, and on-road mobile sources.

Table 13. Operational GHG Emissions

Source	GHG Emissions ($MTCO_2e$/Year)
Electricity[1]	47.9
Natural Gas[2]	78.1
Water[3]	17.9
Waste[4]	15.4
Refrigerants[5]	<0.1
Off-Road Equipment[6]	41.2
Mobile[7]	41.8
Total Operational Emissions:	242.3
Amortized Construction Emissions:	9.0
Total with Amortized Construction Emissions:	251.3

1. *Based on estimated energy use provided for the pelletizing plant. All other uses (e.g., parking area, office) are based on model defaults.*
2. *Natural gas use based on model defaults for light industrial land use.*
3. *Water use include water-efficient fixtures in accordance with current regulatory requirements .*
4. *Waste generation based on model defaults.*
5. *Refrigerants based on model defaults.*
6. *Off-road equipment includes the operation of a front-end loader, 8 hours/day, 6 operational days/week.*
7. *Mobile emissions assume an estimated 15 employees (30 trips/day), 6 operational days/week. Includes EmFac2021 off-model adjustment factors.*

Refer to Appendix A for modeling assumptions and results.

Consistency with Applicable Plans

Applicable GHG-reduction plans include the Merced County Association of Governments (MCAG) 2022 Regional Transportation Plan/Sustainable Community Strategy (RTP/SCS) and the State's Climate Change Scoping Plan. Project consistency with these plans is discussed in greater detail, as follows:

MCAG 2022 RTP/SCS Consistency

The MCAG 2022 RTP/SCS is supported by a combination of transportation and land use strategies that outline how the County can achieve California's GHG emission reduction goals and federal Clean Air Act requirements. Local jurisdictions in California, including the County, adopt VMT thresholds to align with SB 743 mandate, which requires consistency with the GHG-reduction targets outlined in the applicable RTP/SCS. Projects are reviewed to ensure consistency with adopted VMT thresholds and to ensure consistency with the SB 743 mandate and the State's GHG-reduction goals.

As noted earlier in this report, the project would result in an increase of approximately 15 employees. Based on this estimate and assuming two trips/day/employee, the project would generate approximately 30 vehicle trips/day. The project would not have a significant VMT impact and would not conflict with regional VMT-reduction efforts. In addition, the project would not conflict with regional plans to integrate the transportation network and related strategies with an overall land use patterns that respond to projected future regional growth, housing needs, changing demographics, or transportation demands. For these reasons, the project would be consistent with or otherwise would not conflict with VMT-reduction and transportation circulation goals identified in the MCAG 2022 RTP/SCS.

State's 2022 Climate Change Scoping Plan

The 2022 Scoping Plan for Achieving Carbon Neutrality (Scoping Plan) lays out a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045. As discussed above, the proposed project would not conflict with regional VMT-reduction goals. In addition, based on the energy analysis prepared for this project, the project would not result in wasteful, inefficient, or unnecessary energy use. As a result, the proposed project would be considered consistent with the State's 2022 Scoping Plan. It is also important to recognize that the proposed project would help to reduce GHG emissions that are often associated with typical farm practices, such as open-air manure

storage ponds and lagoons. The pelletizing of manure would result in reductions in ammonia emissions, which would indirectly lower emissions of GHGs, when compared to typical farm practices (CDFA 2026). The proposed project would not conflict with implementation of the 2022 Scoping Plan.

For the above reasons, project-generated GHG emissions would not have a significant impact on the environment that could also conflict with applicable GHG-reduction plans, policies or regulations. This impact would be considered **less than significant**.

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APPENDIX A

EMISSIONS MODELING

Gemperle Pelletizing Facility Summary Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Gemperle Pelletizing Facility
Construction Start Date	11/3/2026
Operational Year	2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.10000
Precipitation (days)	29.0000
Location	37.43963927125104, -120.85306486441974
County	Merced
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2317
EDFZ	14
Electric Utility	Turlock Irrigation District
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.37

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Light Industry	39.0000	1000sqft	4.00000	39,000.0	0.00000	—	—	—

Parking Lot	1.000000	Acre	1.000000	0.00000	0.00000	—	—	—
General Office Building	1.000000	1000sqft	0.02296	1,000.000	0.00000	—	—	—
Unrefrigerated Warehouse-No Rail	76.0000	1000sqft	3.00000	76,000.0	0.00000	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Water	W-4	Require Low-Flow Water Fixtures

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.78184	6.95431	11.0951	0.01638	0.17515	0.43853	0.61368	0.16169	0.10831	0.27001	2,197.79	0.07931	0.09365	2.24753	2,229.93
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.83397	16.6523	21.0896	0.04870	0.66980	0.43853	0.80396	0.61622	0.10831	0.64767	5,402.72	0.22269	0.09365	0.06487	5,422.76
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.45347	4.09010	6.22283	0.00954	0.10424	0.24700	0.35123	0.09621	0.06097	0.15719	1,261.47	0.04720	0.05359	0.55494	1,279.17
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.08276	0.74644	1.13567	0.00174	0.01902	0.04508	0.06410	0.01756	0.01113	0.02869	208.850	0.00781	0.00887	0.09188	211.782

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.71207	1.60631	8.45436	0.00826	0.07161	0.23079	0.30240	0.06688	0.05877	0.12566	1,397.35	4.63283	0.21613	1.00164	1,578.57
Mit.	3.71207	1.60631	8.45436	0.00826	0.07161	0.23079	0.30240	0.06688	0.05877	0.12566	1,397.35	4.63283	0.21613	1.00164	1,578.57
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.87136	1.58672	3.20744	0.00775	0.06265	0.23079	0.29344	0.06011	0.05877	0.11889	1,355.51	4.63322	0.21693	0.02834	1,536.01
Mit.	2.87136	1.58672	3.20744	0.00775	0.06265	0.23079	0.29344	0.06011	0.05877	0.11889	1,355.51	4.63322	0.21693	0.02834	1,536.01
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.25020	1.42618	5.29388	0.00717	0.06233	0.19419	0.25652	0.05908	0.04947	0.10855	1,288.72	4.62976	0.21361	0.37225	1,468.49
Mit.	3.25020	1.42618	5.29388	0.00717	0.06233	0.19419	0.25652	0.05908	0.04947	0.10855	1,288.72	4.62976	0.21361	0.37225	1,468.49
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.59316	0.26028	0.96613	0.00131	0.01138	0.03544	0.04681	0.01078	0.00903	0.01981	213.362	0.76651	0.03536	0.06163	243.125
Mit.	0.59316	0.26028	0.96613	0.00131	0.01138	0.03544	0.04681	0.01078	0.00903	0.01981	213.362	0.76651	0.03536	0.06163	243.125
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

6. Climate Risk Detailed Report

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

7. Health and Equity Details

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	64.0000
Healthy Places Index Score for Project Location (b)	37.0000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

Gemperle Pelletizing Facility Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Gemperle Pelletizing Facility
Construction Start Date	11/3/2026
Operational Year	2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.10000
Precipitation (days)	29.0000
Location	37.43963927125104, -120.85306486441974
County	Merced
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2317
EDFZ	14
Electric Utility	Turlock Irrigation District
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.37

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Light Industry	39.0000	1000sqft	4.00000	39,000.0	0.00000	—	—	—

Parking Lot	1.000000	Acre	1.000000	0.00000	0.00000	—	—	—
General Office Building	1.000000	1000sqft	0.02296	1,000.000	0.00000	—	—	—
Unrefrigerated Warehouse-No Rail	76.0000	1000sqft	3.00000	76,000.0	0.00000	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Water	W-4	Require Low-Flow Water Fixtures

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.78184	6.95431	11.0951	0.01638	0.17515	0.43853	0.61368	0.16169	0.10831	0.27001	2,197.79	0.07931	0.09365	2.24753	2,229.93
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.83397	16.6523	21.0896	0.04870	0.66980	0.43853	0.80396	0.61622	0.10831	0.64767	5,402.72	0.22269	0.09365	0.06487	5,422.76
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.45347	4.09010	6.22283	0.00954	0.10424	0.24700	0.35123	0.09621	0.06097	0.15719	1,261.47	0.04720	0.05359	0.55494	1,279.17
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.08276	0.74644	1.13567	0.00174	0.01902	0.04508	0.06410	0.01756	0.01113	0.02869	208.850	0.00781	0.00887	0.09188	211.782

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.78184	6.95431	11.0951	0.01638	0.17515	0.43853	0.61368	0.16169	0.10831	0.27001	2,197.79	0.07931	0.09365	2.24753	2,229.93
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.83397	16.6523	21.0896	0.04870	0.66980	0.43853	0.80396	0.61622	0.10831	0.64767	5,402.72	0.22269	0.09365	0.06487	5,422.76
2027	0.75942	7.02736	10.5905	0.01638	0.17515	0.43853	0.61368	0.16169	0.10831	0.27001	2,163.46	0.07239	0.09365	0.05823	2,193.23
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.12123	1.09708	1.53277	0.00278	0.03632	0.04154	0.07786	0.03347	0.01021	0.04368	341.013	0.01331	0.00958	0.10163	344.301
2027	0.45347	4.09010	6.22283	0.00954	0.10424	0.24700	0.35123	0.09621	0.06097	0.15719	1,261.47	0.04720	0.05359	0.55494	1,279.17
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.02212	0.20022	0.27973	0.00051	0.00663	0.00758	0.01421	0.00611	0.00186	0.00797	56.4585	0.00220	0.00159	0.01683	57.0029
2027	0.08276	0.74644	1.13567	0.00174	0.01902	0.04508	0.06410	0.01756	0.01113	0.02869	208.850	0.00781	0.00887	0.09188	211.782

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.78184	6.95431	11.0951	0.01638	0.17515	0.43853	0.61368	0.16169	0.10831	0.27001	2,197.79	0.07931	0.09365	2.24753	2,229.93
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.83397	16.6523	21.0896	0.04870	0.66980	0.43853	0.80396	0.61622	0.10831	0.64767	5,402.72	0.22269	0.09365	0.06487	5,422.76

2027	0.75942	7.02736	10.5905	0.01638	0.17515	0.43853	0.61368	0.16169	0.10831	0.27001	2,163.46	0.07239	0.09365	0.05823	2,193.23
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.12123	1.09708	1.53277	0.00278	0.03632	0.04154	0.07786	0.03347	0.01021	0.04368	341.013	0.01331	0.00958	0.10163	344.301
2027	0.45347	4.09010	6.22283	0.00954	0.10424	0.24700	0.35123	0.09621	0.06097	0.15719	1,261.47	0.04720	0.05359	0.55494	1,279.17
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.02212	0.20022	0.27973	0.00051	0.00663	0.00758	0.01421	0.00611	0.00186	0.00797	56.4585	0.00220	0.00159	0.01683	57.0029
2027	0.08276	0.74644	1.13567	0.00174	0.01902	0.04508	0.06410	0.01756	0.01113	0.02869	208.850	0.00781	0.00887	0.09188	211.782

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.71207	1.60631	8.45436	0.00826	0.07161	0.23079	0.30240	0.06688	0.05877	0.12566	1,397.35	4.63283	0.21613	1.00164	1,578.57
Mit.	3.71207	1.60631	8.45436	0.00826	0.07161	0.23079	0.30240	0.06688	0.05877	0.12566	1,397.35	4.63283	0.21613	1.00164	1,578.57
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.87136	1.58672	3.20744	0.00775	0.06265	0.23079	0.29344	0.06011	0.05877	0.11889	1,355.51	4.63322	0.21693	0.02834	1,536.01
Mit.	2.87136	1.58672	3.20744	0.00775	0.06265	0.23079	0.29344	0.06011	0.05877	0.11889	1,355.51	4.63322	0.21693	0.02834	1,536.01
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.25020	1.42618	5.29388	0.00717	0.06233	0.19419	0.25652	0.05908	0.04947	0.10855	1,288.72	4.62976	0.21361	0.37225	1,468.49
Mit.	3.25020	1.42618	5.29388	0.00717	0.06233	0.19419	0.25652	0.05908	0.04947	0.10855	1,288.72	4.62976	0.21361	0.37225	1,468.49

% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.59316	0.26028	0.96613	0.00131	0.01138	0.03544	0.04681	0.01078	0.00903	0.01981	213.362	0.76651	0.03536	0.06163	243.125
Mit.	0.59316	0.26028	0.96613	0.00131	0.01138	0.03544	0.04681	0.01078	0.00903	0.01981	213.362	0.76651	0.03536	0.06163	243.125
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.12829	0.17868	1.16656	0.00291	0.00285	0.23079	0.23364	0.00270	0.05877	0.06147	297.881	0.00996	0.01754	0.99921	304.356
Area	3.46497	0.04245	5.04497	0.00030	0.00896	—	0.00896	0.00677	—	0.00677	20.7462	0.00087	0.00018	—	20.8210
Energy	0.02169	0.39445	0.33134	0.00237	0.02998	—	0.02998	0.02998	—	0.02998	716.651	0.13748	0.13778	—	761.147
Water	—	—	—	—	—	—	—	—	—	—	45.1890	1.81774	0.05827	—	107.998
Waste	—	—	—	—	—	—	—	—	—	—	26.5643	2.65501	0.00000	—	92.9394
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00243	0.00243
Off-Road	0.09711	0.99074	1.91149	0.00268	0.02982	—	0.02982	0.02744	—	0.02744	290.314	0.01178	0.00236	—	291.310
Total	3.71207	1.60631	8.45436	0.00826	0.07161	0.23079	0.30240	0.06688	0.05877	0.12566	1,397.35	4.63283	0.21613	1.00164	1,578.57
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.11606	0.20153	0.96462	0.00270	0.00285	0.23079	0.23364	0.00270	0.05877	0.06147	276.788	0.01122	0.01852	0.02591	282.613
Area	2.63649	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.02169	0.39445	0.33134	0.00237	0.02998	—	0.02998	0.02998	—	0.02998	716.651	0.13748	0.13778	—	761.147
Water	—	—	—	—	—	—	—	—	—	—	45.1890	1.81774	0.05827	—	107.998
Waste	—	—	—	—	—	—	—	—	—	—	26.5643	2.65501	0.00000	—	92.9394

Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00243	0.00243
Off-Road	0.09711	0.99074	1.91149	0.00268	0.02982	—	0.02982	0.02744	—	0.02744	290.314	0.01178	0.00236	—	291.310
Total	2.87136	1.58672	3.20744	0.00775	0.06265	0.23079	0.29344	0.06011	0.05877	0.11889	1,355.51	4.63322	0.21693	0.02834	1,536.01
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.10044	0.16392	0.84069	0.00236	0.00244	0.19419	0.19663	0.00231	0.04947	0.05178	241.926	0.00904	0.01545	0.36982	247.126
Area	3.04505	0.02093	2.48793	0.00015	0.00442	—	0.00442	0.00334	—	0.00334	10.2310	0.00043	0.00009	—	10.2679
Energy	0.02169	0.39445	0.33134	0.00237	0.02998	—	0.02998	0.02998	—	0.02998	716.651	0.13748	0.13778	—	761.147
Water	—	—	—	—	—	—	—	—	—	—	45.1890	1.81774	0.05827	—	107.998
Waste	—	—	—	—	—	—	—	—	—	—	26.5643	2.65501	0.00000	—	92.9394
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00243	0.00243
Off-Road	0.08301	0.84688	1.63393	0.00229	0.02549	—	0.02549	0.02345	—	0.02345	248.159	0.01007	0.00201	—	249.010
Total	3.25020	1.42618	5.29388	0.00717	0.06233	0.19419	0.25652	0.05908	0.04947	0.10855	1,288.72	4.62976	0.21361	0.37225	1,468.49
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.01833	0.02992	0.15343	0.00043	0.00045	0.03544	0.03589	0.00042	0.00903	0.00945	40.0537	0.00150	0.00256	0.06123	40.9145
Area	0.55572	0.00382	0.45405	0.00003	0.00081	—	0.00081	0.00061	—	0.00061	1.69386	0.00007	0.00001	—	1.69997
Energy	0.00396	0.07199	0.06047	0.00043	0.00547	—	0.00547	0.00547	—	0.00547	118.650	0.02276	0.02281	—	126.017
Water	—	—	—	—	—	—	—	—	—	—	7.48156	0.30095	0.00965	—	17.8803
Waste	—	—	—	—	—	—	—	—	—	—	4.39802	0.43957	0.00000	—	15.3872
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00040	0.00040
Off-Road	0.01515	0.15456	0.29819	0.00042	0.00465	—	0.00465	0.00428	—	0.00428	41.0855	0.00167	0.00033	—	41.2265
Total	0.59316	0.26028	0.96613	0.00131	0.01138	0.03544	0.04681	0.01078	0.00903	0.01981	213.362	0.76651	0.03536	0.06163	243.125

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	0.12829	0.17868	1.16656	0.00291	0.00285	0.23079	0.23364	0.00270	0.05877	0.06147	297.881	0.00996	0.01754	0.99921	304.356
Area	3.46497	0.04245	5.04497	0.00030	0.00896	—	0.00896	0.00677	—	0.00677	20.7462	0.00087	0.00018	—	20.8210
Energy	0.02169	0.39445	0.33134	0.00237	0.02998	—	0.02998	0.02998	—	0.02998	716.651	0.13748	0.13778	—	761.147
Water	—	—	—	—	—	—	—	—	—	—	45.1890	1.81774	0.05827	—	107.998
Waste	—	—	—	—	—	—	—	—	—	—	26.5643	2.65501	0.00000	—	92.9394
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00243	0.00243
Off-Road	0.09711	0.99074	1.91149	0.00268	0.02982	—	0.02982	0.02744	—	0.02744	290.314	0.01178	0.00236	—	291.310
Total	3.71207	1.60631	8.45436	0.00826	0.07161	0.23079	0.30240	0.06688	0.05877	0.12566	1,397.35	4.63283	0.21613	1.00164	1,578.57
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.11606	0.20153	0.96462	0.00270	0.00285	0.23079	0.23364	0.00270	0.05877	0.06147	276.788	0.01122	0.01852	0.02591	282.613
Area	2.63649	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.02169	0.39445	0.33134	0.00237	0.02998	—	0.02998	0.02998	—	0.02998	716.651	0.13748	0.13778	—	761.147
Water	—	—	—	—	—	—	—	—	—	—	45.1890	1.81774	0.05827	—	107.998
Waste	—	—	—	—	—	—	—	—	—	—	26.5643	2.65501	0.00000	—	92.9394
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00243	0.00243
Off-Road	0.09711	0.99074	1.91149	0.00268	0.02982	—	0.02982	0.02744	—	0.02744	290.314	0.01178	0.00236	—	291.310
Total	2.87136	1.58672	3.20744	0.00775	0.06265	0.23079	0.29344	0.06011	0.05877	0.11889	1,355.51	4.63322	0.21693	0.02834	1,536.01
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.10044	0.16392	0.84069	0.00236	0.00244	0.19419	0.19663	0.00231	0.04947	0.05178	241.926	0.00904	0.01545	0.36982	247.126
Area	3.04505	0.02093	2.48793	0.00015	0.00442	—	0.00442	0.00334	—	0.00334	10.2310	0.00043	0.00009	—	10.2679
Energy	0.02169	0.39445	0.33134	0.00237	0.02998	—	0.02998	0.02998	—	0.02998	716.651	0.13748	0.13778	—	761.147
Water	—	—	—	—	—	—	—	—	—	—	45.1890	1.81774	0.05827	—	107.998
Waste	—	—	—	—	—	—	—	—	—	—	26.5643	2.65501	0.00000	—	92.9394
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00243	0.00243
Off-Road	0.08301	0.84688	1.63393	0.00229	0.02549	—	0.02549	0.02345	—	0.02345	248.159	0.01007	0.00201	—	249.010
Total	3.25020	1.42618	5.29388	0.00717	0.06233	0.19419	0.25652	0.05908	0.04947	0.10855	1,288.72	4.62976	0.21361	0.37225	1,468.49

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.01833	0.02992	0.15343	0.00043	0.00045	0.03544	0.03589	0.00042	0.00903	0.00945	40.0537	0.00150	0.00256	0.06123	40.9145
Area	0.55572	0.00382	0.45405	0.00003	0.00081	—	0.00081	0.00061	—	0.00061	1.69386	0.00007	0.00001	—	1.69997
Energy	0.00396	0.07199	0.06047	0.00043	0.00547	—	0.00547	0.00547	—	0.00547	118.650	0.02276	0.02281	—	126.017
Water	—	—	—	—	—	—	—	—	—	—	7.48156	0.30095	0.00965	—	17.8803
Waste	—	—	—	—	—	—	—	—	—	—	4.39802	0.43957	0.00000	—	15.3872
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00040	0.00040
Off-Road	0.01515	0.15456	0.29819	0.00042	0.00465	—	0.00465	0.00428	—	0.00428	41.0855	0.00167	0.00033	—	41.2265
Total	0.59316	0.26028	0.96613	0.00131	0.01138	0.03544	0.04681	0.01078	0.00903	0.01981	213.362	0.76651	0.03536	0.06163	243.125

3. Construction Emissions Details

3.1. Site Preparation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.75577	16.5767	20.3149	0.04870	0.66980	—	0.66980	0.61622	—	0.61622	5,272.37	0.21387	0.04277	—	5,290.47
Dust From Material Movement	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.04810	0.45416	0.55657	0.00133	0.01835	—	0.01835	0.01688	—	0.01688	144.449	0.00586	0.00117	—	144.944
Dust From Material Movement	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00878	0.08288	0.10157	0.00024	0.00335	—	0.00335	0.00308	—	0.00308	23.9151	0.00097	0.00019	—	23.9972
Dust From Material Movement	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07820	0.07558	0.77469	0.00000	0.00000	0.13415	0.13415	0.00000	0.03145	0.03145	130.346	0.00882	0.00573	0.01431	132.288
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00217	0.00179	0.02205	0.00000	0.00000	0.00361	0.00361	0.00000	0.00084	0.00084	3.68272	0.00023	0.00016	0.00653	3.74180
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00040	0.00033	0.00402	0.00000	0.00000	0.00066	0.00066	0.00000	0.00015	0.00015	0.60972	0.00004	0.00003	0.00108	0.61950
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2. Site Preparation (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.75577	16.5767	20.3149	0.04870	0.66980	—	0.66980	0.61622	—	0.61622	5,272.37	0.21387	0.04277	—	5,290.47
Dust From Material Movement	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04810	0.45416	0.55657	0.00133	0.01835	—	0.01835	0.01688	—	0.01688	144.449	0.00586	0.00117	—	144.944
Dust From Material Movement	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00878	0.08288	0.10157	0.00024	0.00335	—	0.00335	0.00308	—	0.00308	23.9151	0.00097	0.00019	—	23.9972
Dust From Material Movement	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—

Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07820	0.07558	0.77469	0.00000	0.00000	0.13415	0.13415	0.00000	0.03145	0.03145	130.346	0.00882	0.00573	0.01431	132.288
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00217	0.00179	0.02205	0.00000	0.00000	0.00361	0.00361	0.00000	0.00084	0.00084	3.68272	0.00023	0.00016	0.00653	3.74180
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00040	0.00033	0.00402	0.00000	0.00000	0.00066	0.00066	0.00000	0.00015	0.00015	0.60972	0.00004	0.00003	0.00108	0.61950
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.60771	6.48092	8.76175	0.01291	0.19715	—	0.19715	0.18138	—	0.18138	1,398.01	0.05671	0.01134	—	1,402.81
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05352	0.57073	0.77158	0.00114	0.01736	—	0.01736	0.01597	—	0.01597	123.113	0.00499	0.00100	—	123.535
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00977	0.10416	0.14081	0.00021	0.00317	—	0.00317	0.00291	—	0.00291	20.3827	0.00083	0.00017	—	20.4526
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17875	0.17275	1.77071	0.00000	0.00000	0.30664	0.30664	0.00000	0.07188	0.07188	297.934	0.02015	0.01310	0.03270	302.373
Vendor	0.01615	0.66398	0.23839	0.00347	0.00693	0.13189	0.13882	0.00693	0.03644	0.04337	485.307	0.00598	0.06921	0.03217	506.115
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01597	0.01314	0.16201	0.00000	0.00000	0.02650	0.02650	0.00000	0.00620	0.00620	27.0567	0.00170	0.00115	0.04796	27.4907
Vendor	0.00146	0.05727	0.02055	0.00031	0.00061	0.01143	0.01204	0.00061	0.00316	0.00377	42.7121	0.00053	0.00610	0.04714	44.5888
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00292	0.00240	0.02957	0.00000	0.00000	0.00484	0.00484	0.00000	0.00113	0.00113	4.47955	0.00028	0.00019	0.00794	4.55141
Vendor	0.00027	0.01045	0.00375	0.00006	0.00011	0.00209	0.00220	0.00011	0.00058	0.00069	7.07147	0.00009	0.00101	0.00781	7.38218

Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4. Building Construction (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.60771	6.48092	8.76175	0.01291	0.19715	—	0.19715	0.18138	—	0.18138	1,398.01	0.05671	0.01134	—	1,402.81
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05352	0.57073	0.77158	0.00114	0.01736	—	0.01736	0.01597	—	0.01597	123.113	0.00499	0.00100	—	123.535
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00977	0.10416	0.14081	0.00021	0.00317	—	0.00317	0.00291	—	0.00291	20.3827	0.00083	0.00017	—	20.4526
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.17875	0.17275	1.77071	0.00000	0.00000	0.30664	0.30664	0.00000	0.07188	0.07188	297.934	0.02015	0.01310	0.03270	302.373
Vendor	0.01615	0.66398	0.23839	0.00347	0.00693	0.13189	0.13882	0.00693	0.03644	0.04337	485.307	0.00598	0.06921	0.03217	506.115
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01597	0.01314	0.16201	0.00000	0.00000	0.02650	0.02650	0.00000	0.00620	0.00620	27.0567	0.00170	0.00115	0.04796	27.4907
Vendor	0.00146	0.05727	0.02055	0.00031	0.00061	0.01143	0.01204	0.00061	0.00316	0.00377	42.7121	0.00053	0.00610	0.04714	44.5888
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00292	0.00240	0.02957	0.00000	0.00000	0.00484	0.00484	0.00000	0.00113	0.00113	4.47955	0.00028	0.00019	0.00794	4.55141
Vendor	0.00027	0.01045	0.00375	0.00006	0.00011	0.00209	0.00220	0.00011	0.00058	0.00069	7.07147	0.00009	0.00101	0.00781	7.38218
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5. Building Construction (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.57421	6.23918	8.73185	0.01291	0.16822	—	0.16822	0.15476	—	0.15476	1,397.97	0.05671	0.01134	—	1,402.77
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.57421	6.23918	8.73185	0.01291	0.16822	—	0.16822	0.15476	—	0.15476	1,397.97	0.05671	0.01134	—	1,402.77
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32700	3.55304	4.97254	0.00735	0.09580	—	0.09580	0.08813	—	0.08813	796.104	0.03229	0.00646	—	798.836
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05968	0.64843	0.90749	0.00134	0.01748	—	0.01748	0.01608	—	0.01608	131.804	0.00535	0.00107	—	132.256
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19021	0.11698	2.14536	0.00000	0.00000	0.30664	0.30664	0.00000	0.07188	0.07188	325.167	0.01662	0.01310	1.15205	330.637
Vendor	0.01741	0.59815	0.21793	0.00347	0.00693	0.13189	0.13882	0.00693	0.03644	0.04337	474.655	0.00598	0.06921	1.09548	496.526
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16905	0.15097	1.63623	0.00000	0.00000	0.30664	0.30664	0.00000	0.07188	0.07188	290.327	0.00970	0.01310	0.02983	294.501
Vendor	0.01615	0.63720	0.22243	0.00347	0.00693	0.13189	0.13882	0.00693	0.03644	0.04337	475.160	0.00598	0.06921	0.02840	495.964
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09778	0.07852	0.96473	0.00000	0.00000	0.17137	0.17137	0.00000	0.04012	0.04012	170.479	0.01047	0.00746	0.28284	173.246
Vendor	0.00944	0.35313	0.12602	0.00197	0.00395	0.07393	0.07788	0.00395	0.02046	0.02440	270.423	0.00341	0.03942	0.26930	282.523
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01784	0.01433	0.17606	0.00000	0.00000	0.03127	0.03127	0.00000	0.00732	0.00732	28.2247	0.00173	0.00123	0.04683	28.6828
Vendor	0.00172	0.06445	0.02300	0.00036	0.00072	0.01349	0.01421	0.00072	0.00373	0.00445	44.7716	0.00056	0.00653	0.04459	46.7750

Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.6. Building Construction (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.57421	6.23918	8.73185	0.01291	0.16822	—	0.16822	0.15476	—	0.15476	1,397.97	0.05671	0.01134	—	1,402.77
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.57421	6.23918	8.73185	0.01291	0.16822	—	0.16822	0.15476	—	0.15476	1,397.97	0.05671	0.01134	—	1,402.77
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32700	3.55304	4.97254	0.00735	0.09580	—	0.09580	0.08813	—	0.08813	796.104	0.03229	0.00646	—	798.836
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05968	0.64843	0.90749	0.00134	0.01748	—	0.01748	0.01608	—	0.01608	131.804	0.00535	0.00107	—	132.256
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19021	0.11698	2.14536	0.00000	0.00000	0.30664	0.30664	0.00000	0.07188	0.07188	325.167	0.01662	0.01310	1.15205	330.637
Vendor	0.01741	0.59815	0.21793	0.00347	0.00693	0.13189	0.13882	0.00693	0.03644	0.04337	474.655	0.00598	0.06921	1.09548	496.526
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16905	0.15097	1.63623	0.00000	0.00000	0.30664	0.30664	0.00000	0.07188	0.07188	290.327	0.00970	0.01310	0.02983	294.501
Vendor	0.01615	0.63720	0.22243	0.00347	0.00693	0.13189	0.13882	0.00693	0.03644	0.04337	475.160	0.00598	0.06921	0.02840	495.964
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09778	0.07852	0.96473	0.00000	0.00000	0.17137	0.17137	0.00000	0.04012	0.04012	170.479	0.01047	0.00746	0.28284	173.246
Vendor	0.00944	0.35313	0.12602	0.00197	0.00395	0.07393	0.07788	0.00395	0.02046	0.02440	270.423	0.00341	0.03942	0.26930	282.523
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01784	0.01433	0.17606	0.00000	0.00000	0.03127	0.03127	0.00000	0.00732	0.00732	28.2247	0.00173	0.00123	0.04683	28.6828
Vendor	0.00172	0.06445	0.02300	0.00036	0.00072	0.01349	0.01421	0.00072	0.00373	0.00445	44.7716	0.00056	0.00653	0.04459	46.7750
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.7. Paving (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36872	3.47220	4.97657	0.00698	0.14906	—	0.14906	0.13714	—	0.13714	755.553	0.03065	0.00613	—	758.146
Paving	0.23818	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01111	0.10464	0.14998	0.00021	0.00449	—	0.00449	0.00413	—	0.00413	22.7701	0.00092	0.00018	—	22.8482
Paving	0.00718	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00203	0.01910	0.02737	0.00004	0.00082	—	0.00082	0.00075	—	0.00075	3.76985	0.00015	0.00003	—	3.78279
Paving	0.00131	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03170	0.02831	0.30679	0.00000	0.00000	0.05749	0.05749	0.00000	0.01348	0.01348	54.4362	0.00182	0.00246	0.00559	55.2190
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00097	0.00078	0.00957	0.00000	0.00000	0.00170	0.00170	0.00000	0.00040	0.00040	1.69161	0.00010	0.00007	0.00281	1.71906

Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00018	0.00014	0.00175	0.00000	0.00000	0.00031	0.00031	0.00000	0.00007	0.00007	0.28007	0.00002	0.00001	0.00046	0.28461
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.8. Paving (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36872	3.47220	4.97657	0.00698	0.14906	—	0.14906	0.13714	—	0.13714	755.553	0.03065	0.00613	—	758.146
Paving	0.23818	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01111	0.10464	0.14998	0.00021	0.00449	—	0.00449	0.00413	—	0.00413	22.7701	0.00092	0.00018	—	22.8482
Paving	0.00718	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00203	0.01910	0.02737	0.00004	0.00082	—	0.00082	0.00075	—	0.00075	3.76985	0.00015	0.00003	—	3.78279

Paving	0.00131	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03170	0.02831	0.30679	0.00000	0.00000	0.05749	0.05749	0.00000	0.01348	0.01348	54.4362	0.00182	0.00246	0.00559	55.2190
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00097	0.00078	0.00957	0.00000	0.00000	0.00170	0.00170	0.00000	0.00040	0.00040	1.69161	0.00010	0.00007	0.00281	1.71906
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00018	0.00014	0.00175	0.00000	0.00000	0.00031	0.00031	0.00000	0.00007	0.00007	0.28007	0.00002	0.00001	0.00046	0.28461
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.12829	0.17868	1.16656	0.00291	0.00285	0.23079	0.23364	0.00270	0.05877	0.06147	297.881	0.00996	0.01754	0.99921	304.356
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
General Office Building	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Unrefrigerated Warehouse-No Rail	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Total	0.12829	0.17868	1.16656	0.00291	0.00285	0.23079	0.23364	0.00270	0.05877	0.06147	297.881	0.00996	0.01754	0.99921	304.356
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.11606	0.20153	0.96462	0.00270	0.00285	0.23079	0.23364	0.00270	0.05877	0.06147	276.788	0.01122	0.01852	0.02591	282.613
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
General Office Building	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Unrefrigerated Warehouse-No Rail	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Total	0.11606	0.20153	0.96462	0.00270	0.00285	0.23079	0.23364	0.00270	0.05877	0.06147	276.788	0.01122	0.01852	0.02591	282.613
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	0.01833	0.02992	0.15343	0.00043	0.00045	0.03544	0.03589	0.00042	0.00903	0.00945	40.0537	0.00150	0.00256	0.06123	40.9145
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
General Office Building	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Unrefrigerated Warehouse-No Rail	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Total	0.01833	0.02992	0.15343	0.00043	0.00045	0.03544	0.03589	0.00042	0.00903	0.00945	40.0537	0.00150	0.00256	0.06123	40.9145

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.12829	0.17868	1.16656	0.00291	0.00285	0.23079	0.23364	0.00270	0.05877	0.06147	297.881	0.00996	0.01754	0.99921	304.356
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
General Office Building	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Unrefrigerated Warehouse-No Rail	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Total	0.12829	0.17868	1.16656	0.00291	0.00285	0.23079	0.23364	0.00270	0.05877	0.06147	297.881	0.00996	0.01754	0.99921	304.356

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.11606	0.20153	0.96462	0.00270	0.00285	0.23079	0.23364	0.00270	0.05877	0.06147	276.788	0.01122	0.01852	0.02591	282.613
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
General Office Building	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Unrefrigerated Warehouse-No Rail	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Total	0.11606	0.20153	0.96462	0.00270	0.00285	0.23079	0.23364	0.00270	0.05877	0.06147	276.788	0.01122	0.01852	0.02591	282.613
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.01833	0.02992	0.15343	0.00043	0.00045	0.03544	0.03589	0.00042	0.00903	0.00945	40.0537	0.00150	0.00256	0.06123	40.9145
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
General Office Building	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Unrefrigerated Warehouse-No Rail	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Total	0.01833	0.02992	0.15343	0.00043	0.00045	0.03544	0.03589	0.00042	0.00903	0.00945	40.0537	0.00150	0.00256	0.06123	40.9145

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	192.116	0.07483	0.10691	—	225.845
Parking Lot	—	—	—	—	—	—	—	—	—	—	35.0850	0.01367	0.01952	—	41.2447
General Office Building	—	—	—	—	—	—	—	—	—	—	18.8081	0.00733	0.01047	—	22.1101
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	246.010	0.09583	0.13690	—	289.200
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	192.116	0.07483	0.10691	—	225.845
Parking Lot	—	—	—	—	—	—	—	—	—	—	35.0850	0.01367	0.01952	—	41.2447
General Office Building	—	—	—	—	—	—	—	—	—	—	18.8081	0.00733	0.01047	—	22.1101
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	246.010	0.09583	0.13690	—	289.200
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	—	—	—	—	—	—	—	—	—	—	31.8071	0.01239	0.01770	—	37.3913
Parking Lot	—	—	—	—	—	—	—	—	—	—	5.80872	0.00226	0.00323	—	6.82854
General Office Building	—	—	—	—	—	—	—	—	—	—	3.11389	0.00121	0.00173	—	3.66058
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	40.7297	0.01587	0.02266	—	47.8804

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	192.116	0.07483	0.10691	—	225.845
Parking Lot	—	—	—	—	—	—	—	—	—	—	35.0850	0.01367	0.01952	—	41.2447
General Office Building	—	—	—	—	—	—	—	—	—	—	18.8081	0.00733	0.01047	—	22.1101
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	246.010	0.09583	0.13690	—	289.200

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	192.116	0.07483	0.10691	—	225.845
Parking Lot	—	—	—	—	—	—	—	—	—	—	35.0850	0.01367	0.01952	—	41.2447
General Office Building	—	—	—	—	—	—	—	—	—	—	18.8081	0.00733	0.01047	—	22.1101
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	246.010	0.09583	0.13690	—	289.200
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	31.8071	0.01239	0.01770	—	37.3913
Parking Lot	—	—	—	—	—	—	—	—	—	—	5.80872	0.00226	0.00323	—	6.82854
General Office Building	—	—	—	—	—	—	—	—	—	—	3.11389	0.00121	0.00173	—	3.66058
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	40.7297	0.01587	0.02266	—	47.8804

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.02122	0.38582	0.32409	0.00231	0.02932	—	0.02932	0.02932	—	0.02932	460.347	0.04074	0.00087	—	461.624
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
General Office Building	0.00047	0.00863	0.00725	0.00005	0.00066	—	0.00066	0.00066	—	0.00066	10.2944	0.00091	0.00002	—	10.3229
Unrefrigerated Warehouse-No Rail	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.02169	0.39445	0.33134	0.00237	0.02998	—	0.02998	0.02998	—	0.02998	470.642	0.04165	0.00089	—	471.947
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.02122	0.38582	0.32409	0.00231	0.02932	—	0.02932	0.02932	—	0.02932	460.347	0.04074	0.00087	—	461.624
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
General Office Building	0.00047	0.00863	0.00725	0.00005	0.00066	—	0.00066	0.00066	—	0.00066	10.2944	0.00091	0.00002	—	10.3229
Unrefrigerated Warehouse-No Rail	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.02169	0.39445	0.33134	0.00237	0.02998	—	0.02998	0.02998	—	0.02998	470.642	0.04165	0.00089	—	471.947
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	0.00387	0.07041	0.05915	0.00042	0.00535	—	0.00535	0.00535	—	0.00535	76.2157	0.00675	0.00014	—	76.4271
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
General Office Building	0.00009	0.00157	0.00132	0.00001	0.00012	—	0.00012	0.00012	—	0.00012	1.70435	0.00015	< 0.000005	—	1.70908
Unrefrigerated Warehouse-No Rail	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00396	0.07199	0.06047	0.00043	0.00547	—	0.00547	0.00547	—	0.00547	77.9201	0.00690	0.00015	—	78.1362

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.02122	0.38582	0.32409	0.00231	0.02932	—	0.02932	0.02932	—	0.02932	460.347	0.04074	0.00087	—	461.624
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
General Office Building	0.00047	0.00863	0.00725	0.00005	0.00066	—	0.00066	0.00066	—	0.00066	10.2944	0.00091	0.00002	—	10.3229
Unrefrigerated Warehouse-No Rail	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.02169	0.39445	0.33134	0.00237	0.02998	—	0.02998	0.02998	—	0.02998	470.642	0.04165	0.00089	—	471.947

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.02122	0.38582	0.32409	0.00231	0.02932	—	0.02932	0.02932	—	0.02932	460.347	0.04074	0.00087	—	461.624
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
General Office Building	0.00047	0.00863	0.00725	0.00005	0.00066	—	0.00066	0.00066	—	0.00066	10.2944	0.00091	0.00002	—	10.3229
Unrefrigerated Warehouse-No Rail	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.02169	0.39445	0.33134	0.00237	0.02998	—	0.02998	0.02998	—	0.02998	470.642	0.04165	0.00089	—	471.947
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00387	0.07041	0.05915	0.00042	0.00535	—	0.00535	0.00535	—	0.00535	76.2157	0.00675	0.00014	—	76.4271
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
General Office Building	0.00009	0.00157	0.00132	0.00001	0.00012	—	0.00012	0.00012	—	0.00012	1.70435	0.00015	< 0.000005	—	1.70908
Unrefrigerated Warehouse-No Rail	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00396	0.07199	0.06047	0.00043	0.00547	—	0.00547	0.00547	—	0.00547	77.9201	0.00690	0.00015	—	78.1362

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	2.48583	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.15067	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.82847	0.04245	5.04497	0.00030	0.00896	—	0.00896	0.00677	—	0.00677	20.7462	0.00087	0.00018	—	20.8210
Total	3.46497	0.04245	5.04497	0.00030	0.00896	—	0.00896	0.00677	—	0.00677	20.7462	0.00087	0.00018	—	20.8210
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	2.48583	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.15067	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	2.63649	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.45366	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.02750	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.07456	0.00382	0.45405	0.00003	0.00081	—	0.00081	0.00061	—	0.00061	1.69386	0.00007	0.00001	—	1.69997
Total	0.55572	0.00382	0.45405	0.00003	0.00081	—	0.00081	0.00061	—	0.00061	1.69386	0.00007	0.00001	—	1.69997

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	2.48583	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.15067	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.82847	0.04245	5.04497	0.00030	0.00896	—	0.00896	0.00677	—	0.00677	20.7462	0.00087	0.00018	—	20.8210
Total	3.46497	0.04245	5.04497	0.00030	0.00896	—	0.00896	0.00677	—	0.00677	20.7462	0.00087	0.00018	—	20.8210
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	2.48583	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.15067	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	2.63649	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.45366	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.02750	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.07456	0.00382	0.45405	0.00003	0.00081	—	0.00081	0.00061	—	0.00061	1.69386	0.00007	0.00001	—	1.69997

Total	0.55572	0.00382	0.45405	0.00003	0.00081	—	0.00081	0.00061	—	0.00061	1.69386	0.00007	0.00001	—	1.69997

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	44.3157	1.78261	0.05715	—	105.911
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
General Office Building	—	—	—	—	—	—	—	—	—	—	0.87334	0.03513	0.00113	—	2.08720
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	45.1890	1.81774	0.05827	—	107.998
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	44.3157	1.78261	0.05715	—	105.911
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
General Office Building	—	—	—	—	—	—	—	—	—	—	0.87334	0.03513	0.00113	—	2.08720

Unrefriger Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	45.1890	1.81774	0.05827	—	107.998
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	7.33697	0.29513	0.00946	—	17.5347
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
General Office Building	—	—	—	—	—	—	—	—	—	—	0.14459	0.00582	0.00019	—	0.34556
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	7.48156	0.30095	0.00965	—	17.8803

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	44.3157	1.78261	0.05715	—	105.911
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
General Office Building	—	—	—	—	—	—	—	—	—	—	0.87334	0.03513	0.00113	—	2.08720

Unrefrigerated	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	45.1890	1.81774	0.05827	—	107.998
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	44.3157	1.78261	0.05715	—	105.911
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
General Office Building	—	—	—	—	—	—	—	—	—	—	0.87334	0.03513	0.00113	—	2.08720
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	45.1890	1.81774	0.05827	—	107.998
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	7.33697	0.29513	0.00946	—	17.5347
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
General Office Building	—	—	—	—	—	—	—	—	—	—	0.14459	0.00582	0.00019	—	0.34556
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	7.48156	0.30095	0.00965	—	17.8803

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	26.0631	2.60491	0.00000	—	91.1859
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
General Office Building	—	—	—	—	—	—	—	—	—	—	0.50121	0.05009	0.00000	—	1.75357
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	26.5643	2.65501	0.00000	—	92.9394
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	26.0631	2.60491	0.00000	—	91.1859
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
General Office Building	—	—	—	—	—	—	—	—	—	—	0.50121	0.05009	0.00000	—	1.75357

Unrefrigerated Warehouse-No	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	26.5643	2.65501	0.00000	—	92.9394
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	4.31504	0.43127	0.00000	—	15.0969
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
General Office Building	—	—	—	—	—	—	—	—	—	—	0.08298	0.00829	0.00000	—	0.29032
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	4.39802	0.43957	0.00000	—	15.3872

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	26.0631	2.60491	0.00000	—	91.1859
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
General Office Building	—	—	—	—	—	—	—	—	—	—	0.50121	0.05009	0.00000	—	1.75357

Unrefriger Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	26.5643	2.65501	0.00000	—	92.9394
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	26.0631	2.60491	0.00000	—	91.1859
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
General Office Building	—	—	—	—	—	—	—	—	—	—	0.50121	0.05009	0.00000	—	1.75357
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	26.5643	2.65501	0.00000	—	92.9394
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	4.31504	0.43127	0.00000	—	15.0969
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
General Office Building	—	—	—	—	—	—	—	—	—	—	0.08298	0.00829	0.00000	—	0.29032
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	4.39802	0.43957	0.00000	—	15.3872

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00243	0.00243
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00243	0.00243
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00243	0.00243
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00243	0.00243
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00040	0.00040
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00040	0.00040

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00243	0.00243
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00243	0.00243
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00243	0.00243
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00243	0.00243
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00040	0.00040
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00040	0.00040

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.09711	0.99074	1.91149	0.00268	0.02982	—	0.02982	0.02744	—	0.02744	290.314	0.01178	0.00236	—	291.310
Total	0.09711	0.99074	1.91149	0.00268	0.02982	—	0.02982	0.02744	—	0.02744	290.314	0.01178	0.00236	—	291.310
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Tractors/L	0.09711	0.99074	1.91149	0.00268	0.02982	—	0.02982	0.02744	—	0.02744	290.314	0.01178	0.00236	—	291.310
Total	0.09711	0.99074	1.91149	0.00268	0.02982	—	0.02982	0.02744	—	0.02744	290.314	0.01178	0.00236	—	291.310
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.01515	0.15456	0.29819	0.00042	0.00465	—	0.00465	0.00428	—	0.00428	41.0855	0.00167	0.00033	—	41.2265
Total	0.01515	0.15456	0.29819	0.00042	0.00465	—	0.00465	0.00428	—	0.00428	41.0855	0.00167	0.00033	—	41.2265

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.09711	0.99074	1.91149	0.00268	0.02982	—	0.02982	0.02744	—	0.02744	290.314	0.01178	0.00236	—	291.310
Total	0.09711	0.99074	1.91149	0.00268	0.02982	—	0.02982	0.02744	—	0.02744	290.314	0.01178	0.00236	—	291.310
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.09711	0.99074	1.91149	0.00268	0.02982	—	0.02982	0.02744	—	0.02744	290.314	0.01178	0.00236	—	291.310
Total	0.09711	0.99074	1.91149	0.00268	0.02982	—	0.02982	0.02744	—	0.02744	290.314	0.01178	0.00236	—	291.310
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.01515	0.15456	0.29819	0.00042	0.00465	—	0.00465	0.00428	—	0.00428	41.0855	0.00167	0.00033	—	41.2265
Total	0.01515	0.15456	0.29819	0.00042	0.00465	—	0.00465	0.00428	—	0.00428	41.0855	0.00167	0.00033	—	41.2265

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequester	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	11/3/2026	11/16/2026	5.00000	10.00000	—
Building Construction	Building Construction	11/17/2026	10/18/2027	5.00000	240.000	—
Paving	Paving	10/19/2027	11/2/2027	5.00000	11.0000	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Trenchers	Diesel	Average	3.00000	8.00000	367.000	0.40000
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00000	8.00000	84.0000	0.37000
Building Construction	Forklifts	Diesel	Average	3.00000	8.00000	82.0000	0.20000
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.000000	8.00000	84.0000	0.37000
Building Construction	Trenchers	Diesel	Average	1.000000	8.00000	40.0000	0.50000
Building Construction	Aerial Lifts	Diesel	Average	3.00000	8.00000	46.0000	0.31000
Paving	Pavers	Diesel	Average	1.000000	8.00000	81.0000	0.42000

Paving	Paving Equipment	Diesel	Average	1.000000	8.00000	89.0000	0.36000
Paving	Rollers	Diesel	Average	1.000000	8.00000	36.0000	0.38000

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Trenchers	Diesel	Average	3.00000	8.00000	367.000	0.40000
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00000	8.00000	84.0000	0.37000
Building Construction	Forklifts	Diesel	Average	3.00000	8.00000	82.0000	0.20000
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.000000	8.00000	84.0000	0.37000
Building Construction	Trenchers	Diesel	Average	1.000000	8.00000	40.0000	0.50000
Building Construction	Aerial Lifts	Diesel	Average	3.00000	8.00000	46.0000	0.31000
Paving	Pavers	Diesel	Average	1.000000	8.00000	81.0000	0.42000
Paving	Paving Equipment	Diesel	Average	1.000000	8.00000	89.0000	0.36000
Paving	Rollers	Diesel	Average	1.000000	8.00000	36.0000	0.38000

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	Worker	17.5000	10.8500	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.27000	HHDT,MHDT
Site Preparation	Hauling	0.00000	20.0000	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Building Construction	Worker	40.0000	10.8500	LDA,LDT1,LDT2
Building Construction	Vendor	19.0124	8.27000	HHDT,MHDT
Building Construction	Hauling	0.00000	20.0000	HHDT
Building Construction	Onsite truck	—	—	HHDT

Paving	Worker	7.50000	10.8500	LDA,LDT1,LDT2
Paving	Vendor	—	8.27000	HHDT,MHDT
Paving	Hauling	0.00000	20.0000	HHDT
Paving	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	Worker	17.5000	10.8500	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.27000	HHDT,MHDT
Site Preparation	Hauling	0.00000	20.0000	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Building Construction	Worker	40.0000	10.8500	LDA,LDT1,LDT2
Building Construction	Vendor	19.0124	8.27000	HHDT,MHDT
Building Construction	Hauling	0.00000	20.0000	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	Worker	7.50000	10.8500	LDA,LDT1,LDT2
Paving	Vendor	—	8.27000	HHDT,MHDT
Paving	Hauling	0.00000	20.0000	HHDT
Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%
Sweep paved roads once per month	9%	9%

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	0.00000	0.00000	0.00000	0.00000	0.00000
Paving	0.00000	0.00000	0.00000	0.00000	1.000000

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Phase Name	Land Use	Area Paved (acres)	% Asphalt
Paving	General Light Industry	0.00000	0%
Paving	Parking Lot	1.000000	100%
Paving	General Office Building	0.00000	0%
Paving	Unrefrigerated Warehouse-No Rail	0.00000	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00000	290.450	0.11314	0.16163
2027	0.00000	335.600	0.13073	0.18675

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Light Industry	30.0000	30.0000	0.00000	9,385.71	322.046	322.046	0.00000	100,754
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
General Office Building	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Unrefrigerated Warehouse-No Rail	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Light Industry	30.0000	30.0000	0.00000	9,385.71	322.046	322.046	0.00000	100,754
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
General Office Building	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Unrefrigerated Warehouse-No Rail	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

5.10. Operational Area Sources

5.10.1. Hearths

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
General Light Industry	Wood Fireplaces	0	0
General Light Industry	Gas Fireplaces	0	0
General Light Industry	Propane Fireplaces	0	0
General Light Industry	Electric Fireplaces	0	0
General Light Industry	No Fireplaces	0	0

General Light Industry	Conventional Wood Stoves	0	0
General Light Industry	Catalytic Wood Stoves	0	0
General Light Industry	Non-Catalytic Wood Stoves	0	0
General Light Industry	Pellet Wood Stoves	0	0
Parking Lot	Wood Fireplaces	0	0
Parking Lot	Gas Fireplaces	0	0
Parking Lot	Propane Fireplaces	0	0
Parking Lot	Electric Fireplaces	0	0
Parking Lot	No Fireplaces	0	0
Parking Lot	Conventional Wood Stoves	0	0
Parking Lot	Catalytic Wood Stoves	0	0
Parking Lot	Non-Catalytic Wood Stoves	0	0
Parking Lot	Pellet Wood Stoves	0	0
General Office Building	Wood Fireplaces	0	0
General Office Building	Gas Fireplaces	0	0
General Office Building	Propane Fireplaces	0	0
General Office Building	Electric Fireplaces	0	0
General Office Building	No Fireplaces	0	0
General Office Building	Conventional Wood Stoves	0	0
General Office Building	Catalytic Wood Stoves	0	0
General Office Building	Non-Catalytic Wood Stoves	0	0
General Office Building	Pellet Wood Stoves	0	0
Unrefrigerated Warehouse-No Rail	Wood Fireplaces	0	0
Unrefrigerated Warehouse-No Rail	Gas Fireplaces	0	0
Unrefrigerated Warehouse-No Rail	Propane Fireplaces	0	0
Unrefrigerated Warehouse-No Rail	Electric Fireplaces	0	0
Unrefrigerated Warehouse-No Rail	No Fireplaces	0	0
Unrefrigerated Warehouse-No Rail	Conventional Wood Stoves	0	0

Unrefrigerated Warehouse-No Rail	Catalytic Wood Stoves	0	0
Unrefrigerated Warehouse-No Rail	Non-Catalytic Wood Stoves	0	0
Unrefrigerated Warehouse-No Rail	Pellet Wood Stoves	0	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0.00000	0.00000	174,000	58,000.0	2,613.60

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00000
Summer Days	day/yr	180.000

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00000
Summer Days	day/yr	180.000

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Light Industry	208,946	335.600	0.1307	0.1868	1,436,407
Parking Lot	38,158.6	335.600	0.1307	0.1868	0.00000
General Office Building	20,455.7	335.600	0.1307	0.1868	32,121.2

Unrefrigerated Warehouse-No Rail	0.00000	335.600	0.1307	0.1868	0.00000

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Light Industry	208,946	335.600	0.1307	0.1868	1,436,407
Parking Lot	38,158.6	335.600	0.1307	0.1868	0.00000
General Office Building	20,455.7	335.600	0.1307	0.1868	32,121.2
Unrefrigerated Warehouse-No Rail	0.00000	335.600	0.1307	0.1868	0.00000

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Light Industry	9,018,750	0.00000
Parking Lot	0.00000	0.00000
General Office Building	177,734	0.00000
Unrefrigerated Warehouse-No Rail	0.00000	0.00000

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Light Industry	9,018,750	0.00000
Parking Lot	0.00000	0.00000
General Office Building	177,734	0.00000
Unrefrigerated Warehouse-No Rail	0.00000	0.00000

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	48.3600	0.00000
Parking Lot	0.00000	0.00000
General Office Building	0.93000	0.00000
Unrefrigerated Warehouse-No Rail	0.00000	0.00000

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	48.3600	0.00000
Parking Lot	0.00000	0.00000
General Office Building	0.93000	0.00000
Unrefrigerated Warehouse-No Rail	0.00000	0.00000

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Office Building	Household refrigerators and/or freezers	R-134a	1,430.00	0.01679	0.60000	0.00000	1.000000
General Office Building	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000

5.14.2. Mitigated

Land Use	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced

General Office Building	Household refrigerators and/or freezers	R-134a	1,430.00	0.01679	0.60000	0.00000	1.000000
General Office Building	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Tractors/Loaders/Backhoes	Diesel	Average	1.000000	8.00000	84.0000	0.37000

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Tractors/Loaders/Backhoes	Diesel	Average	1.000000	8.00000	84.0000	0.37000

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit

Temperature and Extreme Heat	24.6800	annual days of extreme heat
Extreme Precipitation	2.00000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00000	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	74.1008
AQ-PM	67.5669
AQ-DPM	40.8712
Drinking Water	69.1145
Lead Risk Housing	25.3560
Pesticides	95.5172
Toxic Releases	21.1553

Traffic	30.2125
Effect Indicators	—
CleanUp Sites	18.7010
Groundwater	99.6015
Haz Waste Facilities/Generators	53.9510
Impaired Water Bodies	91.8732
Solid Waste	52.8981
Sensitive Population	—
Asthma	48.2926
Cardio-vascular	72.4950
Low Birth Weights	19.1686
Socioeconomic Factor Indicators	—
Education	76.6388
Housing	2.99113
Linguistic	69.7929
Poverty	61.2814
Unemployment	14.3935

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	46.73424868
Employed	58.03926601
Median HI	43.73155396
Education	—
Bachelor's or higher	22.99499551
High school enrollment	9.136404466

Preschool enrollment	6.043885538
Transportation	—
Auto Access	64.27563198
Active commuting	45.87450276
Social	—
2-parent households	77.09482869
Voting	39.92044142
Neighborhood	—
Alcohol availability	61.56807391
Park access	4.786346721
Retail density	6.993455665
Supermarket access	2.399589375
Tree canopy	61.13178494
Housing	—
Homeownership	69.11330681
Housing habitability	91.6976774
Low-inc homeowner severe housing cost burden	85.30732709
Low-inc renter severe housing cost burden	91.22289234
Uncrowded housing	53.4838958
Health Outcomes	—
Insured adults	57.24368023
Arthritis	0.0
Asthma ER Admissions	53.2
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0

Diagnosed Diabetes	0.0
Life Expectancy at Birth	65.9
Cognitively Disabled	58.3
Physically Disabled	54.0
Heart Attack ER Admissions	11.2
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	58.1
Elderly	19.6
English Speaking	24.8
Foreign-born	43.2
Outdoor Workers	8.9
Climate Change Adaptive Capacity	—
Impervious Surface Cover	89.9
Traffic Density	21.0
Traffic Access	0.0
Other Indices	—

Hardship	51.9
Other Decision Support	—
2016 Voting	68.5

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	64.0000
Healthy Places Index Score for Project Location (b)	37.0000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

8.1. Justifications

Screen	Justification
Land Use	To be conservative, assumes 39k light ind bldg, 1k office, 1 ac parking. Total acreage approx 8 ac. No landscape area.
Construction: Construction Phases	Based on information provided.

Construction: Off-Road Equipment	Based on model defaults and info provided
Construction: Trips and VMT	Worker trips increased to 40 one-way trips (20 workers) during const. phase based on information provided.
Operations: Vehicle Data	No increase in truck trips. Assumes 15 workers (30 one-way trips), 6 days/week
Operations: Energy Use	669.7 kwh/day, 6 days/week based on information provided for processing. Warehouse bldgs (covered storage areas) not required. Office building and natural gas use based on model defaults.
Operations: Water and Waste Water	Water use not required for warehouse/storage areas.
Operations: Solid Waste	Waste gen for industrial bldg and office based on model defaults. Warehouse/storage areas not included.
Operations: Refrigerants	Industrial building not heated/cooled. Office based on model defaults.
Operations: Off-Road Equipment	Includes FE loader, 8 hrs/day, 6 days/week

8.3. Land Use

Model Parameter	Units	Default Value	New Value
Lot Area	acre	0.89532	4.00000
Landscape Area	sq. ft	—	0.00000
Lot Area	acre	1.74472	3.00000
Landscape Area	sq. ft	—	0.00000

8.4. Construction

8.4.1. Construction Phases

Phase Type	Phase Name	Model Parameter	Default Value	New Value
Site Preparation	Site Preparation	Start Date	12/2/2026	11/3/2026
Site Preparation	Site Preparation	End Date	12/16/2026	11/16/2026
Building Construction	Building Construction	Start Date	1/15/2027	11/17/2026
Building Construction	Building Construction	End Date	12/3/2027	10/18/2027
Building Construction	Building Construction	Work Days per Phase	230.000	240.000

Paving	Paving	Start Date	12/4/2027	10/19/2027
Paving	Paving	End Date	1/1/2028	11/2/2027
Paving	Paving	Work Days per Phase	20.0000	11.0000

8.4.2. Off-Road Equipment

Phase Name	Equipment Type	Model Parameter	Default Value	New Value
Building Construction	Tractors/Loaders/Backhoes	Number per Day	3.00000	1.000000
Building Construction	Tractors/Loaders/Backhoes	Hours Per Day	7.00000	8.00000
Paving	Pavers	Number per Day	2.00000	1.000000
Paving	Paving Equipment	Number per Day	2.00000	1.000000
Paving	Rollers	Number per Day	2.00000	1.000000

8.4.6. Trips and VMT

Phase Name	Trip Type	Model Parameter	Default Value	New Value
Building Construction	Worker	One-Way Trips per Day	48.6200	40.0000

8.5. Operations

8.5.1. Mobile Sources

8.5.1.1. Vehicle Data

Land Use	Model Parameter	Units	Default Value	New Value
General Light Industry	Weekday Trip Rate	size/day	4.96000	0.76923
General Light Industry	Saturday Trip Rate	size/day	1.99000	0.76923
General Light Industry	Sunday Trip Rate	size/day	5.00000	0.00000
General Office Building	Weekday Trip Rate	size/day	9.74000	0.00000
General Office Building	Saturday Trip Rate	size/day	2.21000	0.00000
General Office Building	Sunday Trip Rate	size/day	0.70000	0.00000

Unrefrigerated Warehouse-No Rail	Weekday Trip Rate	size/day	1.74000	0.00000
Unrefrigerated Warehouse-No Rail	Saturday Trip Rate	size/day	1.74000	0.00000
Unrefrigerated Warehouse-No Rail	Sunday Trip Rate	size/day	1.74000	0.00000

8.5.3. Energy Usage

Land Use	Model Parameter	Units	Default Value	New Value
General Light Industry	Electricity	kWh/yr	391,342	208,946
General Light Industry	Electricity (Subject to Title 24)	kWh/yr	211,593	112,974
General Light Industry	Electricity (Not Subject to Title 24)	kWh/yr	179,750	95,972.5
Unrefrigerated Warehouse-No Rail	Electricity	kWh/yr	588,732	0.00000
Unrefrigerated Warehouse-No Rail	Electricity (Subject to Title 24)	kWh/yr	275,857	0.00000
Unrefrigerated Warehouse-No Rail	Electricity (Not Subject to Title 24)	kWh/yr	312,875	0.00000
Unrefrigerated Warehouse-No Rail	Natural Gas	kBTU/yr	347,746	0.00000
Unrefrigerated Warehouse-No Rail	Natural Gas (Subject to Title 24)	kBTU/yr	289,399	0.00000
Unrefrigerated Warehouse-No Rail	Natural Gas (Not Subject to Title 24)	kBTU/yr	58,346.9	0.00000

8.5.4. Water and Waste Water

Land Use	Model Parameter	Units	Default Value	New Value
Unrefrigerated Warehouse-No Rail	Indoor Water	gal/year	17,575,000	0.00000

8.5.5. Solid Waste

Land Use	Model Parameter	Units	Default Value	New Value
Unrefrigerated Warehouse-No Rail	Solid Waste Generation Rate	ton/1000sqft/yr	0.94000	0.00000

8.5.7. Off-Road Equipment

8.5.7.1. Off-Road Equipment

Equipment Type	Model Parameter	Default Value	New Value
Tractors/Loaders/Backhoes	Days/Year	260.000	312.000

EMFAC ADJUSTMENT FACTORS

Calendar Year	EMFAC2021 Ve	Fuel Type	Exhaust Nox	Total PM2.5 (exhau	Total PM10 (exhau	Total ROG (exhaust
2027	All Other Buse	DSL	1.01040467	1.000020314	1.000012356	1
2027	All Other Buse	NG	1	1	1	1
2027	LDA	DSL	1	1	1	1
2027	LDA	ELEC	1	1	1	1
2027	LDA	GAS	1	1	1	1
2027	LDA	PHE	1	1	1	1
2027	LDT1	DSL	1	1	1	1
2027	LDT1	ELEC	1	1	1	1
2027	LDT1	GAS	1	1	1	1
2027	LDT1	PHE	1	1	1	1
2027	LDT2	DSL	1	1	1	1
2027	LDT2	ELEC	1	1	1	1
2027	LDT2	GAS	1	1	1	1
2027	LDT2	PHE	1	1	1	1
2027	LHD1	DSL	1.002009965	1.015209303	1.02051899	1.009155496
2027	LHD1	ELEC	0	0	0	0
2027	LHD1	GAS	1.008092452	1.029506472	1.029701254	1.003872457
2027	LHD2	DSL	1.003245079	1.018208753	1.022934651	1.012775904
2027	LHD2	ELEC	0	0	0	0
2027	LHD2	GAS	1.00700723	1.026064818	1.026096471	1.003517052
2027	MCY	GAS	1	1	1	1
2027	MDV	DSL	1	1	1	1
2027	MDV	ELEC	1	1	1	1
2027	MDV	GAS	1	1	1	1
2027	MDV	PHE	1	1	1	1
2027	MH	DSL	1	1	1	1
2027	MH	GAS	1	1	1	1
2027	Motor Coach	DSL	1.051329398	1.004967538	1.002420681	1
2027	OBUS	ELEC	0	0	0	0
2027	OBUS	GAS	1.018287576	1.027375634	1.027234662	1.004785453
2027	PTO	DSL	1.045266312	1.022899947	1.022899947	1.01835134
2027	PTO	ELEC	0	0	0	0
2027	SBUS	DSL	1.008502959	1.007571112	1.011145155	1.002006608
2027	SBUS	ELEC	0	0	0	0
2027	SBUS	GAS	1.007344239	1.011727515	1.011564696	1.008001481
2027	SBUS	NG	1.008447892	1.020113303	1.020009495	1.014428832
2027	T6 CAIRP Class	DSL	1.06751314	1.039970189	1.042198463	1.024934029
2027	T6 CAIRP Class	ELEC	0	0	0	0
2027	T6 CAIRP Class	DSL	1.061341386	1.037793872	1.039177548	1.027903388
2027	T6 CAIRP Class	ELEC	0	0	0	0
2027	T6 CAIRP Class	DSL	1.107702573	1.05255216	1.053385626	1.037111474
2027	T6 CAIRP Class	ELEC	0	0	0	0
2027	T6 CAIRP Class	DSL	1.056967174	1.029870877	1.029866791	1.02214703
2027	T6 CAIRP Class	ELEC	0	0	0	0
2027	T6 CAIRP Class	NG	1.012855892	1.025451222	1.025206361	1.027639235
2027	T6 Instate Deli	DSL	1.04582199	1.019049836	1.024258431	1.006796663
2027	T6 Instate Deli	ELEC	0	0	0	0
2027	T6 Instate Deli	NG	1.036668162	1.049104597	1.048768512	1.046465664
2027	T6 Instate Deli	DSL	1.049873549	1.021524676	1.024592632	1.010497426
2027	T6 Instate Deli	ELEC	0	0	0	0
2027	T6 Instate Deli	NG	1.037087372	1.048793198	1.048542982	1.045804401
2027	T6 Instate Deli	DSL	1.050684425	1.021621117	1.024802763	1.009982665
2027	T6 Instate Deli	ELEC	0	0	0	0
2027	T6 Instate Deli	NG	1.03643123	1.049375657	1.049028222	1.046335674
2027	T6 Instate Deli	DSL	1.016121704	1.008559989	1.009075195	1.005343172
2027	T6 Instate Deli	ELEC	0	0	0	0
2027	T6 Instate Deli	NG	1.005024947	1.008288227	1.008114731	1.008436872
2027	T6 Instate Oth	DSL	1.048718657	1.019947187	1.025780117	1.007157464
2027	T6 Instate Oth	ELEC	0	0	0	0
2027	T6 Instate Oth	NG	1.039705655	1.051968362	1.051600108	1.049758837
2027	T6 Instate Oth	DSL	1.057087554	1.025087964	1.026854781	1.01613102
2027	T6 Instate Oth	ELEC	0	0	0	0
2027	T6 Instate Oth	NG	1.03548953	1.04695126	1.046635113	1.04455297
2027	T6 Instate Oth	DSL	1.053108372	1.022015135	1.025936682	1.009549096
2027	T6 Instate Oth	ELEC	0	0	0	0
2027	T6 Instate Oth	NG	1.034191083	1.04458367	1.044299341	1.042408454
2027	T6 Instate Oth	DSL	1.030570811	1.021710397	1.023584279	1.010696566
2027	T6 Instate Oth	ELEC	0	0	0	0
2027	T6 Instate Oth	NG	1.011627782	1.022848375	1.02256795	1.020040623
2027	T6 Instate Trac	DSL	1.052126133	1.024571471	1.029668739	1.009272909
2027	T6 Instate Trac	ELEC	0	0	0	0
2027	T6 Instate Trac	NG	1.033210939	1.049384612	1.049080467	1.045823655
2027	T6 Instate Trac	DSL	1.024460407	1.013093157	1.013964819	1.00696104
2027	T6 Instate Trac	ELEC	0	0	0	0
2027	T6 Instate Trac	NG	1.008073902	1.01475063	1.014574048	1.013850469
2027	T6 OOS Class 4	DSL	1	1	1	1
2027	T6 OOS Class 5	DSL	1	1	1	1
2027	T6 OOS Class 6	DSL	1	1	1	1

2027	T6 OOS Class 7	DSL	1	1	1	1
2027	T6 Public Class	DSL	1.014288286	1.015770708	1.021652278	1.005608357
2027	T6 Public Class	ELEC	0	0	0	0
2027	T6 Public Class	NG	1.033237081	1.040127683	1.039854917	1.038295716
2027	T6 Public Class	DSL	1.021611213	1.018406265	1.022214834	1.007337182
2027	T6 Public Class	ELEC	0	0	0	0
2027	T6 Public Class	NG	1.019307592	1.026888759	1.026551777	1.024419517
2027	T6 Public Class	DSL	1.016388672	1.015330075	1.021509715	1.005764779
2027	T6 Public Class	ELEC	0	0	0	0
2027	T6 Public Class	NG	1.031436454	1.036788462	1.036568231	1.035148835
2027	T6 Public Class	DSL	1.014925018	1.01742776	1.024589808	1.00560783
2027	T6 Public Class	ELEC	0	0	0	0
2027	T6 Public Class	NG	1.032475447	1.042834278	1.042752864	1.039425438
2027	T6 Utility Class	DSL	1.110277492	1.048408853	1.049369126	1.039064501
2027	T6 Utility Class	ELEC	0	0	0	0
2027	T6 Utility Class	NG	1.029652634	1.046461214	1.045956795	1.044323715
2027	T6 Utility Class	DSL	1.11610028	1.049850554	1.050305723	1.041280732
2027	T6 Utility Class	ELEC	0	0	0	0
2027	T6 Utility Class	NG	1.02107654	1.036083854	1.035528617	1.034666275
2027	T6 Utility Class	DSL	1.122494113	1.056989212	1.057262679	1.047377316
2027	T6 Utility Class	ELEC	0	0	0	0
2027	T6 Utility Class	NG	1.018925332	1.038127256	1.037572713	1.035427204
2027	T6TS	ELEC	0	0	0	0
2027	T6TS	GAS	1.031196959	1.03192418	1.031884948	1.007927004
2027	T7 CAIRP Class	DSL	1.099211063	1.030112151	1.032447764	1.031532213
2027	T7 CAIRP Class	ELEC	0	0	0	0
2027	T7 CAIRP Class	NG	1.026016768	1.030400003	1.030273717	1.028087424
2027	T7 NNOOS Cla	DSL	1	1	1	1
2027	T7 NOOS Class	DSL	1	1	1	1
2027	T7 Other Port	DSL	1.035459388	1.017202041	1.018418217	1.013847609
2027	T7 Other Port	ELEC	0	0	0	0
2027	T7 POAK Class	DSL	1.038626813	1.013459067	1.014398972	1.014562186
2027	T7 POAK Class	ELEC	0	0	0	0
2027	T7 POAK Class	NG	1.038054798	1.03778818	1.037703117	1.037281217
2027	T7 POLA Class	DSL	1.014009063	1.005113143	1.005680085	1.005845109
2027	T7 POLA Class	ELEC	0	0	0	0
2027	T7 POLA Class	NG	1.011034322	1.017151001	1.016929053	1.016213392
2027	T7 Public Class	DSL	1.01635805	1.014859423	1.01951785	1.006453367
2027	T7 Public Class	ELEC	0	0	0	0
2027	T7 Public Class	NG	1.027550533	1.045040955	1.044846077	1.039423834
2027	T7 Single Conc	DSL	1.116357085	1.053267501	1.054271726	1.045614488
2027	T7 Single Conc	ELEC	0	0	0	0
2027	T7 Single Conc	NG	1.040364833	1.05346765	1.05329969	1.048617755
2027	T7 Single Dum	DSL	1.048645743	1.02758622	1.029507979	1.018793286
2027	T7 Single Dum	ELEC	0	0	0	0
2027	T7 Single Dum	NG	1.016710318	1.031518217	1.031287033	1.025770343
2027	T7 Single Othe	DSL	1.056899163	1.029718034	1.030770355	1.022120531
2027	T7 Single Othe	ELEC	0	0	0	0
2027	T7 Single Othe	NG	1.020582753	1.032446283	1.032280005	1.027606167
2027	T7 SWCV Class	DSL	1.002013604	1.006873262	1.006166287	1.006847791
2027	T7 SWCV Class	ELEC	0	0	0	0
2027	T7 SWCV Class	NG	1.001515007	1.022862884	1.02305486	1.000523038
2027	T7 Tractor Cla	DSL	1.043058967	1.015336817	1.016415649	1.013621096
2027	T7 Tractor Cla	ELEC	0	0	0	0
2027	T7 Tractor Cla	NG	1.008523568	1.013964969	1.013829728	1.011524526
2027	T7 Utility Class	DSL	1.049641108	1.025929258	1.025740019	1.0178427
2027	T7 Utility Class	ELEC	0	0	0	0
2027	T7IS	ELEC	0	0	0	0
2027	T7IS	GAS	1.030609974	1.027690333	1.027871547	1.006902542
2027	UBUS	DSL	1	1	1	1
2027	UBUS	ELEC	1	1	1	1
2027	UBUS	GAS	1	1	1	1
2027	UBUS	NG	1	1	1	1
2028	All Other Buse	DSL	1.016970231	1.000048122	1.000028849	1
2028	All Other Buse	NG	1	1	1	1
2028	LDA	DSL	1	1	1	1
2028	LDA	ELEC	1	1	1	1
2028	LDA	GAS	1	1	1	1
2028	LDA	PHE	1	1	1	1
2028	LDT1	DSL	1	1	1	1
2028	LDT1	ELEC	1	1	1	1
2028	LDT1	GAS	1	1	1	1
2028	LDT1	PHE	1	1	1	1
2028	LDT2	DSL	1	1	1	1
2028	LDT2	ELEC	1	1	1	1
2028	LDT2	GAS	1	1	1	1
2028	LDT2	PHE	1	1	1	1
2028	LHD1	DSL	1.003480543	1.024482959	1.032420998	1.015153403
2028	LHD1	ELEC	0	0	0	0
2028	LHD1	GAS	1.01333983	1.04573823	1.046016754	1.006377195

2028	LHD2	DSL	1.005456484	1.028719028	1.035677276	1.020639164
2028	LHD2	ELEC	0	0	0	0
2028	LHD2	GAS	1.011566341	1.040738925	1.040772954	1.005736036
2028	MCY	GAS	1	1	1	1
2028	MDV	DSL	1	1	1	1
2028	MDV	ELEC	1	1	1	1
2028	MDV	GAS	1	1	1	1
2028	MDV	PHE	1	1	1	1
2028	MH	DSL	1	1	1	1
2028	MH	GAS	1	1	1	1
2028	Motor Coach	DSL	1.074948365	1.006497072	1.00315491	1
2028	OBUS	ELEC	0	0	0	0
2028	OBUS	GAS	1.032990821	1.04485326	1.044656171	1.007583583
2028	PTO	DSL	1.070487496	1.036467853	1.036467853	1.030185827
2028	PTO	ELEC	0	0	0	0
2028	SBUS	DSL	1.014099746	1.01279308	1.018508871	1.003418615
2028	SBUS	ELEC	0	0	0	0
2028	SBUS	GAS	1.012719273	1.018348456	1.018082272	1.012374112
2028	SBUS	NG	1.013386941	1.031435951	1.0312897	1.022726468
2028	T6 CAIRP Class	DSL	1.113844174	1.06435547	1.067358477	1.042341612
2028	T6 CAIRP Class	ELEC	0	0	0	0
2028	T6 CAIRP Class	DSL	1.104391397	1.061333553	1.063251002	1.046530141
2028	T6 CAIRP Class	ELEC	0	0	0	0
2028	T6 CAIRP Class	DSL	1.170609497	1.081009294	1.082129749	1.059729067
2028	T6 CAIRP Class	ELEC	0	0	0	0
2028	T6 CAIRP Class	DSL	1.089353557	1.044991377	1.045143799	1.03430874
2028	T6 CAIRP Class	ELEC	0	0	0	0
2028	T6 CAIRP Class	NG	1.021643159	1.039667915	1.039345375	1.042476373
2028	T6 Instate Deli	DSL	1.076104406	1.032651016	1.040113791	1.01269395
2028	T6 Instate Deli	ELEC	0	0	0	0
2028	T6 Instate Deli	NG	1.056713495	1.074300427	1.073881224	1.070351998
2028	T6 Instate Deli	DSL	1.082157624	1.036365812	1.040686711	1.019003374
2028	T6 Instate Deli	ELEC	0	0	0	0
2028	T6 Instate Deli	NG	1.058072278	1.07487575	1.074566434	1.070408148
2028	T6 Instate Deli	DSL	1.08245765	1.036454612	1.040959858	1.018164339
2028	T6 Instate Deli	ELEC	0	0	0	0
2028	T6 Instate Deli	NG	1.057144667	1.075618047	1.075179951	1.071086185
2028	T6 Instate Deli	DSL	1.025900367	1.014399431	1.015289917	1.009040457
2028	T6 Instate Deli	ELEC	0	0	0	0
2028	T6 Instate Deli	NG	1.008434963	1.013965801	1.013682278	1.014097374
2028	T6 Instate Oth	DSL	1.082552299	1.035173106	1.043753158	1.013727113
2028	T6 Instate Oth	ELEC	0	0	0	0
2028	T6 Instate Oth	NG	1.062163688	1.079389709	1.078937905	1.075898012
2028	T6 Instate Oth	DSL	1.095466667	1.042846648	1.045422498	1.02858317
2028	T6 Instate Oth	ELEC	0	0	0	0
2028	T6 Instate Oth	NG	1.057572539	1.074350422	1.073946155	1.070514427
2028	T6 Instate Oth	DSL	1.088670791	1.038260488	1.043907922	1.018055675
2028	T6 Instate Oth	ELEC	0	0	0	0
2028	T6 Instate Oth	NG	1.055017938	1.07033458	1.069972075	1.066799501
2028	T6 Instate Oth	DSL	1.046569499	1.034604437	1.037476383	1.017435188
2028	T6 Instate Oth	ELEC	0	0	0	0
2028	T6 Instate Oth	NG	1.018363225	1.036270924	1.035860097	1.03139005
2028	T6 Instate Trac	DSL	1.087257931	1.043079347	1.050277006	1.017866424
2028	T6 Instate Trac	ELEC	0	0	0	0
2028	T6 Instate Trac	NG	1.054878089	1.078974175	1.078626556	1.072948434
2028	T6 Instate Trac	DSL	1.036556843	1.020160906	1.021511459	1.010867478
2028	T6 Instate Trac	ELEC	0	0	0	0
2028	T6 Instate Trac	NG	1.012422656	1.022758773	1.022503988	1.021148999
2028	T6 OOS Class 4	DSL	1	1	1	1
2028	T6 OOS Class 5	DSL	1	1	1	1
2028	T6 OOS Class 6	DSL	1	1	1	1
2028	T6 OOS Class 7	DSL	1	1	1	1
2028	T6 Public Class	DSL	1.022812333	1.025057066	1.033717554	1.009143713
2028	T6 Public Class	ELEC	0	0	0	0
2028	T6 Public Class	NG	1.049048549	1.058805494	1.058465779	1.055926743
2028	T6 Public Class	DSL	1.035365307	1.030126668	1.03585465	1.012379292
2028	T6 Public Class	ELEC	0	0	0	0
2028	T6 Public Class	NG	1.03038463	1.042001169	1.041522705	1.038051338
2028	T6 Public Class	DSL	1.02610603	1.024975012	1.033953219	1.009748493
2028	T6 Public Class	ELEC	0	0	0	0
2028	T6 Public Class	NG	1.045905911	1.05358547	1.053307325	1.051121588
2028	T6 Public Class	DSL	1.024070779	1.028429804	1.038868925	1.009559587
2028	T6 Public Class	ELEC	0	0	0	0
2028	T6 Public Class	NG	1.047642135	1.062878568	1.062805038	1.057634739
2028	T6 Utility Class	DSL	1.18990448	1.077210575	1.07848596	1.064103834
2028	T6 Utility Class	ELEC	0	0	0	0
2028	T6 Utility Class	NG	1.051011646	1.07525428	1.074597882	1.071972951
2028	T6 Utility Class	DSL	1.197678738	1.079130408	1.079739935	1.067025755
2028	T6 Utility Class	ELEC	0	0	0	0
2028	T6 Utility Class	NG	1.037369153	1.060618994	1.059832677	1.058140275

2028	T6 Utility Class	DSL	1.197771286	1.089189558	1.089610233	1.075003984
2028	T6 Utility Class	ELEC	0	0	0	0
2028	T6 Utility Class	NG	1.033286498	1.063474612	1.062678711	1.059112766
2028	T6TS	ELEC	0	0	0	0
2028	T6TS	GAS	1.05863676	1.050961841	1.050899199	1.013198509
2028	T7 CAIRP Class	DSL	1.141808646	1.044651383	1.048113274	1.046167091
2028	T7 CAIRP Class	ELEC	0	0	0	0
2028	T7 CAIRP Class	NG	1.040100705	1.046385792	1.046238066	1.042738769
2028	T7 NNOOS Cla	DSL	1	1	1	1
2028	T7 NOOS Class	DSL	1	1	1	1
2028	T7 Other Port	DSL	1.059153627	1.028833436	1.030754584	1.023156232
2028	T7 Other Port	ELEC	0	0	0	0
2028	T7 POAK Class	DSL	1.059555978	1.021264989	1.022708507	1.022704339
2028	T7 POAK Class	ELEC	0	0	0	0
2028	T7 POAK Class	NG	1.0474564	1.047695938	1.047586818	1.046635308
2028	T7 POLA Class	DSL	1.021235848	1.008146433	1.009077095	1.009181246
2028	T7 POLA Class	ELEC	0	0	0	0
2028	T7 POLA Class	NG	1.016968834	1.025323459	1.025033888	1.023869441
2028	T7 Public Class	DSL	1.025446284	1.024018166	1.031232796	1.010527063
2028	T7 Public Class	ELEC	0	0	0	0
2028	T7 Public Class	NG	1.042469668	1.068591572	1.068310509	1.059690463
2028	T7 Single Conc	DSL	1.179655834	1.083488902	1.08511021	1.071016479
2028	T7 Single Conc	ELEC	0	0	0	0
2028	T7 Single Conc	NG	1.064857435	1.083975653	1.083754137	1.076097614
2028	T7 Single Dum	DSL	1.076347598	1.045396283	1.048427865	1.030434196
2028	T7 Single Dum	ELEC	0	0	0	0
2028	T7 Single Dum	NG	1.027586694	1.05101051	1.050681921	1.04129119
2028	T7 Single Othe	DSL	1.085791953	1.046326976	1.048066748	1.034115416
2028	T7 Single Othe	ELEC	0	0	0	0
2028	T7 Single Othe	NG	1.032480268	1.050556367	1.050332156	1.042544946
2028	T7 SWCV Class	DSL	1.003196732	1.010990902	1.009976112	1.011080667
2028	T7 SWCV Class	ELEC	0	0	0	0
2028	T7 SWCV Class	NG	1.002539542	1.034895954	1.03515057	1.00088536
2028	T7 Tractor Cla	DSL	1.063773043	1.022925388	1.024564462	1.020185906
2028	T7 Tractor Cla	ELEC	0	0	0	0
2028	T7 Tractor Cla	NG	1.013161438	1.021263733	1.021080831	1.017397127
2028	T7 Utility Class	DSL	1.079675848	1.042310099	1.042220219	1.029284052
2028	T7 Utility Class	ELEC	0	0	0	0
2028	T7IS	ELEC	0	0	0	0
2028	T7IS	GAS	1.058903096	1.045852971	1.046051078	1.012935323
2028	UBUS	DSL	1	1	1	1
2028	UBUS	ELEC	1	1	1	1
2028	UBUS	GAS	1	1	1	1
2028	UBUS	NG	1	1	1	1

	Exhaust Nox	Total PM2.5 (exhaust, brake wear, and tire wear)	Total PM10 (exhaust, brake wear, and tire wear)	Total ROG (exhaust and evaporative)
MAX VALUE 2027	1.122494113	1.056989212	1.057262679	1.049758837

EMFAC ADJUSTMENT FACTORS

Calendar Year	EMFAC2021 Ve	Fuel Type	Exhaust CO2	Exhaust CH4	Exhaust N2O
2027	LHD1	GAS	1.008404448	1.009469621	1.013620931
2027	LHD2	GAS	1.00734712	1.008273716	1.011527577
2027	T6TS	GAS	1.010786662	1.016243039	1.041798814
2027	T7IS	GAS	1.008853555	1.011615527	1.036016317
2027	LHD1	DSL	1.0081676	1.009155496	1.0081676
2027	LHD2	DSL	1.008336825	1.012775904	1.008336825
2027	T6 Public Class	DSL	1.009330643	1.005608357	1.009330643
2027	T6 Public Class	DSL	1.008716891	1.007337182	1.008716891
2027	T6 Public Class	DSL	1.011506273	1.00560783	1.011506273
2027	T6 Utility Class	DSL	1.018287949	1.039064501	1.018287949
2027	T6 Utility Class	DSL	1.018607716	1.041280732	1.018607716
2027	T6 Utility Class	DSL	1.021741589	1.047377316	1.021741589
2027	T6 Instate Oth	DSL	1.011276436	1.007157464	1.011276436
2027	T7 Public Class	DSL	1.008148671	1.006453367	1.008148671
2027	T7 CAIRP Class	DSL	1.011654024	1.031532213	1.011654024
2027	T7 Utility Class	DSL	1.008465371	1.0178427	1.008465371
2027	T7 NNOOS Cla	DSL	1	1	1
2027	T7 NOOS Class	DSL	1	1	1
2027	T7 Tractor Cla	DSL	1.005239814	1.013621096	1.005239814
2027	T6 Instate Oth	NG	1.014322934	1.049758837	1.014322934
2027	UBUS	GAS	0.98827564	1	1
2027	SBUS	GAS	1.00373767	1.010178376	1.011361932
2027	OBUS	GAS	1.008923213	1.011176318	1.028034244
2027	UBUS	DSL	0.999916731	1	0.999916731
2027	SBUS	DSL	1.005188535	1.002006608	1.005188535
2027	Motor Coach	DSL	1	1	1
2027	MH	GAS	1	1	1
2027	MH	DSL	1	1	1
2027	T6 Public Class	DSL	1.009815396	1.005764779	1.009815396
2027	T6 Instate Deli	DSL	1.010273207	1.006796663	1.010273207
2027	T6 Instate Deli	DSL	1.009577107	1.010497426	1.009577107
2027	T6 Instate Deli	DSL	1.009788374	1.009982665	1.009788374
2027	T6 Instate Oth	DSL	1.010143003	1.01613102	1.010143003
2027	T6 Instate Oth	DSL	1.010520222	1.009549096	1.010520222
2027	T6 Instate Trac	DSL	1.005342077	1.00696104	1.005342077
2027	T6 Instate Deli	DSL	1.003467518	1.005343172	1.003467518
2027	T6 Instate Oth	DSL	1.009358381	1.010696566	1.009358381
2027	T6 CAIRP Class	DSL	1.015710623	1.024934029	1.015710623
2027	T6 CAIRP Class	DSL	1.014361508	1.027903388	1.014361508
2027	T6 CAIRP Class	DSL	1.019734712	1.037111474	1.019734712
2027	T6 CAIRP Class	DSL	1.01062243	1.02214703	1.01062243
2027	T6 OOS Class 4	DSL	1	1	1
2027	T6 OOS Class 5	DSL	1	1	1
2027	T6 OOS Class 6	DSL	1	1	1
2027	T6 OOS Class 7	DSL	1	1	1
2027	PTO	DSL	1.01110107	1.01835134	1.01110107
2027	T7 Single Dum	DSL	1.010543309	1.018793286	1.010543309
2027	T7 Single Othe	DSL	1.010358596	1.022120531	1.010358596
2027	T7 SWCV Class	DSL	1.001641783	1.006847791	1.001641783
2027	T6 Instate Deli	NG	1.013512371	1.046465664	1.013512371
2027	T6 Instate Deli	NG	1.013568281	1.045804401	1.013568281
2027	T6 Instate Deli	NG	1.013883267	1.046335674	1.013883267
2027	T6 Instate Oth	NG	1.013413121	1.04455297	1.013413121
2027	T6 Instate Oth	NG	1.012479809	1.042408454	1.012479809
2027	All Other Buse	DSL	1	1	1
2027	UBUS	ELEC	1	1	1
2027	UBUS	NG	0.999911011	1	0.999911011
2027	T7 Single Conc	DSL	1.018883472	1.045614488	1.018883472
2027	T6 Instate Trac	DSL	1.0126719	1.009272909	1.0126719
2027	T7 Single Othe	NG	1.00685446	1.027606167	1.00685446
2027	All Other Buse	NG	1	1	1
2027	T7 Public Class	NG	1.010251471	1.039423834	1.010251471
2027	T7 Single Dum	NG	1.007210109	1.025770343	1.007210109
2027	T7 Tractor Cla	NG	1.002463985	1.011524526	1.002463985
2027	T7 POAK Class	DSL	1.004731044	1.014562186	1.004731044
2027	T6 Utility Class	NG	1.01241707	1.044323715	1.01241707
2027	T6 Utility Class	NG	1.00966332	1.034666275	1.00966332
2027	T6 Utility Class	NG	1.010539177	1.035427204	1.010539177
2027	T6 Instate Trac	NG	1.003623263	1.013850469	1.003623263
2027	T6 Instate Deli	NG	1.001791244	1.008436872	1.001791244
2027	T6 Instate Oth	NG	1.005098285	1.020040623	1.005098285
2027	T7 Single Conc	NG	1.012396768	1.048617755	1.012396768
2027	T7 SWCV Class	NG	1.00460446	1.000983324	1.00460446
2027	T6 Public Class	NG	1.010516144	1.038295716	1.010516144
2027	T6 Public Class	NG	1.007168789	1.024419517	1.007168789
2027	T6 Public Class	NG	1.009871164	1.035148835	1.009871164
2027	T6 Public Class	NG	1.008801474	1.039425438	1.008801474
2027	SBUS	NG	1.005614716	1.014428832	1.005614716

2027	T7 Other Port (	DSL	1.006114738	1.013847609	1.006114738
2027	T6 Instate Trac	NG	1.01491213	1.045823655	1.01491213
2027	T7 CAIRP Class	NG	1.006848745	1.028087424	1.006848745
2027	T7 POLA Class	DSL	1.001903188	1.005845109	1.001903188
2027	T7 POAK Class	NG	1.007982362	1.037281217	1.007982362
2027	T7 POLA Class	NG	1.003387642	1.016213392	1.003387642
2027	T6 CAIRP Class	NG	1.005099777	1.027639235	1.005099777
2027	MDV	GAS	1	1	1
2027	MDV	DSL	1	1	1
2027	MDV	ELEC	1	1	1
2027	MDV	PHE	1	1	1
2027	LDT2	GAS	1	1	1
2027	LDT2	DSL	1	1	1
2027	LDT2	ELEC	1	1	1
2027	LDT2	PHE	1	1	1
2027	LDT1	GAS	1	1	1
2027	LDT1	DSL	1	1	1
2027	LDT1	ELEC	1	1	1
2027	LDT1	PHE	1	1	1
2027	LDA	GAS	1	1	1
2027	LDA	DSL	1	1	1
2027	LDA	ELEC	1	1	1
2027	LDA	PHE	1	1	1
2027	MCY	GAS	1	1	1
2027	T6TS	ELEC	0	0	0
2027	T7IS	ELEC	0	0	0
2027	OBUS	ELEC	0	0	0
2027	LHD1	ELEC	0	0	0
2027	LHD2	ELEC	0	0	0
2027	T6 Public Class	ELEC	0	0	0
2027	T6 Public Class	ELEC	0	0	0
2027	T6 Public Class	ELEC	0	0	0
2027	T6 Utility Class	ELEC	0	0	0
2027	T6 Utility Class	ELEC	0	0	0
2027	T6 Utility Class	ELEC	0	0	0
2027	T6 Instate Oth	ELEC	0	0	0
2027	T7 Public Class	ELEC	0	0	0
2027	T7 CAIRP Class	ELEC	0	0	0
2027	T7 Utility Class	ELEC	0	0	0
2027	T7 NNOOS Cla	ELEC	0	0	0
2027	T7 NOOS Class	ELEC	0	0	0
2027	T7 Tractor Cla	ELEC	0	0	0
2027	UBUS	ELEC	0	0	0
2027	SBUS	ELEC	0	0	0
2027	Motor Coach	ELEC	0	0	0
2027	MH	ELEC	0	0	0
2027	T6 Public Class	ELEC	0	0	0
2027	T6 Instate Deli	ELEC	0	0	0
2027	T6 Instate Deli	ELEC	0	0	0
2027	T6 Instate Deli	ELEC	0	0	0
2027	T6 Instate Oth	ELEC	0	0	0
2027	T6 Instate Oth	ELEC	0	0	0
2027	T6 Instate Trac	ELEC	0	0	0
2027	T6 Instate Deli	ELEC	0	0	0
2027	T6 Instate Oth	ELEC	0	0	0
2027	T6 CAIRP Class	ELEC	0	0	0
2027	T6 CAIRP Class	ELEC	0	0	0
2027	T6 CAIRP Class	ELEC	0	0	0
2027	T6 CAIRP Class	ELEC	0	0	0
2027	T6 OOS Class 4	ELEC	0	0	0
2027	T6 OOS Class 5	ELEC	0	0	0
2027	T6 OOS Class 6	ELEC	0	0	0
2027	T6 OOS Class 7	ELEC	0	0	0
2027	PTO	ELEC	0	0	0
2027	T7 Single Dum	ELEC	0	0	0
2027	T7 Single Othe	ELEC	0	0	0
2027	T7 SWCV Class	ELEC	0	0	0
2027	All Other Buse	ELEC	0	0	0
2027	T7 Single Conc	ELEC	0	0	0
2027	T6 Instate Trac	ELEC	0	0	0
2027	T7 POAK Class	ELEC	0	0	0
2027	T7 Other Port (	ELEC	0	0	0
2027	T7 POLA Class	ELEC	0	0	0

	Exhaust CO2	Exhaust CH4	Exhaust N2O
MAX VALUES			
2027	1.021741589	1.049758837	1.041798814

APPENDIX B

Biological Resources Assessment

Biological Resources Assessment for the Gemperle Brothers Manure Facility Project, Merced County, California

DECEMBER 2025

PREPARED FOR

Gemperle Family Farms

PREPARED BY

SWCA Environmental Consultants

BIOLOGICAL RESOURCES ASSESSMENT FOR THE GEMPERLE BROTHERS MANURE FACILITY PROJECT, MERCED COUNTY, CALIFORNIA

Prepared for

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SWCA Project No. 99233-000-SLO

December 2025

EXECUTIVE SUMMARY

This Biological Resources Assessment (BRA) has been prepared by SWCA Environmental Consultants (SWCA) at the request of the Gemperle Family Farms (project applicant). The purpose of this report is to summarize the existing conditions, inventory, and account for sensitive biological resources observed or potentially occurring, and recommend avoidance, minimization, and/or mitigation measures to reduce potential impacts on sensitive species and habitats by the proposed Gemperle Brothers Manure Facility Project (project).

Gemperle Family Farms proposes to construct and operate a manure-based fertilizer pelletizing facility on an approximately 8-acre portion of a 40.55-acre property in unincorporated Merced County. The project would centralize the storage of poultry manure from nearby applicant-owned egg-layer farms and process the material, along with fertilizer amendments, into stabilized, pelletized fertilizer products for commercial sale. The purpose of the project is to use existing on-site agricultural resources and nearby manure sources to produce a consistent, high-quality organic fertilizer product within an enclosed and controlled facility, replacing a former noncompliant dairy operation with lower-impact, modern agricultural manufacturing.

This BRA describes the regulatory setting for the project, the methods and results of the background research and reconnaissance-level field survey, a discussion of the possible permitting implications of the project, and recommended measures to avoid and minimize project impacts. SWCA anticipates that this document will be used in support of future regulatory permitting and/or California Environmental Quality Act (CEQA) compliance.

The approximately 9.9-acre Biological Study Area (BSA) is currently used for agriculture and consists mostly of a hay field. No special-status species or sensitive natural communities were observed during the field survey.

Based on the results of the literature review and field survey, the BSA provides suitable foraging habitat, but not suitable nesting habitat for the following species:

- Swainson's hawk (*Buteo swainsoni*) (California Endangered Species Act [CESA] Threatened)
- Tricolored blackbird (*Agelaius tricolor*) (CESA Threatened, California Department of Fish and Wildlife [CDFW] Species of Special Concern)

The BSA also provides suitable foraging and nesting habitat for several nesting migratory birds covered under the Migratory Bird Treaty Act.

No federally listed or proposed listed species would be affected by the project. It is anticipated that with the implementation of the avoidance and minimization measures recommended in this BRA, project activities will not significantly impact special-status species.

No potentially jurisdictional waters or wetlands were identified in the BSA. Therefore, the project is not expected to impact any federally or state-regulated waters or wetlands.

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1 INTRODUCTION

SWCA Environmental Consultants (SWCA) prepared this Biological Resources Assessment (BRA) at the request of Gemperle Family Farms (project applicant). The purpose of this report is to identify sensitive biological resources that may be impacted by the Gemperle Brothers Manure Facility Project (project). This BRA describes the regulatory setting for the project, the methods and results of the background research and reconnaissance-level field survey, a discussion of the possible permitting implications of the project, and recommended measures to avoid and minimize project impacts. SWCA anticipates that this document will be used in support of future regulatory permitting and/or California Environmental Quality Act (CEQA) compliance.

2 PROJECT DESCRIPTION

2.1 Location

The project address is 20167 Fowler Road, Hilmar, California, in Merced County. The project is located in Section 3 of Township 6 South, Range 10 East of the 2021 Turlock, California U.S. Geological Survey (USGS) 7.5-minute quadrangle (Figures 1 and 2). The project lies within a predominantly agricultural area characterized by orchards, row crops, and rural residential uses. The Biological Study Area (BSA) consists of the southern half of Assessor's Parcel Number (APN) 045-100-033. The approximately 9.9-acre project footprint occupies the rear (southern) portion of the parcel, set back from Fowler Road and away from existing agricultural buildings and worker housing units on the northern portion of the property. The BSA can be accessed from State Route 165 via Fowler Road. Access to the project site would be provided via an existing internal private driveway system connecting to Fowler Road to the north and Johnson Road to the south.

2.2 Project Purpose and Description

Gemperle Family Farms proposes to construct and operate a manure-based fertilizer pelletizing facility. The facility would centralize the storage of poultry manure from nearby applicant-owned egg-layer farms and process the material, along with fertilizer amendments, into stabilized, pelletized fertilizer products for commercial sale. The purpose of the project is to use existing on-site agricultural resources and nearby manure sources to produce a consistent, high-quality organic fertilizer product within an enclosed and controlled facility, replacing a former noncompliant dairy operation with lower-impact, modern agricultural manufacturing.

The project involves the construction and operation of three primary buildings: a manure storage building (about 90,000 square feet), pelletizing plant (about 36,000–39,000 square feet) and bulk pellet storage warehouse (about 36,000–37,000 square feet), totaling approximately 162,000 square feet, associated equipment, internal driveways, parking, utilities, and supporting infrastructure necessary to produce organic fertilizer pellets.

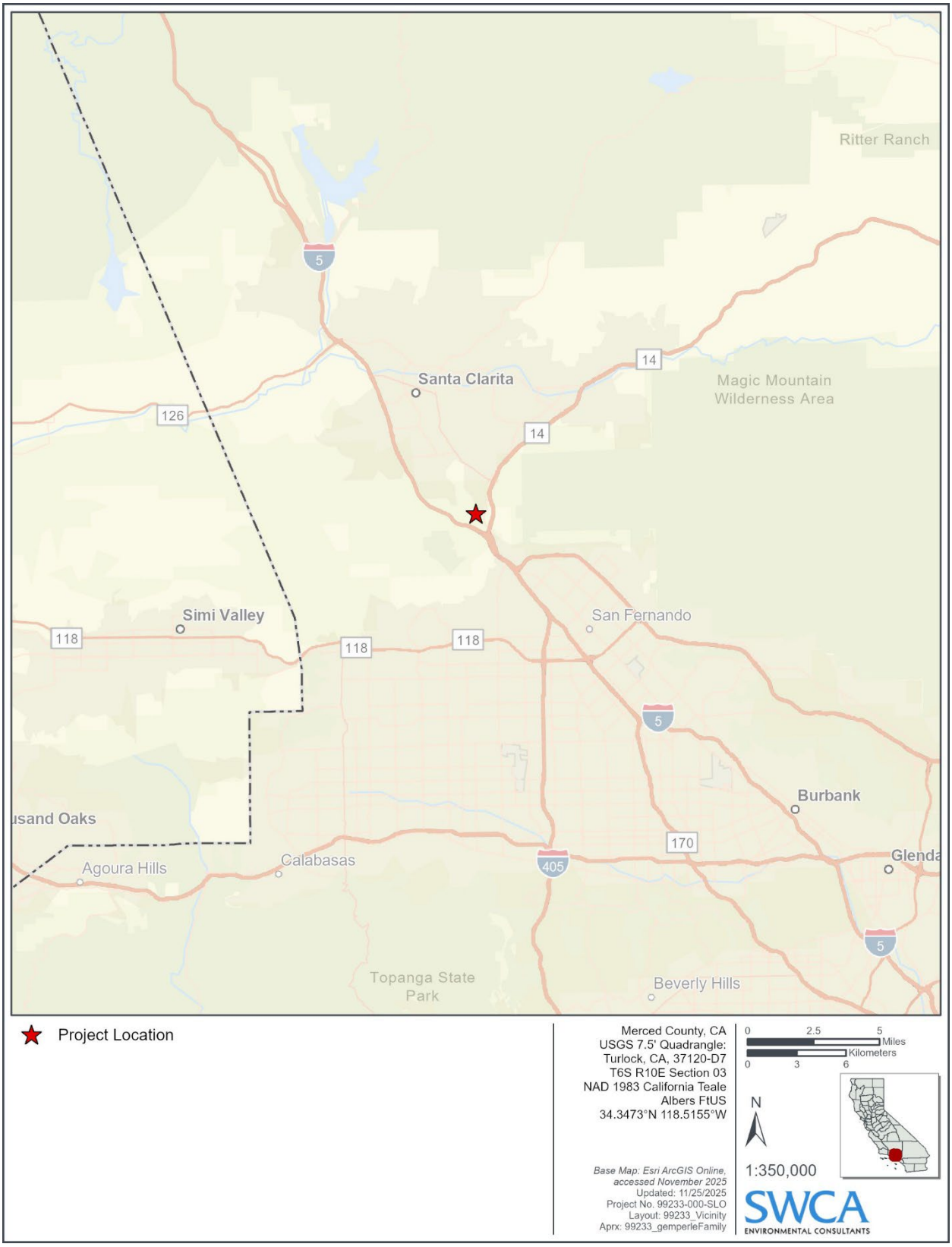


Figure 1. Project vicinity map.

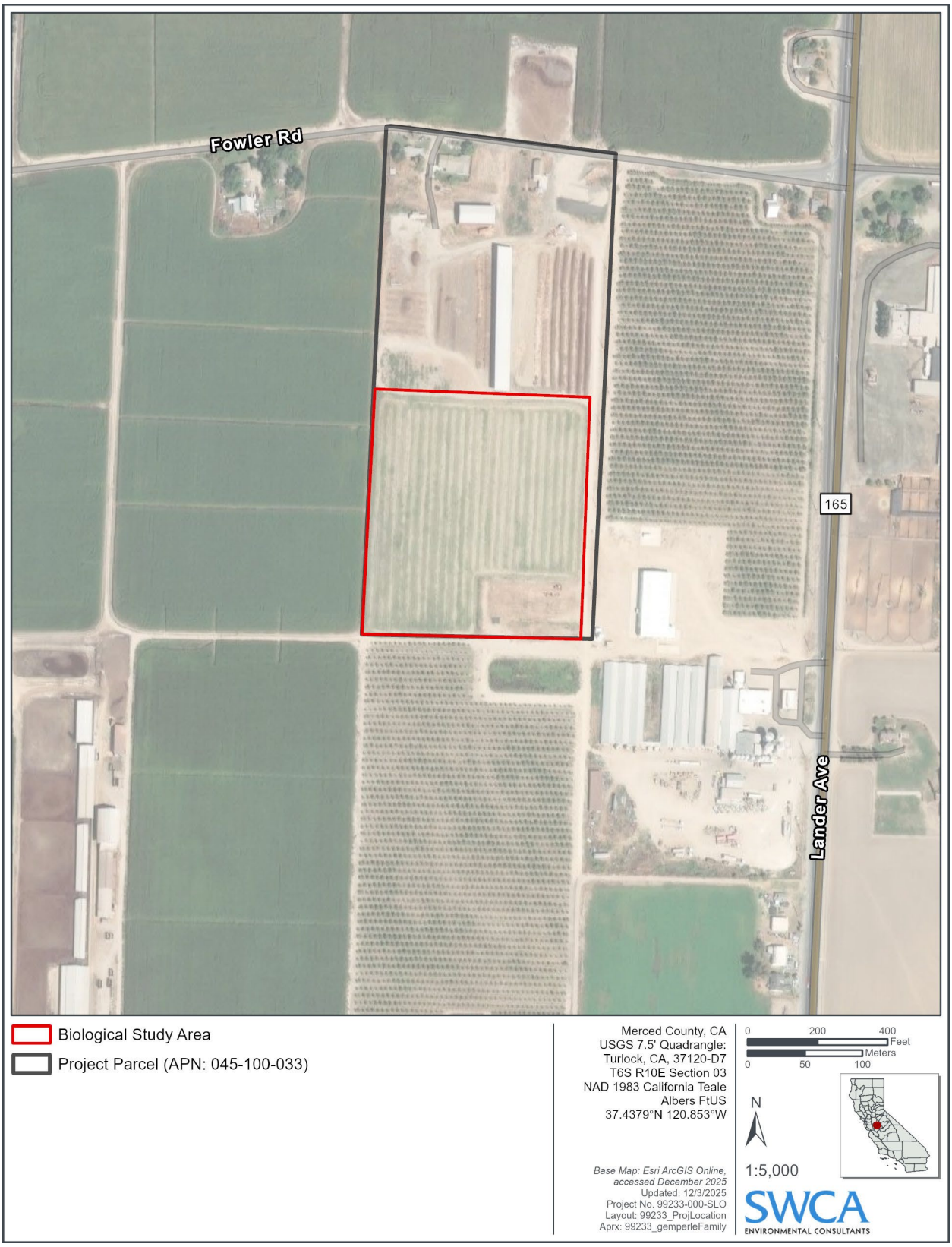


Figure 2. Project location map.

3 REGULATORY OVERVIEW

3.1 Federal

3.1.1 Clean Water Act

The Clean Water Act (CWA) is the primary federal law regulating water quality. The implementation of the CWA is the responsibility of the U.S. Environmental Protection Agency (EPA). However, the EPA depends on other agencies, such as the individual states and the U.S. Army Corps of Engineers (USACE), to assist in implementing the CWA. The objective of the CWA is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Sections 404 and 401 of the CWA apply to activities that would impact waters of the United States. The USACE enforces Section 404 of the CWA and the California State Water Resources Control Board (State Water Board) and its nine Regional Water Quality Control Boards (RWQCBs) enforce Section 401, as well as state water laws.

3.1.2 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) of 1973, as amended, provides the regulatory framework for the protection of plant and animal species (and their associated critical habitats) that are formally listed, proposed for listing, or candidates for listing as endangered or threatened under the FESA. Under FESA Section 7, any federal agency that is authorizing, funding, or carrying out an action that may jeopardize the continued existence of federally listed threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species must consult with the federal agency that oversees the protection of that species, typically the U.S. Fish and Wildlife Service (USFWS) and/or National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NOAA Fisheries), depending on the species that may be affected. Non-federal agencies and private entities can seek authorization for take of federally listed species under FESA Section 10, which requires the preparation of a Habitat Conservation Plan.

3.1.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 (16 United States Code [USC] 703–712) prohibits taking, killing, possessing, transporting, and importing of migratory birds, parts of migratory birds, and their eggs and nests, except when specifically authorized by the U.S. Department of the Interior. As used in the MBTA, the term "take" is defined as meaning, "to pursue, hunt, capture, collect, kill or attempt to pursue, hunt, shoot, capture, collect or kill, unless the context otherwise requires." An April 11, 2018, memorandum from the USFWS, which enforces the MBTA, provided guidance to "clarify what constitutes prohibited take" (USFWS 2018). The USFWS memorandum stated that the "take of birds, eggs or nests" was prohibited only when the purpose of the activity was to conduct take but was not prohibited when the purpose of the activity was not to conduct take. On January 7, 2022, the USFWS published the Final Rule formalizing this interpretation of the MBTA (USFWS 2022). Therefore, the MBTA is currently limited to purposeful actions, such as directly and knowingly removing a nest to construct a project, hunting, and poaching, and not to actions resulting in incidental take. This rule should be monitored closely as it may change again in the near future under the current administration.

3.1.4 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act regulates take, possession, sale, purchase, barter, transport, import, and export of any bald or golden eagle or its parts (e.g., nests, eggs, young) unless allowed by

permit (16 USC 668(a); 50 Code of Federal Regulations [CFR] 22). Take was broadly defined to include shoot, wound, kill, capture, collect, molest, or disturb. Effective April 12, 2024, USFWS revised the regulations for the issuance of eagle incidental take and eagle nest take (USFWS 2025a). The USFWS specifies activity-specific eligibility criteria for general permits for the following activities and types of eagle take:

- Incidental take for permitting wind energy
- Incidental take for permitting power lines
- Bald eagle disturbance take
- Bald eagle nest take

For both specific and general permits, approved avoidance and minimization measures will still be required, and compensatory mitigation may be required depending on the type of activity and whether it affects bald or golden eagles.

3.2 State

3.2.1 California Endangered Species Act

The California Endangered Species Act (CESA; California Fish and Game Code 2050 et seq.) generally parallels the FESA. It establishes the policy of the state to conserve, protect, restore, and enhance threatened or endangered species and their habitats. Section 2080 of the California Fish and Game Code prohibits the take, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or by the regulations. "Take" is defined in California Fish and Game Code Section 86 as to "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." This definition differs from the definition of "take" under the FESA. The CESA is administered by the California Department of Fish and Wildlife (CDFW). The CESA allows for take incidental to otherwise lawful projects but mandates that state lead agencies consult with the CDFW to ensure that a project would not jeopardize the continued existence of threatened or endangered species.

3.2.2 Native Plant Protection Act

The Native Plant Protection Act (NPPA) was created in 1977 with the intent to preserve, protect, and enhance rare and endangered plants in California (California Fish and Game Code Sections 1900–1913). The NPPA is administered by the CDFW, which has the authority to designate native plants as endangered or rare and to protect them from "take." The CDFW maintains a list of plant species that have been officially classified as endangered, threatened or rare. These special-status plants have special protection under California law and projects that directly impact them may not qualify for a categorical exemption under CEQA guidelines.

3.2.3 California Fish and Game Code

3.2.3.1 SECTIONS 1600 THROUGH 1607

California Fish and Game Code Sections 1600 through 1607 require that a Notification of Lake or Streambed Alteration Agreement (LSAA) application be submitted to the CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." The CDFW reviews the proposed actions in the application and, if necessary,

prepares an LSAA that includes measures to protect affected fish and wildlife resources, including mitigation for impacts to bats and bat habitat.

3.2.3.2 SECTIONS 3503 AND 3513

Nesting birds, including raptors, are protected under California Fish and Game Code Section 3503, which reads, "It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto." In addition, under California Fish and Game Code Section 3503.5, "it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Passerines and non-passerine land birds are further protected under California Fish and Game Code Section 3513. As such, the CDFW typically recommends surveys for nesting birds that could be directly (e.g., actual removal of trees/vegetation) or indirectly (e.g., noise disturbance) impacted by project-related activities. Disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "take" by the CDFW.

3.2.3.3 SECTIONS 3511, 4700, 5050, AND 5515

The classification of California Fully Protected (FP) species was the CDFW's initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for birds, mammals, amphibians and reptiles, and fish. Most of the species on these lists have subsequently been listed under the FESA and/or CESA. The California Fish and Game Code (Sections 3511 for birds, 4700 for mammals, 5050 for amphibian and reptiles, and 5515 for fish) addresses FP species and states that these species "... may not be taken or possessed at any time and no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected species" (California Fish and Game Commission 1998). "Take" of these species may be authorized for necessary scientific research. This language makes the FP designation the strongest and most restrictive regarding the "take" of these species. In 2003 the sections dealing with FP species were amended to allow the CDFW to authorize take resulting from recovery activities for state-listed species.

3.2.3.4 SECTIONS 4150 THROUGH 4155

California Fish and Game Code Sections 4150 through 4155 protect nongame mammals, including bats. Section 4150 states "A mammal occurring naturally in California that is not a game mammal, fully protected mammal, or fur-bearing mammal is a nongame mammal. A nongame mammal may not be taken or possessed except as provided in this code or in accordance with regulations adopted by the commission." The nongame mammals that may be taken or possessed are primarily those that cause crop or property damage. Bats are classified as a nongame mammal and are protected under California Fish and Game Code.

3.2.3.5 CALIFORNIA SPECIES OF SPECIAL CONCERN

Species of Special Concern (SSC) is a category conferred by the CDFW to fish and animal species that meet the state definition of threatened or endangered, but have not been formally listed (e.g., federally or state-listed species), or are considered at risk of qualifying for threatened or endangered status in the future based on known threats. SSC is an administrative classification only, but these species should be considered "special-status" for the purposes of the CEQA analysis.

3.2.4 Porter-Cologne Water Quality Control Act

The intent of the Porter-Cologne Water Quality Control Act (Porter-Cologne Act) is to protect water quality and the beneficial uses of water, and it applies to both surface and ground water. Under this law, the State Water Board develops statewide water quality plans, and the RWQCBs develop basin plans, which identify beneficial uses, water quality objectives, and implementation plans. The RWQCBs have the primary responsibility to implement the provisions of both statewide and basin plans. Waters regulated under the Porter-Cologne Act, referred to as "waters of the state," include isolated waters that are not regulated by the USACE. Projects that require a USACE permit, or fall under other federal jurisdiction, and have the potential to impact waters of the state are required to comply with the terms of the Water Quality Certification Program. If a proposed project does not require a federal license or permit, any person discharging, or proposing to discharge, waste (e.g., dirt) to waters of the state must file a Report of Waste Discharge and receive either waste discharge requirements (WDRs) or a waiver to WDRs before beginning the discharge.

4 METHODS

4.1 Background Research

SWCA performed a literature and database review to identify potential sensitive biological resources that have the potential to occur in the project area. The database review consisted of a California Natural Diversity Database (CNDDB) record search for special-status species within the vicinity of the project area (CDFW 2025a), a California Native Plant Society (CNPS) Rare Plant Program Inventory of Rare and Endangered Plants of California record search of the nine USGS 7.5-minute quadrangles surrounding the BSA (CNPS 2025a), and query of the USFWS Information for Planning and Consultation (IPaC) planning tool (USFWS 2025b). Results of the above database queries are included in Appendix A.

Other sources reviewed included the following:

- eBird (Cornell Lab of Ornithology 2025)
- NatureServe Explorer (NatureServe 2025)
- NOAA Fisheries Essential Fish Habitat Mapper (NOAA Fisheries 2025)
- Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2025a)
- University of California, Davis (UC Davis) PISCES Database (UC Davis 2025)
- USFWS National Wetlands Inventory (NWI; USFWS 2025c)
- USGS National Hydrography Dataset (NHD; USGS 2025)
- California Natural Community List (CDFW 2025b)
- Consortium of California Herbaria (CCH) Search Tool (CCH 2025)

4.2 Definitions

4.2.1 Sensitive Natural Communities

For the purposes of this document, sensitive natural communities are defined as the following:

- Aquatic (wetland, water, and riparian) communities protected under state and/or federal regulatory programs
- Vegetation alliances and associations with rarity ranking of S1, S2, or S3 (considered sensitive by CDFW).

4.2.2 Special-Status Plant Species

For the purposes of this document, special-status plant species are defined as the following:

- Plants listed or proposed for listing as threatened or endangered under the FESA.
- Plants that are candidates for possible future listing as threatened or endangered under the FESA.
- Plants listed, proposed, or candidates for listing by the State of California as threatened or endangered under the CESA.
- Plants considered by the CNPS to be "rare, threatened, or endangered" in California (California Rare Plant Ranks [CRPR] 1A, 1B, 2A, 2B, and 3).
- Plants listed under the NPPA.

4.2.3 Special-Status Wildlife Species

For the purposes of this document, special-status wildlife species are defined as the following:

- Wildlife listed or proposed for listing as threatened or endangered under the FESA
- Wildlife that are candidates for possible future listing as threatened or endangered under the FESA
- Wildlife listed, proposed, or candidates for listing as threatened and endangered under the CESA
- CDFW SSC
- CDFW FP species

4.2.4 Species' Potential to Occur

Each species' potential to occur within the BSA was evaluated and categorized using the following rationale descriptions:

- **Present:** The species has been documented within the project area by a reliable observer during recent surveys and habitat has not significantly been degraded or eliminated since the observation was made (e.g., no habitat removal associated with a development).
- **Likely to occur:** The species has a strong likelihood to be present in the project area as indicated by factors such as habitat quality, proximity to known records, presence of suitable dispersal corridors, etc. The project area contains suitable habitat and is within the elevational and geographic ranges of the species.
- **Unlikely to occur:** The species is not likely to occur in the project area. Potentially suitable habitat is present, but the project area may be outside of the species' elevational and/or geographic ranges, contain substantially degraded or fragmented habitat, lack recent occurrence records within dispersal distance, be isolated from known populations by barriers to migration/dispersal, and/or contain predators or invasive species that inhibit survival or occupation.

- **No potential:** The species is not expected to occur in the project area due to one or more of the following conditions: suitable habitat is absent from the project area, the project area is located substantially outside of the species' elevational and/or geographic ranges, or the species is restricted to or known to be present only within a specific area outside of the project area.

4.3 Field Survey

On November 13, 2025, SWCA biologist Alec Villanueva conducted a reconnaissance-level biological survey of the BSA to evaluate the presence or absence of sensitive biological resources, including suitable habitat for special-status species with the potential to occur in the BSA, sensitive natural communities, and potentially jurisdictional wetland/waters features. The biologist walked meandering transects throughout the BSA and documented suitable habitat features (e.g., burrows) and active bird nests with a submeter-accurate GPS unit. Wildlife observed during the survey were recorded. The biologist identified and mapped natural communities to the alliance or association level using *A Manual of California Vegetation* (MCV) Online (CNPS 2025b). When necessary, the biologist referred to Jepson eFlora (Jepson Flora Project 2025) to identify plant species.

5 ENVIRONMENTAL SETTING

The BSA is in the San Joaquin Valley, which includes the southern half of the Central California Valley ecoregion. The San Joaquin Valley is characterized by flat, intensively farmed plains with long, hot dry summers and mild winters. The local landscape includes the flat valley basins of deep sediments adjacent to large rivers including the San Joaquin River, as well as the fans and terraces around the edge of the valley. The San Joaquin Valley once contained extensive prairies, oak savannas, desert grasslands in the south, riparian woodlands, freshwater marshes, and vernal pools. However, more than half of the region has now been converted to agriculture (EPA 2013). The BSA consists entirely of agricultural field and ruderal land (disturbed areas that are generally barren or dominated by nonnative weeds). Land use in the vicinity of the BSA is largely a mixture of almond orchards, agricultural fields, and agricultural processing facilities.

5.1 Climate

The temperature and precipitation data described in this section are based on Agricultural Applied Climate Information System (AgACIS) climate data for Turlock, California, for the period between 1991 and 2020 (NOAA 2025). Monthly average high temperatures in Turlock, California, range from 56 degrees Fahrenheit (°F) in the winter to 95°F in the summer. Monthly average low temperatures range from 39°F in the winter to 63°F in the summer. The average annual precipitation in Turlock is 11.61 inches. Monthly rainfall in the summer months is significantly lower than in the winter months, averaging less than 1 inch between May and September (NOAA 2025).

5.2 Topography and Hydrology

The BSA lies at an elevation of approximately 95 feet above mean sea level. The topography of the survey area is largely flat, with the southwest corner and edges of the field slightly elevated above the rest of the site. The BSA lies within the Pear Slough-San Joaquin River Subwatershed (Hydrologic Unit Code [HUC] 12-180400020205) (USGS 2025). The BSA is not near any major natural waterways. The nearest waterway is Lateral Number 6, an artificial irrigation canal 0.7 mile south of the BSA (USGS 2025). The BSA lies approximately 4.5 miles north of the Merced River and 8 miles east of the San Joaquin River.

The NWI and NHD both show several rectangular artificial ponds within 0.25 mile of the BSA but no natural riverine or lacustrine features or wetlands (USFWS 2025c; USGS 2025). The nearest aquatic feature to the BSA is an irrigation pond approximately 40 feet south of the BSA (Figure 3).

5.3 Soils

The soil type in the survey area was identified using the soil survey data from the NRCS Web Soil Survey (2025a). Hydric soils were identified by comparing the survey area with the Soil Data Access Hydric Soils List (NRCS 2025b). A review of the NRCS Web Soil Survey found a single soil type present within the BSA, Hilmar sand, 0 to 3 percent slopes. The Hilmar sand soil type is characterized by a sandy upper layer above loamy alkaline soil layers. This soil type is somewhat poorly to poorly drained (2025a). Hilmar sand, 0 to 3 percent slopes, is classified as a hydric soil (NRCS 2025b).

6 RESULTS

6.1 Natural Communities and Other Land Covers

The BSA encompasses approximately 9.9 acres and consists of agricultural land that was classified as either Hay Fields or Ruderal/Disturbed based on conditions observed during the field survey (see Figure 3). Land use in the vicinity of the BSA consists largely of orchards, agricultural fields and agricultural processing facilities. Representative photographs depicting existing conditions are included in Appendix B, and lists of the plants and wildlife species observed on-site are included in Appendix C.

6.1.1 Hay Fields

The majority of the BSA consists of a hay field, covering approximately 8.7 acres of the BSA. The field is a monoculture of Sudan grass (*Sorghum × drummondii*), which has been intentionally planted to be harvested for fodder for livestock. A few weeds, such as common mallow (*Malva parviflora*), common sow thistle (*Sonchus oleraceus*), field bindweed (*Convolvulus arvensis*), pigweed (*Amaranthus palmeri*), telegraph weed (*Heterotheca grandiflora*), and short pod mustard (*Hirschfeldia incana*) can be found along the edges of the field.

6.1.2 Ruderal/Disturbed

The southeastern corner of the BSA is the only portion not dominated by agricultural plants. This portion of the BSA is used for parking and storing farm equipment and, therefore, is heavily disturbed and large patches are unvegetated. The vegetation largely consists of weeds such as those along the edges of the hay field and nonnative grasses, as well as other ruderal species such as long beak stork's bill (*Erodium botrys*).

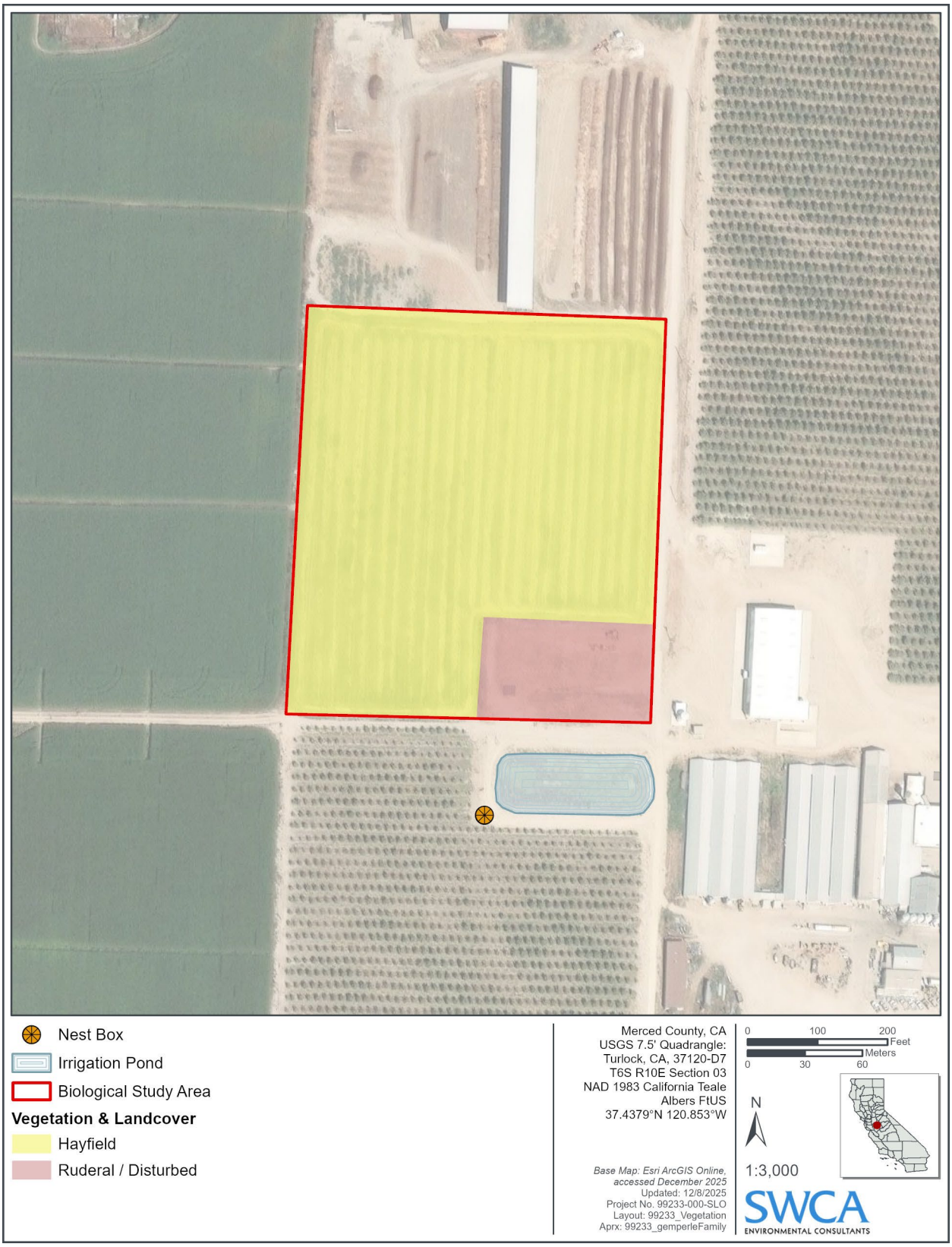


Figure 3. Biological resources map.

6.2 Special-Status Species

6.2.1 Special-Status Plants

The background research identified 28 special-status plants known from the region surrounding the BSA, as described in Appendix D. There is no suitable habitat for any of these special-status plants in the BSA, which consists of heavily disturbed agricultural land in active cultivation and dominated by nonnative crops and/or weeds. There are also no recent nearby or overlapping special-status plant occurrences. None of these species are likely to occur in the BSA. Most species returned in the background research are associated with vernal pools, wetlands, and other habitats characterized by mesic and alkaline conditions. The habitat within the BSA has been highly altered and disturbed by years of agricultural activities and does not provide suitable habitat for many special-status plants. Therefore, no impacts to special-status plants are anticipated and special-status plants are not discussed further in this document.

6.2.2 Special-Status Wildlife

Based on a CNDDB query and review of existing literature, 27 special-status wildlife species are known from the region surrounding the BSA (see Appendix D). None of these species were observed during the field survey. Of the 27 special-status wildlife species evaluated, the following two special-status wildlife species were determined likely to occur within the BSA:

- Swainson's hawk (*Buteo swainsoni*); CESA Threatened
- Tricolored blackbird (*Agelaius tricolor*); CESA Threatened, CDFW SSC

The remaining 25 species are either unlikely to occur, have no potential to occur in the BSA area due to a lack of suitable foraging and/or breeding habitat, aestivating habitat, and/or other biotic considerations, or the project area is outside of the species' current known range. These species will not be discussed further in this document. The special-status wildlife species that are present or have high potential to occur are discussed in the sections that follow.

6.2.2.1 SWAINSON'S HAWK

Swainson's hawk, listed as threatened under the CESA, is an uncommon breeding resident and migrant within California and is known to breed within the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and Mojave Desert. This species typically nests in isolated stands in juniper-sage flats, riparian woodlands, and oak savannas in the Central Valley. Swainson's hawk forages in adjacent grasslands or suitable grain or alfalfa fields and livestock pastures. This species preys upon small birds, rodents, mammals, reptiles, large arthropods, amphibians, and, rarely, fish (CWHR 2025). Nesting sites are of concern to CDFW (2025a).

The BSA provides suitable foraging habitat for this species. The BSA does not contain suitable nesting trees to support this species; however, large trees that may provide suitable nesting locations can be found within a 0.5-mile radius of the BSA, the nearest of which occurs approximately 1,000 feet northeast of the BSA. There is only one CNDDB record of this species within 5 miles of the BSA (CDFW 2025a). The record occurs about a mile southwest of the BSA and represents a nest with documented breeding last observed 2012.

6.2.2.2 TRICOLORED BLACKBIRD

Tricolored blackbird is listed as threatened under the CESA and is a CDFW SSC. Tricolored blackbird forages on the ground in cropland, in grassland, and on pond edges. Tricolored blackbird is a highly colonial species that nests near freshwater and prefers emergent marsh of dense cattails or tules. This species may also nest in thickets of willow and blackberry. Nesting areas must be large enough to support a minimum colony of about 50 pairs (CWHR 2025).

The BSA provides suitable foraging habitat for this species. However, the BSA does not contain suitable nesting habitat. The irrigation pond immediately south of the BSA does contain dense tule patches. However, the patches are not likely large enough to support a nesting colony at present. There are two CNDDB records of this species within 5 miles of the BSA (CDFW 2025a). The nearest record is coarsely mapped and overlaps the BSA. The record is for nesting tricolored blackbird observed 1933 at an inexact location. The nesting habitat may no longer be present.

6.2.2.3 ROOSTING BATS

Bats are protected by the California Fish and Game Code. Bats generally roost and nest in tree cavities, caves, cliffs, crevasses, bridges, and abandoned buildings.

No bat roosts or bat roosting evidence (e.g., urine staining, guano) was observed during the November 2025 reconnaissance-level survey for the project. The BSA does not contain suitable habitat to support roosting bat colonies (such as tree cavities, caves, cliffs, or abandoned buildings).

6.2.2.4 OTHER NESTING MIGRATORY BIRDS AND RAPTORS

The BSA contains suitable nesting and foraging habitat for avian species protected under the MBTA and California Fish and Game Code Sections 3503 and 3513. Suitable nesting habitats would include the orchards and buildings adjacent to the BSA. Additionally, a human-made nest box is present south of the BSA near the adjacent irrigation pond. Emergent vegetation within the irrigation pond may also provide suitable cover for nesting birds. The nest box appeared unoccupied during the survey. Avian species observed in the BSA during the November 2025 field survey included house sparrow (*Passer domesticus*), mourning dove (*Zenaida macroura*), and turkey vulture (*Cathartes aura*). No nesting birds were observed during the field survey, which occurred outside the typical nesting season (typically defined as February 1–August 31).

Nesting is unlikely outside of the typical nesting season. Some avian species may forage year-round in the BSA. Loggerhead shrike (*Lanius ludovicianus*), also has the potential to forage within but not nest within the BSA. Nests of protected MBTA birds and/or protected raptors have the potential to become established in the BSA prior to construction. Such nests may be active and sensitive to disturbance during the nesting season (February 1–August 31).

6.3 Critical Habitat and Essential Fish Habitat

No federally listed critical habitat or Essential Fish Habitat occurs within the BSA (USFWS 2025b).

6.4 Jurisdictional Wetlands/Waters

The BSA does not contain any aquatic features or wetlands. The BSA is dominated by upland agricultural weeds and crops. The nearest aquatic feature to the BSA is the irrigation pond approximately 40 feet

south of the BSA (see Figure 3). This feature was constructed in approximately 2019 (Google Earth 2025) and lacks a surface connection to any nearby jurisdictional feature.

6.5 Migratory Corridors

A wildlife corridor is a linear landscape element that serves as a linkage between historically connected habitats or landscapes that are otherwise separated (McEuen 1993) and is meant to provide avenues along which wildlife can travel, migrate, and meet mates; plants can propagate; genetic interchange can occur; and populations can move in response to environmental changes and natural disasters (Beier and Loe 1992). The BSA is not along or adjacent to any known terrestrial wildlife migration corridors (CDFW 2025a). Land use in the vicinity of the BSA consists largely of agricultural land.

The San Joaquin Valley lies along the Pacific Flyway, which is a major north–south route for migratory waterfowl traveling to and from their breeding grounds and overwintering sites. The extensive wetlands within the valley serve as important rest stops for these species. However, the BSA does not contain emergent wetland habitat capable of supporting migratory waterfowl.

7 IMPACTS ANALYSIS

7.1 Potential Impacts to Special-Status Species

7.1.1 Swainson's Hawk

The BSA provides suitable foraging habitat for Swainson’s hawk. The BSA does not contain trees suitable for Swainson’s hawk nesting. Suitable nesting trees are present within a 0.5-mile radius of the BSA, and construction of the project has the potential to impact nesting Swainson’s hawk during the nesting season, should any nests be present. Direct impacts on foraging hawks are not likely. Disturbance to nesting individuals is possible depending on the level of disturbance during construction. Therefore, SWCA recommends that a preconstruction survey be conducted and that the avoidance and minimization measures in Section 8.1.1 be implemented if nesting Swainson’s hawks are present.

7.1.2 Tricolored Blackbird

The BSA provides suitable foraging habitat for tricolored blackbird. The BSA does not contain suitable nesting habitat. The irrigation pond immediately south of the BSA does contain dense tule patches. However, the nesting area may not be large enough to support a large nesting colony. The construction of the project has the potential to impact nesting tricolored blackbirds during the nesting season, should any birds decide to nest in the irrigation pond. Direct impacts on foraging birds are not likely. Disturbance to nesting individuals is possible depending on the level of disturbance during construction. Therefore, SWCA recommends that a preconstruction survey be conducted and that the avoidance and minimization measures in Section 8.1.2 be implemented if nesting birds are present.

7.1.3 Nesting Birds

The BSA contains suitable nesting and foraging habitat for birds protected under the MBTA and California Fish and Game Code Sections 3503 and 3513. Suitable nesting habitats would include the orchards and buildings adjacent to the BSA, as well as the nest box and emergent vegetation within the irrigation pond immediately south of the BSA. Construction activities could cause mortality or nest

abandonment to nesting birds if they are in or near an active work area. Depending on the species, nesting birds can be disturbed by noise or vibration associated with construction activities.

Nesting is unlikely outside of the typical nesting season (February 1–August 31). If construction begins during nesting bird season, SWCA recommends that a preconstruction survey be conducted and that the avoidance and minimization measures in Section 8.1.2 be implemented if nesting birds are present.

8 RECOMMENDATIONS/AVOIDANCE AND MINIMIZATION MEASURES

The avoidance and minimization measures in this section are recommended to reduce or eliminate potentially significant impacts to biological resources resulting from the project.

8.1 Special-Status Wildlife Avoidance and Minimization Measures

8.1.1 Swainson's Hawk

The following measures are recommended to reduce or eliminate potentially significant impacts to nesting Swainson's hawk:

- If construction must occur during the Swainson's hawk nesting season (approximately March 1–September 15), a Qualified Biologist shall conduct a preconstruction survey, consistent with CDFW *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000).

- The survey effort shall include at a minimum one survey for Swainson's hawk within 15 days prior to ground disturbance. The survey area will include the Project site (which contains no potential nest trees) and a 0.25-mile radius around the site.

- If a nesting Swainson's hawk is found within 0.25 mile of the Project, then a Qualified Biologist experienced with Swainson's hawk behavior will establish a 0.25-mile protection buffer.

- If construction activities that may cause nest abandonment or forced fledging are necessary within the buffer, then the biologist shall monitor the nest for signs of disturbance on a daily basis during construction. Routine disturbances such as agricultural activities, commuter traffic, and routine facility maintenance would generally not be prohibited within the buffer.

- If the Swainson's hawk is showing agitated behavior, then construction will cease or be reduced to a point that it does not disturb the hawks.

- Monitoring may be reduced if the on-site biologist determines, in coordination with CDFW, that construction is not disturbing the nesting hawks.

8.1.2 Nesting Birds

The following measures are recommended to reduce or eliminate potentially significant impacts to nesting birds:

- If construction begins outside the February 1 to August 31 breeding season, there shall be no need to conduct a preconstruction survey for active bird nests.
- If construction begins during nesting bird season (February 1–September 15), then a Qualified Biologist shall conduct a preconstruction survey for protected nesting.
- The preconstruction survey shall be conducted within 7 days prior to the start of construction. The survey shall cover the project site and areas within 500 feet for bird-of-prey nests, within 300 feet for tricolored blackbird, and within 100 feet for other (non-bird-of-prey) nests. Inaccessible areas and private lands shall be surveyed from accessible (public) areas with binoculars.
- If active nests are found, they shall be avoided and protected as follows: If a bird-of-prey nest is found, an appropriately sized Environmentally Sensitive Area shall be established around the nest in coordination with CDFW.
- If an active nest is found, active nests should be avoided, and a no-disturbance buffer shall be determined by a Qualified Biologist and marked in the field as directed by the Qualified Biologist. The buffer shall be kept in place until after the breeding nesting season or the Qualified Biologist confirms the young have fledged, are foraging independently, and the nest is no longer active for the season. The extent of these buffers shall be determined by the Qualified Biologist and will depend on the species present, the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers.
- If a 14-day lapse in construction work occurs during the nesting season, then another preconstruction survey for nesting birds shall be conducted prior to the resumption of work. If an active nest is found, the above measures shall be implemented.

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APPENDIX A

Database Queries

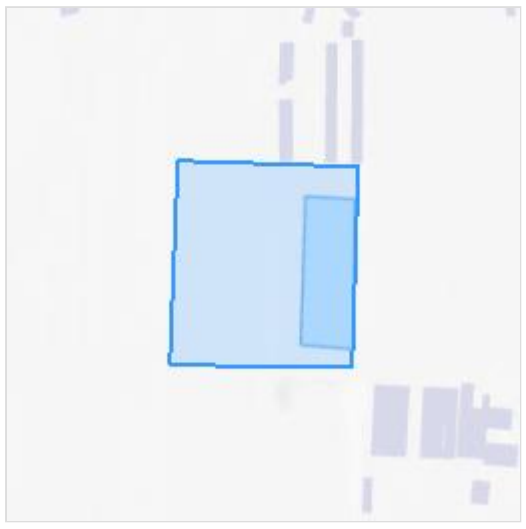
IPaC resource list

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

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

Location

Merced County, California



Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

NOT FOR CONSULTATION

Endangered species

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

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

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

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

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

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

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

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

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

Mammals

NAME	STATUS
Fresno Kangaroo Rat Dipodomys nitratoides exilis Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/5150	Endangered

Reptiles

NAME	STATUS
Northwestern Pond Turtle Actinemys marmorata Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

Amphibians

NAME	STATUS
California Tiger Salamander Ambystoma californiense There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2076	Threatened
Western Spadefoot Spea hammondii No critical habitat has been designated for this species.	Proposed Threatened

NOT FOR CONSULTATION

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/9743	Proposed Threatened
Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp Branchinecta lynchi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp Lepidurus packardi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2246	Endangered

Critical habitats

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

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their nests, should follow appropriate regulations and implement required avoidance and minimization measures, as described in the various links on this page.

The data in this location indicates that no eagles have been observed in this area. This does not mean eagles are not present in your project area, especially if the area is difficult to survey. Please review the 'Steps to Take When No Results Are Returned' section of the Supplemental Information on Migratory Birds and Eagles document to determine if your project is in a poorly surveyed area. If it is, you may need to rely on other resources to determine if eagles may be present (e.g. your local FWS field office, state surveys, your own surveys).

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

Bald & Golden Eagles FAQs

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

NOT FOR CONSULTATION

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are an eagle (Bald and Golden Eagle Protection Act requirements may apply).

Proper interpretation and use of your eagle report
On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort line or no data line (red horizontal) means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide you in knowing when to implement avoidance and minimization measures to eliminate or reduce potential impacts from your project activities or get the appropriate permits should presence be confirmed.

How do I know if eagles are breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If an eagle on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:
The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

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

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

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

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

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

NOT FOR CONSULTATION

Migratory birds

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

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

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

Measures for Proactively Minimizing Migratory Bird Impacts

Your IPaC Migratory Bird list showcases birds of concern, including Birds of Conservation Concern (BCC), in your project location. This is not a comprehensive list of all birds found in your project area. However, you can help proactively minimize significant impacts to all birds at your project location by implementing the measures in the Nationwide avoidance and minimization measures for birds

document, and any other project-specific avoidance and minimization measures suggested at the link Measures for avoiding and minimizing impacts to birds for the birds of concern on your list below.

Ensure Your Migratory Bird List is Accurate and Complete

If your project area is in a poorly surveyed area, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles document, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

Review the FAQs

The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
Belding's Savannah Sparrow Passerculus sandwichensis beldingi This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15
Bullock's Oriole Icterus bullockii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 21 to Jul 25
California Gull Larus californicus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31
Lawrence's Goldfinch Spinus lawrencei This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9464	Breeds Mar 20 to Sep 20
Northern Harrier Circus hudsonius This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8350	Breeds Apr 1 to Sep 15
Nuttall's Woodpecker Dryobates nuttallii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9410	Breeds Apr 1 to Jul 20
Santa Barbara Song Sparrow Melospiza melodia graminea This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/5513	Breeds Mar 1 to Sep 5
Yellow-billed Magpie Pica nuttalli This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9726	Breeds Apr 1 to Jul 31

Probability of Presence Summary

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

Probability of Presence (■)

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

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

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

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

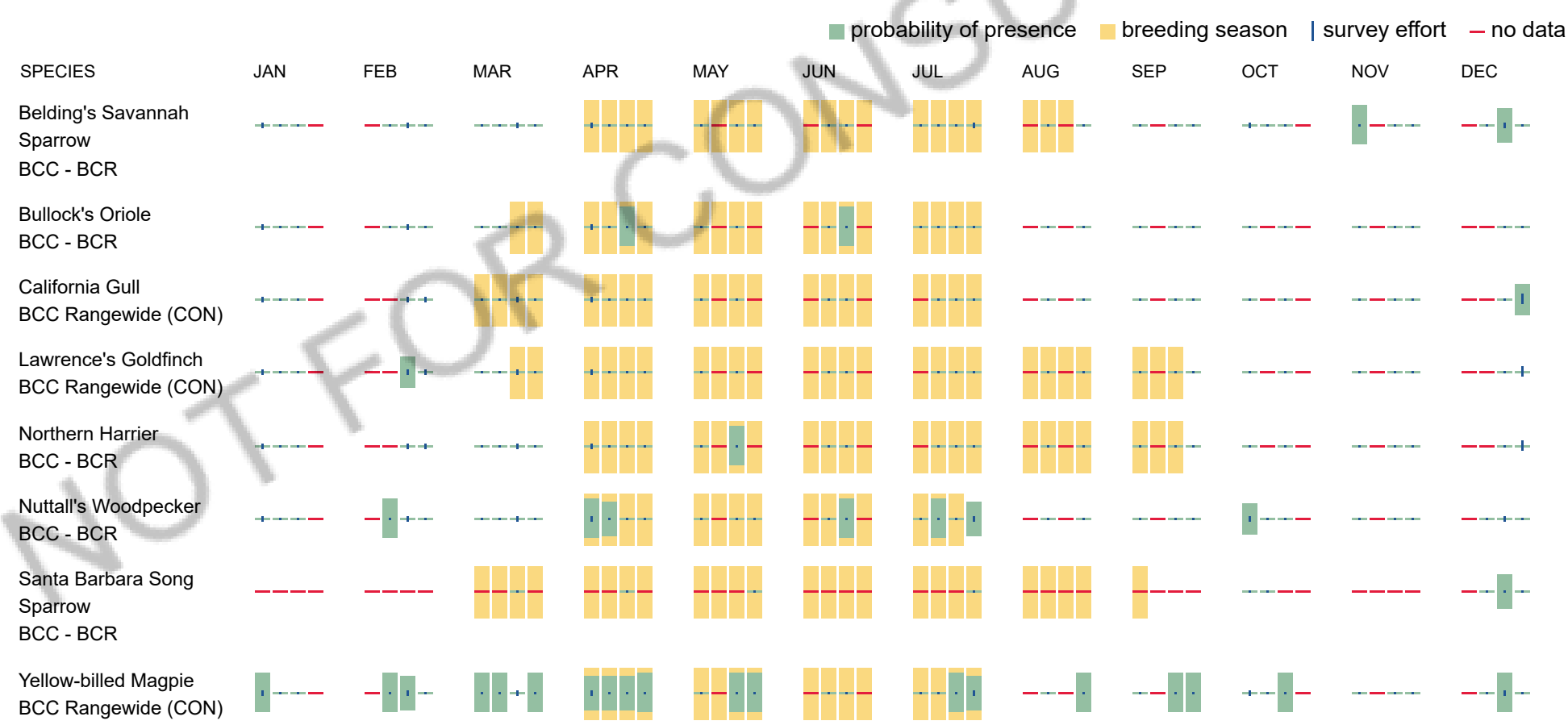
Breeding Season (▬)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

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

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

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

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



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Migratory Bird FAQs

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

Nationwide Avoidance & Minimization Measures for Birds describes measures that can help avoid and minimize impacts to all birds at any location year-round. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is one of the most effective ways to minimize impacts. To see when birds are most likely to occur and breed in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location, such as those listed under the Endangered Species Act or the Bald and Golden Eagle Protection Act and those species marked as “Vulnerable”. See the FAQ “What are the levels of concern for migratory birds?” for more information on the levels of concern covered in the IPaC migratory bird species list.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) with which your project intersects. These species have been identified as warranting special attention because they are BCC species in that

area, an eagle (Bald and Golden Eagle Protection Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, and to verify survey effort when no results present, please visit the Rapid Avian Information Locator (RAIL) Tool.

Why are subspecies showing up on my list?

Subspecies profiles are included on the list of species present in your project area because observations in the AKN for **the species** are being detected. If the species are present, that means that the subspecies may also be present. If a subspecies shows up on your list, you may need to rely on other resources to determine if that subspecies may be present (e.g. your local FWS field office, state surveys, your own surveys).

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

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

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

How do I know if a bird is breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

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

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

Although it is important to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially BCC species. For more information on avoidance and minimization measures you can implement to help avoid and minimize migratory bird impacts, please see the FAQ “Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds”.

Details about birds that are potentially affected by offshore projects

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

Proper interpretation and use of your migratory bird report

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

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

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

The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

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

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

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

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

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

Facilities

National Wildlife Refuge lands

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

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

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

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

This location did not intersect any wetlands mapped by NWI.

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

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

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

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

Data exclusions

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

Data precautions

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

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Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Arena (3712036) OR Cressey (3712046) OR Montpelier (3712056) OR Gustine (3712038) OR Stevinson (3712037) OR Hatch (3712048) OR Turlock (3712047) OR Ceres (3712058) OR Denair (3712057))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
alkali milk-vetch *Astragalus tener var. tener*	PDFAB0F8R1	None	None	G2T1	S1	1B.2
alkali-sink goldfields *Lasthenia chrysantha*	PDAST5L030	None	None	G2	S2	1B.1
American badger *Taxidea taxus*	AMAJF04010	None	None	G5	S3	SSC
American bumble bee *Bombus pensylvanicus*	IIHYM24260	None	None	G3G4	S2	
Antioch multilid wasp *Myrmosula pacifica*	IIHYM15010	None	None	GH	SH	
brittlescale *Atriplex depressa*	PDCHE042L0	None	None	G2	S2	1B.2
broadleaf pondweed *Stuckenia striata*	PMPOT030K0	None	None	G3G4Q	S2S3	2B.3
cackling (=Aleutian Canada) goose *Branta hutchinsii leucopareia*	ABNJB05035	Delisted	None	G5T3	S3	WL
California alkali grass *Puccinellia simplex*	PMPOA53110	None	None	G2	S2	1B.2
California linderiella *Linderiella occidentalis*	ICBRA06010	None	None	G2G3	S2S3	
California tiger salamander - central California DPS *Ambystoma californiense pop. 1*	AAAAA01181	Threatened	Threatened	G3T3	S3	WL
Cismontane Alkali Marsh *Cismontane Alkali Marsh*	CTT52310CA	None	None	G1	S1.1	
coast horned lizard *Phrynosoma blainvillii*	ARACF12100	None	None	G4	S4	SSC
Coastal and Valley Freshwater Marsh *Coastal and Valley Freshwater Marsh*	CTT52410CA	None	None	G3	S2.1	
Colusa grass *Neostapfia colusana*	PMPOA4C010	Threatened	Endangered	G1	S1	1B.1
Conservancy fairy shrimp *Branchinecta conservatio*	ICBRA03010	Endangered	None	G2	S2	
Coulter's goldfields *Lasthenia glabrata ssp. coulteri*	PDAST5L0A1	None	None	G4T2	S2	1B.1
Crotch's bumble bee *Bombus crotchii*	IIHYM24480	None	Candidate Endangered	G2	S2	
Delta button-celery *Eryngium racemosum*	PDAPI0Z0S0	None	Endangered	G1	S1	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
giant gartersnake *Thamnophis gigas*	ARADB36150	Threatened	Threatened	G2	S2	
great blue heron *Ardea herodias*	ABNGA04010	None	None	G5	S4	
great egret *Ardea alba*	ABNGA04040	None	None	G5	S4	
green sturgeon - southern DPS *Acipenser medirostris pop. 1*	AFCAA01031	Threatened	None	G2T1	S1	SSC
Greene's tuctoria *Tuctoria greenei*	PMPOA6N010	Endangered	Rare	G1	S1	1B.1
hairy Orcutt grass *Orcuttia pilosa*	PMPOA4G040	Endangered	Endangered	G1	S1	1B.1
hardhead *Mylopharodon conocephalus*	AFCJB25010	None	None	G3	S3	SSC
heartscale *Atriplex cordulata var. cordulata*	PDCHE040B0	None	None	GNRT2	S2	1B.2
Heckard's pepper-grass *Lepidium latipes var. heckardii*	PDBRA1M0K1	None	None	G4T1	S1	1B.2
hispid salty bird's-beak *Chloropyron molle ssp. hispidum*	PDSCR0J0D1	None	None	G2T1	S1	1B.1
hoary bat *Lasiurus cinereus*	AMACC05032	None	None	G3G4	S4	
Hoover's calycadenia *Calycadenia hooveri*	PDAST1P040	None	None	G2	S2	1B.3
Hoover's spurge *Euphorbia hooveri*	PDEUP0D150	Threatened	None	G1	S1	1B.2
least Bell's vireo *Vireo bellii pusillus*	ABPBW01114	Endangered	Endangered	G5T2	S3	
lesser saltscale *Atriplex minuscula*	PDCHE042M0	None	None	G2	S2	1B.1
loggerhead shrike *Lanius ludovicianus*	ABPBR01030	None	None	G4	S4	SSC
longhorn fairy shrimp *Branchinecta longiantenna*	ICBRA03020	Endangered	None	G2	S2	
Merced kangaroo rat *Dipodomys heermanni dixoni*	AMAFD03062	None	None	G4T2	S2	
Merced monardella *Monardella leucocephala*	PDLAM180C0	None	None	GX	SX	1A
midvalley fairy shrimp *Branchinecta mesovallensis*	ICBRA03150	None	None	G2	S2S3	
moestan blister beetle *Lytta moesta*	IICOL4C020	None	None	G2	S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Northern California legless lizard *Anniella pulchra*	ARACC01020	None	None	G3	S2S3	SSC
Northern Claypan Vernal Pool *Northern Claypan Vernal Pool*	CTT44120CA	None	None	G1	S1.1	
Northern Hardpan Vernal Pool *Northern Hardpan Vernal Pool*	CTT44110CA	None	None	G3	S3.1	
northwestern pond turtle *Actinemys marmorata*	ARAAD02031	Proposed Threatened	None	G2	SNR	SSC
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G2G3	S1S2	
pallid bat *Antrozous pallidus*	AMACC10010	None	None	G4	S3	SSC
prostrate vernal pool navarretia *Navarretia prostrata*	PDPLM0C0Q0	None	None	G2	S2	1B.2
San Joaquin kit fox *Vulpes macrotis mutica*	AMAJA03041	Endangered	Threatened	G4T2	S3	
San Joaquin spearscale *Extriplex joaquinana*	PDCHE041F3	None	None	G2	S2	1B.2
San Joaquin Valley Orcutt grass *Orcuttia inaequalis*	PMPOA4G060	Threatened	Endangered	G1	S1	1B.1
Sanford's arrowhead *Sagittaria sanfordii*	PMALI040Q0	None	None	G3	S3	1B.2
spiny-sepaled button-celery *Eryngium spinosepalum*	PDAPI0Z0Y0	None	None	G2	S2	1B.2
steelhead - Central Valley DPS *Oncorhynchus mykiss irideus pop. 11*	AFCHA0209K	Threatened	None	G5T2Q	S2	SSC
subtle orache *Atriplex subtilis*	PDCHE042T0	None	None	G1	S1	1B.2
succulent owl's-clover *Castilleja campestris var. succulenta*	PDSCR0D3Z1	Threatened	Endangered	G4?T2T3	S2S3	1B.2
Swainson's hawk *Buteo swainsoni*	ABNKC19070	None	Threatened	G5	S4	
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	None	G4	S2	SSC
tricolored blackbird *Agelaius tricolor*	ABPBXB0020	None	Threatened	G1G2	S2	SSC
valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	IICOL48011	Threatened	None	G3T3	S3	
Valley Sacaton Grassland *Valley Sacaton Grassland*	CTT42120CA	None	None	G1	S1.1	
Valley Sink Scrub *Valley Sink Scrub*	CTT36210CA	None	None	G1	S1.1	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
vernal pool fairy shrimp *Branchinecta lynchi*	ICBRA03030	Threatened	None	G3	S3	
vernal pool smallscale *Atriplex persistens*	PDCHE042P0	None	None	G2	S2	1B.2
vernal pool tadpole shrimp *Lepidurus packardi*	ICBRA10010	Endangered	None	G3	S3	
western red bat *Lasiurus frantzii*	AMACC05080	None	None	G4	S3	SSC
western ridged mussel *Gonidea angulata*	IMBIV19010	None	None	G3	S2	
western spadefoot *Spea hammondii*	AAABF02020	Proposed Threatened	None	G2G3	S3S4	SSC
Wright's trichocoronis *Trichocoronis wrightii var. wrightii*	PDAST9F031	None	None	G4T3	S1	2B.1
Yuma myotis *Myotis yumanensis*	AMACC01020	None	None	G5	S4	

Record Count: 69

Search Results

28 matches found. Click on scientific name for details

Search Criteria: , CRPR is one of [1A:1B:2A:2B:3] , 9-Quad include [3712036:3712046:3712056:3712038:3712037:3712048:3712047:3712058:3712057]

▲ COMMON NAME	SCIENTIFIC NAME	FAMILY	LIFEFORM	FED LIST	STATE LIST	CA RARE PLANT RANK	GENERAL HABITATS	MICROHABITATS	LOWEST ELEVATION (FT)	HIGHEST ELEVATION (FT)	BLOOMING PERIOD
alkali milk-vetch	*Astragalus tener* var. *tener*	Fabaceae	annual herb	None	None	1B.2	Playas, Valley and foothill grassland (adobe clay), Vernal pools	Alkaline	5	195	Mar-Jun
alkali-sink goldfields	*Lasthenia chrysantha*	Asteraceae	annual herb	None	None	1B.1	Vernal pools	Alkaline	0	655	Feb-Apr
brittlescale	*Atriplex depressa*	Chenopodiaceae	annual herb	None	None	1B.2	Chenopod scrub, Meadows and seeps, Playas, Valley and foothill grassland, Vernal pools	Alkaline, Clay	5	1050	Apr-Oct
broadleaf pondweed	*Stuckenia striata*	Potamogetonaceae	perennial rhizomatous (aquatic)	None	None	2B.3	Marshes and swamps		-230	7005	(Jun)Jul-Aug
California alkali grass	*Puccinellia simplex*	Poaceae	annual herb	None	None	1B.2	Chenopod scrub, Meadows and seeps, Valley and foothill grassland, Vernal pools	Alkaline, Flats, Lake Margins, Vernally Mesic	5	3050	Mar-May
Colusa grass	*Neostapfia colusana*	Poaceae	annual herb	FT	CE	1B.1	Vernal pools (adobe clay)		15	655	May-Aug

Coulter's goldfields	*Lasthenia glabrata* ssp. *coulteri*	Asteraceae	annual herb	None	None	1B.1	Marshes and swamps (coastal salt), Playas, Vernal pools		5	4005	Feb-Jun
Delta button-celery	*Eryngium racemosum*	Apiaceae	annual/perennial herb	None	CE	1B.1	Riparian scrub (vernally mesic clay depressions)		10	100	(May)Jun-Oct
Greene's tuctoria	*Tuctoria greenei*	Poaceae	annual herb	FE	CR	1B.1	Vernal pools		100	3510	May-Jul(Sep)
hairy Orcutt grass	*Orcuttia pilosa*	Poaceae	annual herb	FE	CE	1B.1	Vernal pools		150	655	May-Sep
heartscale	*Atriplex cordulata* var. *cordulata*	Chenopodiaceae	annual herb	None	None	1B.2	Chenopod scrub, Meadows and seeps, Valley and foothill grassland (sandy)	Alkaline (sometimes)	0	785	Apr-Oct
Heckard's pepper-grass	*Lepidium latipes* var. *heckardii*	Brassicaceae	annual herb	None	None	1B.2	Valley and foothill grassland (alkaline flats)		5	655	Mar-May
hispid salty bird's-beak	*Chloropyron molle* ssp. *hispidum*	Orobanchaceae	annual herb (hemiparasitic)	None	None	1B.1	Meadows and seeps, Playas, Valley and foothill grassland	Alkaline	5	510	Jun-Sep
Hoover's calycadenia	*Calycadenia hooveri*	Asteraceae	annual herb	None	None	1B.3	Cismontane woodland, Valley and foothill grassland	Rocky	215	985	Jul-Sep
Hoover's spurge	*Euphorbia hooveri*	Euphorbiaceae	annual herb	FT	None	1B.2	Vernal pools		80	820	(May-Jun)Jul-Sep(Oct)
lesser saltscale	*Atriplex minuscula*	Chenopodiaceae	annual herb	None	None	1B.1	Chenopod scrub, Playas, Valley and foothill grassland	Alkaline, Sandy	50	655	May-Oct

little mousetail	*Myosurus minimus* ssp. *apus*	Ranunculaceae	annual herb	None	None	3.1	Valley and foothill grassland, Vernal pools (alkaline)		65	2100	Mar-Jun
Merced monardella	*Monardella leucocephala*	Lamiaceae	annual herb	None	None	1A	Valley and foothill grassland (mesic, sandy)		115	330	May-Aug
prostrate vernal pool navarretia	*Navarretia prostrata*	Polemoniaceae	annual herb	None	None	1B.2	Coastal scrub, Meadows and seeps, Valley and foothill grassland (alkaline), Vernal pools	Mesic	10	3970	Apr-Jul
San Joaquin spearscale	*Extriplex joaquinana*	Chenopodiaceae	annual herb	None	None	1B.2	Chenopod scrub, Meadows and seeps, Playas, Valley and foothill grassland	Alkaline	5	2740	Apr-Oct
San Joaquin Valley Orcutt grass	*Orcuttia inaequalis*	Poaceae	annual herb	FT	CE	1B.1	Vernal pools		35	2475	Apr-Sep
Sanford's arrowhead	*Sagittaria sanfordii*	Alismataceae	perennial rhizomatous herb (emergent)	None	None	1B.2	Marshes and swamps (shallow freshwater)		0	2135	May-Oct(Nov)
spiny-sepaled button-celery	*Eryngium spinosepalum*	Apiaceae	annual/perennial herb	None	None	1B.2	Valley and foothill grassland, Vernal pools		260	3200	Apr-Jun
subtle orache	*Atriplex subtilis*	Chenopodiaceae	annual herb	None	None	1B.2	Valley and foothill grassland	Alkaline	130	330	(Apr)Jun-Sep(Oct)
succulent owl's-clover	*Castilleja campestris* var. *succulenta*	Orobanchaceae	annual herb (hemiparasitic)	FT	CE	1B.2	Vernal pools (often acidic)		165	2460	(Mar)Apr-May

vernal barley	*Hordeum intercedens*	Poaceae	annual herb	None	None	3.2	Coastal dunes, Coastal scrub, Valley and foothill grassland (depressions, saline flats), Vernal pools		15	3280	Mar-Jun
vernal pool smallscale	*Atriplex persistens*	Chenopodiaceae	annual herb	None	None	1B.2	Vernal pools (alkaline)		35	375	Jun-Oct
Wright's trichocoronis	*Trichocoronis wrightii* var. *wrightii*	Asteraceae	annual herb	None	None	2B.1	Marshes and swamps, Meadows and seeps, Riparian forest, Vernal pools	Alkaline	15	1425	May-Sep

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APPENDIX B

Site Photographs



Photo B-1. Hay field facing northwest from the southwestern corner of the BSA. Photo taken November 13, 2025.



Photo B-2. Hay field facing southwest from the northeastern corner of the BSA. Photo taken November 13, 2025.



Photo B-3. Hay field facing south from the northern boundary of the BSA. Photo taken November 13, 2025.



Photo B-4. Hay field facing southwest from the northeastern corner of the BSA. Photo taken November 13, 2025.



Photo B-5. Hay field facing south from the northern boundary of the BSA. Photo taken November 13, 2025.



Photo B-6. Hay field facing east from the western boundary of the BSA. Photo taken November 13, 2025.



Photo B-7. Hay field facing northeast from the southwestern boundary of the BSA. Photo taken November 13, 2025.



Photo B-8. Hay field facing northeast from the southern boundary of the BSA. Photo taken November 13, 2025.



Photo B-9. View from the northwestern corner of the irrigation pond south of the BSA, facing southeast. Photo taken November 13, 2025.



Photo B-10. View of the nest box west of the irrigation pond and south of the BSA, facing north. Photo taken November 13, 2025.

APPENDIX C

Plant and Wildlife Species Observed

Table C-1. Plant Species Observed

Species Common Name	Species Scientific Name	Native (N)/ Introduced (I)/ Unknown (U)
Herbaceous Plants		
Common mallow	*Malva parviflora*	I
Common sow thistle	*Sonchus oleraceus*	I
Coyote melon	*Cucurbita palmata*	N
Curly dock	*Rumex crispus*	I
Field bindweed	*Convolvulus arvensis*	I
Long beak stork's bill	*Erodium botrys*	I
Pigweed	*Amaranthus palmeri*	N
Telegraph weed	*Heterotheca grandiflora*	I
Short pod mustard	*Hirschfeldia incana*	I
Sudan grass	*Sorghum × drummondii*	I
Wild teasel	*Dipsacus fullonum*	I
Grasses		
Soft brome	*Bromus hordeaceus*	I
Perennial ryegrass	*Festuca perennis (Lolium perenne)*	I
Foxtail brome	*Bromus madritensis*	I
Wild oat	*Avena* sp.	I

Table C-2. Wildlife Species Observed

Species Common Name	Species Scientific Name	Native (N) / Introduced (I)
Birds		
House sparrow	*Passer domesticus*	I
Mourning dove	*Zenaida macroura*	N
Turkey vulture	*Cathartes aura*	N

APPENDIX D

Special-Status Plant and Wildlife Species Evaluated

Table D-1. Special-Status Plant Species Considered for Potential Occurrence in the BSA

Species Name	General Habitat Description	Legal Status Federal/State/ CNDDB or CNPS Status	Potential for Occurrence and Rationale
Alkali milk-vetch (*Astragalus tener* var. *tener*)	Annual herb that occurs in playas, valley and foothill grassland and vernal pools in adobe clay and alkaline soils (CNPS 2025a). Elevation: 5–195 feet Flowering season: March–June	--/--/1B.2	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed..
Alkali-sinkgoldfields (*Lasthenia chrysantha*)	Annual herb that occurs in vernal pools in alkaline soils (CNPS 2025a). Elevation: 0–655 feet Flowering season: February–April	--/--/1B.1	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.
Brittlescale (*Atriplex depressa*)	Annual herb that occurs in chenopod scrub, meadows, seeps, playas, valley and foothill grassland, and vernal pools in clay and alkaline soils (CNPS 2025a). Elevation: 5–1,050 feet Flowering season: April–October	--/--/1B.2	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.
Broadleaf pondweed (*Stuckenia striata*)	Aquatic perennial rhizomatous herb that occurs in marshes, swamps, lakes, ponds, rivers, and drainage canals (CNPS 2025a). Elevation: −230–7,005 feet Flowering season: June–August	--/--/2B.3	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.
California alkali grass (*Puccinellia simplex*)	Annual herb that occurs in chenopod scrub, meadows, seeps, playas, vernal mesic valley and foothill grassland, vernal pools, alkali flats, and along lake margins (CNPS 2025a). Elevation: 5–3,050 feet Flowering season: March–May	--/--/1B.2	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.
Colusa grass (*Neostapfia colusana*)	Annual herb found in large vernal pools in adobe clay soil (Baldwin et al. 2012; CNPS 2025a). Elevation: 15–660 feet Flowering season: May–August	FE/SE/1B.1	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.
Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*)	Annual herb that occurs in coastal salt marshes, swamps, playas, and vernal pools (CNPS 2025a). Elevation: 5–4,005 feet Flowering season: February–June	--/--/1B.1	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.

Species Name	General Habitat Description	Legal Status Federal/State/ CNDDB or CNPS Status	Potential for Occurrence and Rationale
Delta button-celery (*Eryngium racemosum*)	Annual to perennial herb found in vernally mesic clay depressions in riparian scrub (CNPS 2025a). Elevation: 10–100 feet Flowering season: June–October	--/SE/1B.1	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.
Greene's tuctoria (*Tuctoria greenei*)	Annual herb found in vernal pools (Baldwin et al. 2012; CNPS 2025a). Elevation: 100–3,500 feet Flowering season: May–September	FE/SR/1B.1	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.
Hairy Orcutt grass (*Orcuttia pilosa*)	Annual herb found in vernal pools (Baldwin et al. 2012; CNPS 2025a). Elevation: 151–656 feet Flowering season: May–September	FE/SE/1B.1	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.
Heartscale (*Atriplex cordulata* var. *cordulata*)	Annual herb that occurs in chenopod scrub, meadows, seeps, valley, and foothill grassland, often in sandy and sometimes saline or alkaline soils (CNPS 2025a). Elevation: 0–785 feet Flowering season: April–October	--/--/1B.2	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.
Heckard's pepper-grass (*Lepidium latipes* var. *heckardii*)	Annual herb that occurs in alkaline flats within valley and foothill grasslands (CNPS 2025a). Elevation: 5–655 feet Flowering season: March–May	--/--/1B.2	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.
Hispid salty bird's-beak (*Chloropyron molle* ssp. *hispidum*)	Annual herb found in alkaline areas of meadows, seeps, playas, valley and foothill grassland (CNPS 2025a). Elevation: <510 feet Flowering season: June–September	--/--/1B.1	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.
Hoover's calycadenia (*Calycadenia hooveri*)	Annual herb found in rocky soils of cismontane woodland and valley, and foothill grassland (CNPS 2025a). Elevation: 213–984 feet Flowering season: June–September	--/--/1B.3	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.
Hoover's spurge (*Euphorbia hooveri*)	Annual herb that occurs in vernal pools in alkaline soils (CNPS 2025a). Elevation: 80–820 feet Flowering season: May–October	FE/--/1B.2	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.

Species Name	General Habitat Description	Legal Status Federal/State/ CNDDB or CNPS Status	Potential for Occurrence and Rationale
Lesser saltscale (*Atriplex minuscula*)	Annual herb that occurs in chenopod scrub, playas, valley, and foothill grassland, often in sandy or alkaline soils (CNPS 2025a). Elevation: 50–655 feet Flowering season: May–October	--/--/1B.1	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.
Little mousetail (*Myosurus minimus* ssp. *apus*)	Annual herb that occurs in valley, and foothill grassland, or alkaline vernal pools (CNPS 2025a). Elevation: 65–2,100 feet Flowering season: March–June	--/--/3.1	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.
Merced monardella (*Monardella leucocephala*)	Annual herb found in mesic, sandy soils of valley and foothill grassland (CNPS 2025a). Elevation: 115–325 feet Flowering season: May–August	--/--/1A	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.
Prostrate vernal pool navarretia (*Navarretia prostrata*)	Annual herb that occurs in mesic areas with alkaline soils, including coastal scrub, meadows, seeps, valley, and foothill grassland and vernal pools (CNPS 2025a). Elevation: 10–3,970 feet Flowering season: April–July	--/--/1B.2	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.
San Joaquin spearscale (*Extriplex joaquinana*)	Annual herb that occurs in chenopod scrub, meadows, seeps, playas, valley, and foothill grassland, often in alkaline soils (CNPS 2025a). Elevation: 5–2,740 feet Flowering season: April–October	--/--/1B.2	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.
San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*)	Annual herb found in vernal pools (CNPS 2025). Elevation: 35–2,475 feet Flowering season: April–September	FE/SE/1B.1	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.
Sanford's arrowhead (*Sagittaria sanfordii*)	A perennial emergent rhizomatous herb found in assorted shallow freshwater marshes and swamps (CNPS 2025a). Elevation: <2,130 feet Flowering season: May–October	--/--/1B.2	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.
Spiny-sepaled button-celery (*Eryngium spinosepalum*)	Annual herb found in vernal pools and valley and foothill grassland. Some sites on clay soil of granitic origin; vernal pools and within grassland (CNPS 2025a). Elevation: 50–4,166 feet Blooming period: April–June	--/--/1B.2	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.

Species Name	General Habitat Description	Legal Status Federal/State/ CNDDB or CNPS Status	Potential for Occurrence and Rationale
Subtle orache Atriplex subtilis	Annual herb found in alkaline soils within valley and foothill grassland (CNPS 2025a). Elevation: 130–330 feet Flowering season: April–October	--/--/1B.2	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.
Succulent owl's-clover (*Castilleja campestris* var. *succulenta*)	Annual hemiparasitic herb found in vernal pools, often in acidic soils (Baldwin et al. 2012, CNPS 2025a). Elevation: 164–2,461 feet Blooming period: April–May	FT/SE/1B.2	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.
Vernal barley (*Hordeum intercedens*)	Annual herb that occurs in coastal dunes, coastal scrub, depressions, saline flats within valley, and foothill grassland, as well as vernal pools (CNPS 2025a). Elevation: 15–3,280 feet Flowering season: March–June	--/--/3.2	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.
Vernal pool smallscale (*Atriplex persistens*)	Annual herb found in alkaline vernal pools (CNPS 2025a). Elevation: 35–375 feet Flowering season: June–October	--/--/1B.2	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.
Wright's trichocoronis (*Trichocoronis wrightii* var. *wrightii*)	Annual herb that occurs in alkaline soils within meadows, seeps, marshes, swamps, riparian forests, and vernal pools (CNPS 2025a). Elevation: 15–1,425 feet Flowering season: May–September	--/--/2B.1	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed.

Sources: CDFW (2025a); CNPS (2025a); USFWS (2025b)

Status Codes:
-- = No status
FE = Federal Endangered; State: SE = State Endangered

California Native Plant Society:
1A = Presumed extirpated in California and either rare or extinct elsewhere
1B = Rare, threatened, or endangered in California and elsewhere
2B = Plants rare, threatened, or endangered in California but common elsewhere
3 = More information needed

CNDDB Threat Code:
_.1 = Seriously endangered in California (more than 80% of occurrences threatened / high degree and immediacy of threat)
_.2 = Fairly endangered in California (20–80% occurrences threatened)
_.3 = Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Potential for Occurrence Ratings:
No potential: The species is not expected to occur in the project area due to one or more of the following conditions: suitable habitat is absent from the project area, the project area is located substantially outside of the species' elevational and/or geographic ranges, or the species is restricted to or known to be present only within a specific area outside of the project area.

Table D-2. Special-Status Animal Species Considered for Potential Occurrence in the BSA

Species Name	General Habitat Description	Legal Status Federal/State/ CNDDB Status	Potential for Occurrence and Rationale
Invertebrates			
Insects			
Crotch's bumble bee *(Bombus crotchii)*	Inhabits open grassland and scrub habitats. Primarily nests underground. Generalist forager visiting a wide variety of flowering plants including plants in the Fabaceae, Apocynaceae, Asteraceae, Lamiaceae, and Boraginaceae. Requires floral resources distributed over the spring, summer, and fall. Isolated patches of habitat are not sufficient to fully support bumble bee populations. Historically common in the Central Valley, now considered extirpated from the northernmost part of the Valley, and nearly absent from near Arbuckle, south. Queens nest in ground cavities in a variety of different substrates, including thatched grasses, abandoned rodent burrows or bird nests, brush piles, rock piles, and fallen logs (Hatfield et al. 2014; Xerces Society 2018).	--/SCE/--	**Unlikely to Occur.** The BSA and surrounding landscape are heavily disturbed and dominated by field crops and orchards. The BSA contains limited foraging resources for this species. There is one CNDDB record of this species within 5 miles of the BSA. However, this record is dated to 1953 (CDFW 2025a).
Monarch butterfly *(Danaus plexippus plexippus)*	The western population of the monarch butterfly typically breeds and forages west of the Rocky Mountains in the spring and summer and migrates to generational overwintering sites in wooded groves along the California coast in the late summer and fall. Milkweeds (*Asclepias* spp.) are obligate larval host plants. Overwintering habitats are tree groves that occur within 1.5 miles of the coast or San Francisco Bay area, where proximity to large water bodies moderates temperature fluctuations. Suitable groves have temperatures above freezing, high humidity, dappled sunlight, access to water and nectar, and protection from high winds and storms. Monarchs will select the native Monterey pine (*Pinus radiata*), Monterey cypress (*Cupressus macrocarpa*), western sycamore (*Platanus racemosa*), and other native tree species when they are available, but will also use nonnative eucalyptus species if other optimal habitat conditions are met (Western Association of Fish and Wildlife Agencies 2019).	PT/--/--	**Unlikely to occur.** The BSA does not contain suitable overwintering sites. Narrowleaf milkweed (*Asclepias fascicularis*) was not observed during surveys. Due to the intensity of disturbance on the site, it is unlikely that much or any larval host plant habitat occurs in the BSA. No milkweed (*Asclepias* sp.) plants were observed during the reconnaissance-level biological survey. Migrating monarch butterfly adults may periodically rest or forage in the BSA. There are no CNDDB records of this species within 5 miles of the BSA (CDFW 2025a).

Species Name	General Habitat Description	Legal Status Federal/State/ CNDDB Status	Potential for Occurrence and Rationale
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	Occurs throughout Central Valley, from approximately Shasta to Madera Counties. Requires elderberry shrub (*Sambucus nigra* sp. *caerulea* or *Sambucus racemosa* var. *racemosa*) as host plant (USFWS 2014). Females lay eggs on bark of elderberry, and larvae hatch and burrow into stems and feed on pith (USFWS 2006). Range includes valley floor and lower foothills below 500 feet in elevation (USFWS 2017a). Elderberry stems must be greater than 1.0 inch in diameter to support larvae (USFWS 1999).	FT/--/--	**No Potential.** Elderberry shrubs do not occur in the BSA. Therefore, there is no potential for this species to occur.
Crustaceans			
Longhorn fairy shrimp (*Branchinecta longiantenna*)	Longhorn fairy shrimp are extremely rare and only found in California's Central Valley. They are known from only five locations today, including the Carrizo Plain National Monument in San Luis Obispo County, the San Luis National Wildlife Refuge Complex in Merced County, Brushy Peak Preserve in Alameda County, Vasco Caves Preserve in Contra Costa County, and Alkali Sink Conservation Bank in Fresno County (USFWS 2005). Longhorn fairy shrimp live in clear to turbid freshwater vernal pools, as well as water-filled depressions in sandstone, grass-bottomed pools, or claypan pools (Eriksen and Belk 1999).	FE/--/--	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed. There are no wetlands in the BSA.
Vernal pool fairy shrimp (*Branchinecta lynchii*)	Found in 28 counties across Central Valley and Coast Ranges of California and southern Oregon (USFWS 2005). Occurs in variety of seasonal wetland habitats, from small, clear, sandstone rock pools to large, turbid, alkaline vernal pools; most often found in small (<0.05-acre) grass or mud-bottom vernal pools and swales in unplowed grasslands (Eriksen and Belk 1999; USFWS 2005). Does not occur in riverine contexts or in permanent waters (USFWS 2005). Also capable of inhabiting vernal pools of relatively short duration (pond 6–7 weeks in winter and 3 weeks in spring) (Eriksen and Belk 1999).	FT/--/--	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed. There are no wetlands in the BSA.
Vernal pool tadpole shrimp (*Lepidurus packardi*)	Found only in ephemeral freshwater habitats, including alkaline pools, clay flats, vernal lakes, vernal pools, vernal swales, and other seasonal wetlands in California (Helm 1998; USFWS 2007). Typically found in habitats that are deeper than 12 centimeters, pond for 15 to 30 days, and do not suffer wide daily temperature fluctuations (Rogers 2001).	FE/--/--	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed. There are no wetlands in the BSA.

Species Name	General Habitat Description	Legal Status Federal/State/ CNDDB Status	Potential for Occurrence and Rationale
Conservancy fairy shrimp (*Branchinecta conservation)*	Occurs in vernal pools, often those that are relatively large (greater than 300 square feet), turbid, and low in alkalinity. Found at elevations ranging from 16 to 5,577 feet (Eriksen and Belk 1999), and in water temperatures up to 73°F. Habitat must provide continuous pooling for a duration sufficient to support reproduction (46 days to reproduce) (Helm 1998). Known from a few isolated populations distributed over a large portion of California's Central Valley (Northeastern Sacramento Valley Vernal Pool Region; Vina Plains, Tehama and Butte Counties.; Solano-Colusa Vernal Pool Region, Solano County; Sacramento National Wildlife Refuge, Glenn County; and Tule Ranch unit of CDFW Yolo Basin Wildlife Area, Yolo County) (USFWS 2005).	FE/--/--	**No Potential.** There is no suitable habitat in the BSA. The BSA is in active agriculture and heavily disturbed. There are no wetlands in the BSA.
Vertebrates			
Mammals			
American badger (*Taxidea taxus*)	Found throughout most of California except northern North Coast. Abundant in drier open stages of many shrub, forest, and herbaceous habitats with friable soils. Feeds on fossorial rodents, some reptiles, insects, earthworms, bird eggs, and carrion. Requires friable soils to dig burrows for refugia and for rearing young (CWHR 2025).	--/--/SSC	**No Potential.** The BSA does not provide suitable foraging or denning habitat. The BSA is surrounded by agricultural land in all directions for miles, which limits dispersal. There are no CNDDB records of this species in or adjacent to the BSA (CDFW 2025a).
Fresno kangaroo rat (*Dipodomys nitratoides exilis*)	Found primarily in the southwestern San Joaquin Valley at elevations up to 550 meters (1,800 feet). (California Department of Fish and Game 1980). Fresno kangaroo rats inhabit alkali desert scrub habitats and herbaceous habitats with scattered shrubs. Nests are in burrows excavated in sandy loam soils (CWHR 2025).	FE/SE/--	**No Potential.** The BSA does not provide suitable foraging or denning habitat. The BSA is surrounded by agricultural land in all directions for miles. There are no CNDDB records of this species in or adjacent to the BSA (CDFW 2025a).
Pallid bat (*Antrozous pallidus)*	Occurs in open, dry habitats with rocky areas for roosting. Day roosts in caves, crevices, mines, and sometimes in buildings and hollow trees that protect it from high temperatures. Night roosts may be more open, such as porches and open buildings. Sensitive to roosting site disturbance. Occurs throughout California except in the high Sierra Nevada from Shasta to Kern Counties, and the northwest corner of California from Del Norte and western Siskiyou Counties to northern Mendocino County (CWHR 2025).	--/--/SSC	**No Potential.** The BSA does not contain trees or buildings that could provide roosting opportunities.

Species Name	General Habitat Description	Legal Status Federal/State/ CNDDB Status	Potential for Occurrence and Rationale
San Joaquin kit fox (*Vulpes macrotis mutica*)	Found in grasslands, saltbush scrub, open woodlands, foothills, and alkaline sink valley floor habitats (USFWS 1998). Typically occurs in desert-like habitats characterized by sparse or absent shrub cover, sparse ground cover, and short vegetative structure. Uses underground dens, which may extend to 6 feet or more below the ground surface, for shelter and reproduction (USFWS 2010a). Absent or scarce in areas where soils are shallow due to high water tables, impenetrable hardpans, or proximity to parent material, such as bedrock (USFWS 2010a). In the Central Valley, known from southern Kern Co. north to Contra Costa, Alameda, and San Joaquin cos. on the west, and to the La Grange area, Stanislaus Co., on the east side of the Valley. Considered "largely eliminated" from the central portion of the San Joaquin Valley by 2006 (USFWS 2010a). In a detailed examination of the current and historic distribution in eastern Merced and Stanislaus cos., and western Madera Co., Bumgardner (2001) concluded that there is no evidence of currently or historically established populations in this region.	FE/ST/--	**No Potential.** The BSA does not provide suitable foraging or denning habitat. The BSA is surrounded by agricultural land in all directions for miles, which limits dispersal. There are no CNDDB records of this species within 5 miles of the BSA (CDFW 2025a).
Western red bat (*Lasiurus frantzii*)	The western red bat is a tree bat closely associated with cottonwoods in riparian areas at elevations below 6,500 feet. They especially favor roosts where leaves form a dense canopy above and branches do not obstruct the bats' flyway below. Western red bats are also known to roost in orchards, especially in the Sacramento Valley. This species is solitary and comes together only to mate and to migrate. Western red bats typically feed along forest edges, in small clearings, or around streetlights. It is not known exactly where they hibernate, though they may burrow into leaf litter or dense grass; they are known to move to milder coastal areas in the Pacific Northwest for hibernation (Bat Conservation International 2016).	--/--/SSC	**No Potential.** The BSA does not contain trees or buildings that could provide roosting opportunities.

Species Name	General Habitat Description	Legal Status Federal/State/ CNDDB Status	Potential for Occurrence and Rationale
Townsend's big-eared bat (*Corynorhinus townsendii)*	Found throughout California in all but subalpine and alpine habitats and may be found at any season throughout its range. Most abundant in mesic habitats. Requires caves, mines, tunnels, buildings, or other human-made structures for roosting. May use separate sites for night, day, hibernation, and maternity roosts. Hibernation sites are in cold, but not freezing, environments. Maternity roosts are in warm environments. Gleans from brush and trees, or feeds along habitat edges. Extremely sensitive to disturbance of roosting sites. Shows high site fidelity if undisturbed (CWHR 2025).	--/--/SSC	**No Potential.** The BSA does not contain trees or buildings that could provide roosting opportunities.
Amphibians			
California tiger salamander - central California DPS (*Ambystoma californiense* pop. 1)	Occurs in grassland, oak savannah, and edges of mixed woodland and lower elevation coniferous forest. Requires 1) aquatic breeding habitat such as large vernal pools or cattle stock ponds that remain inundated at least 10 weeks (Jennings and Hayes 1994) and 2) adjacent upland habitat with abundant small mammal burrows (USFWS 2017b).	FT/ST/--	**Unlikely to Occur.** The BSA does not contain suitable breeding or estivation habitat. However, the irrigation pond located immediately south of the BSA is unlikely to provide suitable breeding habitat. The BSA is surrounded by agricultural land in all directions for miles, which limits dispersal and upland habitat. There are no CNDDB records of this species within 5 miles of the BSA (CDFW 2025a).
Western spadefoot (*Spea hammondii*)	Ranges throughout Central Valley and adjacent foothills and is usually quite common where it occurs. Occurs primarily in grasslands, but occasionally in valley-foothill hardwood woodlands (CWHR 2025). Primarily found in lowlands frequenting washes, floodplains of rivers, alluvial fans, playas, and alkali flats. Also ranges into foothills and mountains. Prefers areas of open vegetation and short grasses with sandy or gravelly soil (Stebbins 2003). Spends most of year in underground burrows up to 36 inches deep, which it generally constructs. Breeding and egg-laying occur almost exclusively in shallow, temporary pools formed by heavy winter rains. The minimum hydrologic period for successful reproduction is 30 days (CWHR 2025).	PT/--/SSC	**Unlikely to Occur.** The BSA does not contain suitable breeding or estivation habitat. However, the irrigation pond located immediately south of the BSA unlikely to provide suitable breeding habitat. The BSA is surrounded by agricultural land in all directions for miles, which limits dispersal. There are no CNDDB records of this species within 5 miles of the BSA (CDFW 2025a).

Species Name	General Habitat Description	Legal Status Federal/State/ CNDDB Status	Potential for Occurrence and Rationale
Reptiles			
Coast (Blainville's) horned lizard (*Phrynosoma blainvillii*)	Occurs in the Sierra Nevada foothills from Butte Co. to Kern Co. and throughout the central and southern California coast. Its elevational range extends up to 1,200 meters (4,000 feet) in the Sierra Nevada foothills and up to 1,800 meters (6,000 feet) in the mountains of southern California. Inhabits open country, especially sandy areas, washes, flood plains and wind-blown deposits in a wide variety of habitats. including valley-foothill hardwood, conifer, and riparian habitats, as well as in pine-cypress, juniper, and annual grassland habitats. Seeks cover by burrowing into the soil under surface objects such as logs or rocks, in mammal burrows, or in crevices (CWHR 2025).	--/--/SSC	**No Potential.** The BSA does not contain suitable breeding or foraging habitat. The BSA is surrounded by agricultural land in all directions for miles, which limits dispersal. There are no CNDDB records of this species within 5 miles of the BSA (CDFW 2025a).
Giant garter snake (*Thamnophis gigas*)	Endemic to wetlands of Sacramento and San Joaquin Valleys, inhabiting tule marshes and seasonal wetlands created by overbank flooding of rivers and streams. Requires freshwater aquatic habitat with protective emergent vegetative cover that allows foraging, upland habitat near aquatic habitat that can be used for thermoregulation and summer shelter in burrows, and upland refugia that serve as winter hibernacula (USFWS 2017c).	FT/ST/--	**No Potential.** The BSA does not contain suitable upland or aquatic habitat. The irrigation pond located approximately 40 feet south of the BSA was constructed in approximately 2019 and is likely too small and isolated from other aquatic habitat to provide suitable breeding and foraging habitat. There are no CNDDB records of this species within 5 miles of the BSA (CDFW 2025a). The nearest known population of giant garter snake occurs in San Luis National Wildlife Refuge, approximately 12 to the southwest of the BSA.
Northern California legless lizard (*Anniella pulchra*)	Range includes the Coast Ranges from the vicinity of Antioch, Contra Costa Co. south to the Mexican border, including the floor of the San Joaquin Valley from San Joaquin Co. south, the west slope of the southern Sierra, the Tehachapi Mountains west of the desert, and the mountains of southern California (Jennings and Hayes 1994). Occurs in several habitats but especially in coastal dune, valley/foothill grassland, chaparral, and coastal scrub types at elevations from near sea level to about 1,800 meters (6,000 feet). Usually forages at the base of shrubs or other vegetation, either on the surface or just below it in leaf litter or sandy soil (Stebbins 1954). Sometimes seeks cover under surface objects such as flat boards and rocks, where they lie barely covered in loose soil (CWHR 2025).	--/--/SSC	**Unlikely to Occur.** The BSA does not contain suitable breeding or foraging habitat. The BSA is surrounded by agricultural land in all directions for miles, which limits dispersal. There are two CNDDB records of this species within 5 miles of the BSA. One of these records is dated to 1926, and the other is dated 2014. The 2014 occurrence is located approximately 3 miles southwest of the BSA in grassland habitat (CDFW 2025a)

Species Name	General Habitat Description	Legal Status Federal/State/ CNDDB Status	Potential for Occurrence and Rationale
Western (northwestern) pond turtle (*Emys [Actinemys] marmorata*)	Occurs throughout non-desert California from sea level to 6,700 feet. Isolated populations are known from Mojave, Susan, Truckee, and Carson Rivers and Klamath Basin (Thomson et al. 2016). Highly aquatic species found in broad range of aquatic habitats, including rivers and streams, permanent lakes, ponds, reservoirs, settling ponds, marshes, and other inundated wetlands. May use brackish, semi-permanent, or ephemeral features when inundated. Requires basking sites and loose soil in surrounding uplands suitable for nest excavation.	PT/--/SSC	**No Potential.** The BSA does not contain suitable upland or aquatic habitat. The irrigation pond located south of the BSA was only recently created in 2019, dried out completely in at least April 2022 (Google Earth 2025) and is likely too small and isolated from other perennial water bodies to provide suitable habitat. There are no CNDDB records of this species within 5 miles of the BSA (CDFW 2025a).
Fish			
Green sturgeon – Southern Distinct Population Segment (DPS) (*Acipenser medirostris* pop. 1)	An anadromous species that moves up large rivers to spawn. Spawning most likely occurs in fast, deep water (> 3 meters deep) over substrates ranging from clean sand to bedrock, with preferences for cobble substrates. Adult green sturgeon occur in the Sacramento River when temperatures are between 8 and 14 degrees Celsius (°C) (Moyle 2002). Some spawning may occur in the lower San Joaquin River as young green sturgeon have been taken near Brannan Island State Recreation Area (Moyle 2002).	FT/--/SSC	**No Potential.** The BSA does not contain suitable aquatic habitat for this species.
Hardhead (*Mylopharodon conocephalus*)	Occurs in low- to mid-elevation streams in the Sacramento-San Joaquin drainage and in the Russian River. Known from the Pit River (Modoc County) south to the Kern River (Kern County). Found in the mainstem Sacramento River and in its tributaries to about 4,920 feet. In the San Joaquin drainage, the species is scattered in tributary streams and absent from valley reaches of the San Joaquin River. Prefers clear, deep (32+ inches) pools and runs with sand-gravel-boulder substrates and flowing, but slow water velocities. Usually absent from severely altered streams and streams in which invasive fishes, especially centrarchids (sunfish), predominate (Moyle 2002). Distribution may be limited to well-oxygenated waters.	--/--/SSC	**No Potential.** The BSA does not contain suitable aquatic habitat for this species.

Species Name	General Habitat Description	Legal Status Federal/State/ CNDDB Status	Potential for Occurrence and Rationale
Steelhead – Central Valley DPS (*Oncorhynchus mykiss irideus*)	Now potentially widespread throughout accessible streams and rivers in Central Valley, including known populations or observations in Deer and Mill Creeks in Tehama County; Yuba, Stanislaus, Mokelumne, Calaveras, Tuolumne, and Merced Rivers; and other streams (NOAA Fisheries 2007). Anadromous salmonid that spawns in small tributaries on coarse gravel beds in riffle areas (Busby et al. 1996). Once thought extirpated from San Joaquin Basin (Moyle 2002).	FT/--/SSC	**No Potential.** The BSA does not provide suitable aquatic habitat for this species.
Birds			
Burrowing owl (*Athene cunicularia*)	Yearlong resident of open, dry grassland and desert habitat, and in grass, forb, and open shrub stages of pinyon-juniper woodland and ponderosa pine habitats. Uses small mammal burrows, often those of ground squirrels, for roosting and nesting cover (CWHR 2025). Burrowing sites and some wintering sites are of concern to CDFW (2025a).	--/SCE/SSC	**Unlikely to Occur.** The BSA provides suitable foraging habitat for this species. The BSA does not contain suitable burrows for nesting. There are no CNDDB records of this species within 5 miles of the BSA (CDFW 2025a). The nearest eBird record of this species is about 6 miles north of the BSA at California State University Stanislaus (Cornell Lab of Ornithology 2025).
Least Bell's vireo (*Vireo bellii pusillus*)	Inhabits willows and other low, dense, riparian habitat below approximately 2,000 feet. Currently known from canyons in San Benito and Monterey Counties, coastal areas from Santa Barbara County south, and western edges of Southern California deserts. Usually found near water or intermittent streams. Winters in Mexico from September to the end of March (CWHR 2025). Nesting sites are of concern to CDFW (2017a).	FE/SE/--	**No Potential.** The BSA does riparian habitat and therefore does not provide nesting or foraging habitat for this species.
Loggerhead shrike (*Lanius ludovicianus*)	A common resident and winter visitor in lowlands and foothills throughout California. Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. Highest density occurs in open-canopied valley-foothill hardwood, valley-foothill hardwood-conifer, valley -foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. Occurs only rarely in heavily urbanized areas but is often found in open cropland. Sometimes uses edges of denser habitats (Grinnell and Miller 1944; McCaskie et al. 1979; Garrett and Dunn 1981). Builds nest on stable branch in densely-foliaged shrub or tree, usually well-concealed (Miller 1931; Bent 1950).	--/--/SSC	**Unlikely to Occur.** The BSA provides suitable foraging habitat for this species. The BSA does not contain suitable nesting trees; however, dense trees and shrubs that may provide suitable nesting habitat can be found in the vicinity of the BSA. There are no CNDDB records of this species within 5 miles of the BSA (CDFW 2025a).

Species Name	General Habitat Description	Legal Status Federal/State/ CNDDB Status	Potential for Occurrence and Rationale
Swainson's hawk (*Buteo swainsoni*)	Uncommon breeding resident and migrant in Central Valley, Klamath Basin, Northeastern Plateau, Lassen Counties, and Mojave Desert. Nests in stands with few trees in juniper-sage flats, riparian areas, and oak savannas in Central Valley. Forages in adjacent grasslands or suitable grain or alfalfa fields and livestock pastures. Feeds on small birds, rodents, mammals, reptiles, large arthropods, amphibians, and, rarely, fish (CWHR 2025). Nesting sites are of concern to CDFW (2025a).	--/ST/--	**Likely to Occur.** The BSA provides suitable foraging habitat for this species. The BSA does not contain suitable nesting trees; however, large trees that may provide suitable nesting habitat occur in the vicinity of the BSA, including some as close as approximately 1,000 feet northeast. There is one CNDDB record (and several unprocessed CNDDB records) of this species within 5 miles of the BSA (CDFW 2025a). The closest record of nesting is approximately 1 mile to the southwest of the BSA and is dated to 2012.
Tricolored blackbird (*Agelaius tricolor*)	Forages on ground in cropland, in grassland, and on pond edges. Nests near freshwater and prefers emergent marsh of dense cattails or tules but also nests in thickets of willow and blackberry. Highly colonial. Nesting areas must be large enough to support minimum colony of about 50 pairs (CWHR 2025). Nesting colonies are of concern to CDFW (2025a).	--/ST/SSC	**Likely to Occur.** The BSA provides suitable foraging habitat for this species. The BSA does not contain suitable nesting habitat; however, the irrigation pond located immediately south of the BSA does contain dense tule patches. However, the nesting area may not be large enough to support a large nesting colony. There are two CNDDB records of this species within 5 miles of the BSA (CDFW 2025a). The closest is coarsely mapped over a large area that includes the BSA and represents a nesting colony observed at an inexact location in 1933.

Sources: CDFW (2025a); USFWS (2025b)

Status Codes:
-- = No status
Federal: FE = Federal Endangered; FT = Federal Threatened; PT = Proposed Threatened
State: SCE = State Candidate Endangered; SE = State Endangered; ST = State Threatened; SSC = California Species of Special Concern

Potential for Occurrence Ratings:

Likely to Occur: The species has a strong likelihood to be present in the project area as indicated by factors such as habitat quality, proximity to known records, presence of suitable dispersal corridors, etc. The project area contains suitable habitat and is located within the elevational and geographic ranges of the species.

Unlikely to Occur: The species is not likely to occur in the project area. Potentially suitable habitat is present, but the project area may be outside of the species' elevational and/or geographic ranges, contain substantially degraded or fragmented habitat, lack recent occurrence records within dispersal distance, be isolated from known populations by barriers to migration/dispersal, and/or contain predators or invasive species that inhibit survival or occupation.

No Potential: The species is not expected to occur in the project area due to one or more of the following conditions: suitable habitat is absent from the project area, the project area is located substantially outside of the species' elevational and/or geographic ranges, or the species is restricted to or known to be present only within a specific area outside of the project area.

APPENDIX C

Noise and Groundborne Vibration Impact Analysis

NOISE & GROUNDBORNE VIBRATION IMPACT ANALYSIS

FOR

GEMPERLE FAMILY FARMS MANURE-BASED FERTILIZER PELLETIZING FACILITY PROJECT

MERCED COUNTY, CA

MARCH 2026

PREPARED BY:

AMBIENT
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APPENDICES

Appendix A. Noise Prediction Modeling & Supportive Documentation

LIST OF COMMON TERMS AND ACRONYMS

Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
County	County of Merced
dB	Decibels
dBA	A-Weighted Decibels
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
Hz	Hertz
in/sec	Inches per Second
L_{dn}	Day-Night Level
LED	Light Emitting Diode
L_{eq}	Equivalent Sound Level
L_{50}	Percentile Level Exceeded 50 Percent of Time
L_{max}	Maximum Sound Level
ppv	Peak Particle Velocity

INTRODUCTION

This report discusses the existing environment in the project vicinity and identifies potential noise and groundborne vibration impacts associated with the proposed project. Noise mitigation measures are recommended where the predicted noise levels would exceed applicable noise standards.

PROPOSED PROJECT SUMMARY

The project site consists of an 8-acre portion of an approximately 40-acre parcel ("parent parcel") located at 20167 Fowler Road, near the community of Hilmar, in unincorporated Merced County, California (Assessor's Parcel Number 045-100-033). The project site is situated on the south side of West Fowler Road, approximately 730 feet west of North Lander Avenue (State Route 165).

The project site occupies the rear (southern) portion of the larger parcel and is set back from Fowler Road and away from existing agricultural buildings and worker housing units that are located on the northern portion of the property. Access to the project site would be provided via an internal private driveway system connecting to Fowler Road to the north and Johnson Road to the south.

PROPOSED PROJECT

PROJECT DESCRIPTION

Gemperle Family Farms proposes to construct and operate a manure-based fertilizer pelletizing facility on an approximately 8-acre portion of a 40.55-acre property in unincorporated Merced County. The project would centralize the storage of poultry manure from nearby applicant-owned egg-layer farms and process the material, along with fertilizer amendments, into stabilized, pelletized fertilizer products for commercial sale.

The project involves construction and operation of three primary buildings totaling approximately 162,000 square feet, along with associated equipment, internal driveways, parking, utilities, and supporting infrastructure necessary to produce organic fertilizer pellets. The overall site layout, building locations, access routes, and supporting improvements. The project site plan is depicted in Figure 1.

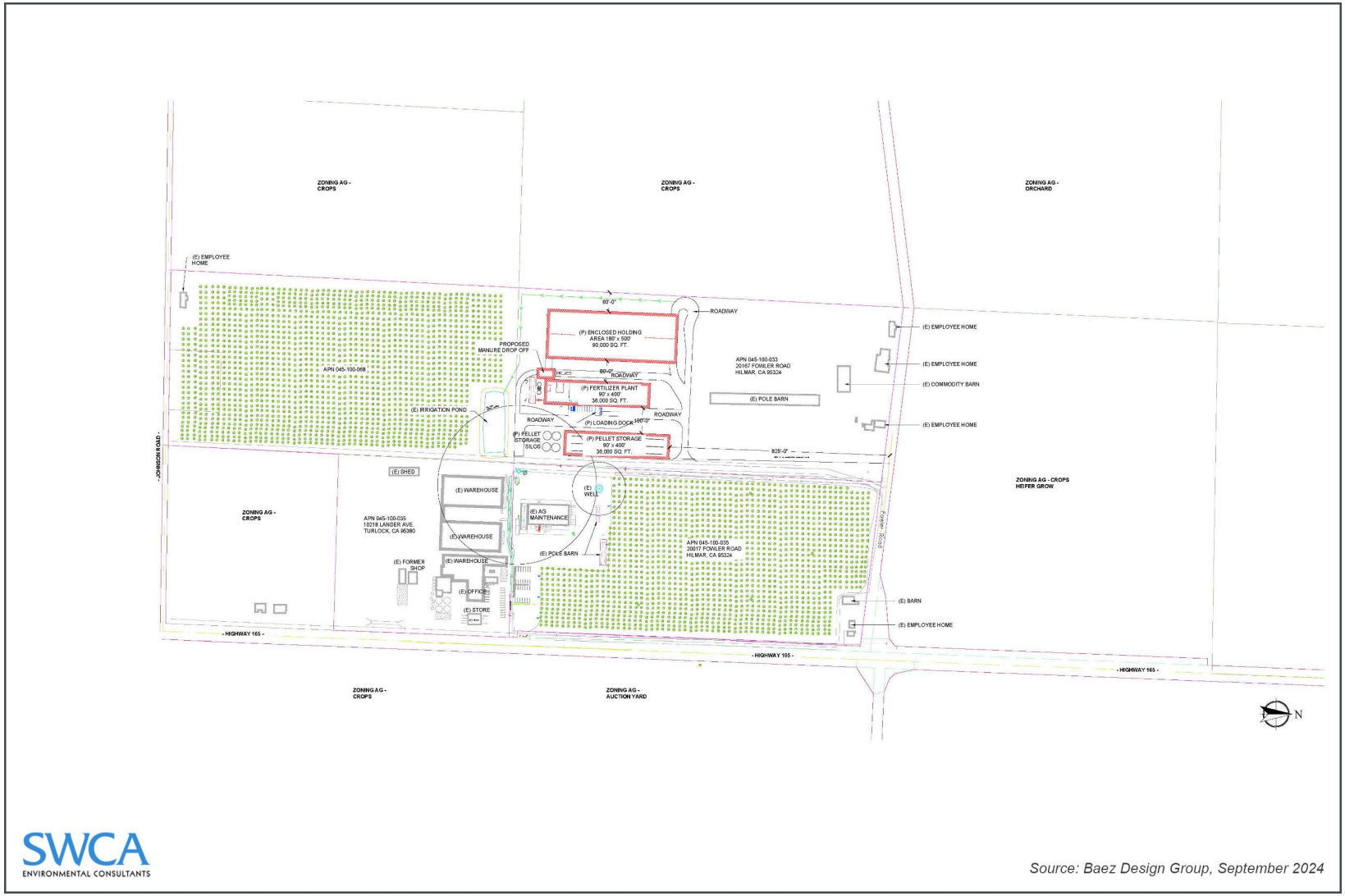
Buildings

The project would include construction of three primary buildings to support manure processing and fertilizer pellet production. A manure storage building, with an approximate footprint of 90,000 square feet, would be used to receive and temporarily store poultry manure delivered daily from adjacent Gemperle Family Farms prior to processing. The structure would be fully enclosed and designed as a low-occupancy agricultural facility. Features would include measures intended to minimize odor emissions and a designated manure offloading area located adjacent to internal circulation roadways to facilitate truck access.

The project would also include construction of a pelletizing plant, or processing building, with a footprint ranging from approximately 39,000 square feet, as depicted on the site plan and described in the project materials. This building would house the mechanical equipment required for screening, blending, pelletizing, drying, cooling, and stabilizing manure-based fertilizer products. The pelletizing plant would be designed as a commercial or industrial structure and would include a fire-sprinkler system, loading docks, and interior areas for temporary storage of finished, palletized products.

A bulk pellet storage warehouse, with an approximate footprint of 37,000 square feet, would be constructed to store finished fertilizer pellets in bulk form prior to off-site transport. This warehouse would be fully enclosed and generally unoccupied during normal operations, except for periodic loading activities. A conveyance system would connect the processing building to the storage warehouse to transfer finished pellets.

Figure 1. Project Site Plan



SWCA ENVIRONMENTAL CONSULTANTS

Source: Baez Design Group, September 2024

Other Structures and Equipment

The project would include a small administrative office, either within an existing structure or as a new building, to support employee functions, recordkeeping, and facility oversight. The exact size and location of the office would be finalized during detailed design.

Employee parking would be provided on site in close proximity to the processing building. A total of eight parking spaces, including one Americans with Disabilities Act compliant space, would accommodate employees working both daytime and nighttime shifts.

Storage areas would include exterior silos used to store fertilizer amendments that are classified as hazardous materials under applicable regulations. Additional storage for bagged and palletized finished products would be located within the processing building, while bulk storage of finished pellets would occur exclusively within the dedicated pellet storage warehouse.

Perimeter fencing would be installed around operational areas to provide site security and ensure safety. Exterior lighting would be limited to low-intensity, downward-directed fixtures located at building entrances, access points, and circulation areas, consistent with applicable County lighting standards and operational safety requirements.

Utilities serving the project would include new or extended underground electrical lines, natural gas service to support dryers or heating systems, and water service provided by an on-site well. Wastewater would be managed through on-site septic systems, and no industrial wastewater discharge is anticipated. Stormwater would be managed through site grading, drainage improvements, and implementation of best management practices in compliance with the Construction General Permit and applicable post-construction stormwater requirements.

Construction

Construction activities would include site preparation and minor grading within the project footprint, including the import of fill material to raise portions of the pellet storage warehouse building pad. Excavation would occur to depths of up to approximately 6 feet to accommodate installation of utilities and foundation piers. Construction would also involve erection of project buildings, development of internal driveways, and installation of paved or compacted hardscape, resulting in approximately 76,000 square feet of new impervious surface, as shown on the site plans. In addition, mechanical processing equipment and associated material conveyance systems would be installed within the processing buildings as part of facility construction.

Construction duration is anticipated to be 12 months, occurring during daytime hours in compliance with County construction-noise standards. Construction traffic would consist of haul trucks, worker trips, delivery vehicles, and material transport.

Operation

Operational activities at the proposed facility would occur on a variable schedule depending on production demand. At a minimum, the facility would operate up to four days per week for approximately 12 hours per day. At peak capacity, operations could occur up to six days per week on a continuous 24-hour basis. Initial operations are anticipated to occur Monday through Thursday between 6:00 a.m. and 6:00 p.m. Full-capacity operations would consist of two shifts, with the first shift operating from approximately 5:00 a.m. to 5:00 p.m. and the second shift operating from approximately 5:00 p.m. to 5:00 a.m.

The project would employ approximately 10 to 15 employees, including equipment operators and support staff. Truck drivers associated with manure transport and product distribution would primarily operate from adjacent Gemperle Family Farms facilities rather than being permanently stationed at the project site.

Project operations would not result in a net increase in manure haul trips from nearby poultry ranches, as manure that is currently transported off-site would instead be delivered to the on-site manure storage

facility for processing. Average daily vehicle activity associated with operations is estimated to include approximately seven truck trips per day for manure deliveries, five to six truck trips per day for off-site transport of finished fertilizer products, and 20 to 30 employee vehicle trips per day. When averaged over a seven-day week, total operational traffic is estimated at approximately 30 vehicle trips per day.

Processing equipment at the facility would include screening equipment, mixers and amendment silos, pellet mills, dryers used for product sterilization, coolers for product stabilization, and associated material-handling equipment such as conveyors, crumblers, bagging equipment, palletizers, and load-out systems. Finished products would consist of standard manure-based fertilizer pellets as well as custom blended organic fertilizer products. Products may be bagged, placed in totes, crumbled, or stored in bulk prior to off-site distribution.

Some fertilizer additives used in the production process are classified as hazardous materials under applicable regulations and would be stored in outdoor silos with appropriate containment and handling measures. Poultry manure itself is not classified as a hazardous material.

EXISTING SETTING

CONCEPTS AND TERMINOLOGY

Acoustic Fundamentals

Noise is generally defined as sound that is loud, disagreeable, or unexpected. Sound is mechanical energy transmitted in the form of a wave because of a disturbance or vibration. Sound levels are described in terms of both amplitude and frequency.

Amplitude

Amplitude is defined as the difference between ambient air pressure and the peak pressure of the sound wave. Amplitude is measured in decibels (dB) on a logarithmic scale. For example, a 65-dB source of sound, such as a truck, when joined by another 65 dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by 3 dB). Amplitude is interpreted by the ear as corresponding to different degrees of loudness. Laboratory measurements correlate a 10 dB increase in amplitude with a perceived doubling of loudness and establish a 3-dB change in amplitude as the minimum audible difference perceptible to the average person.

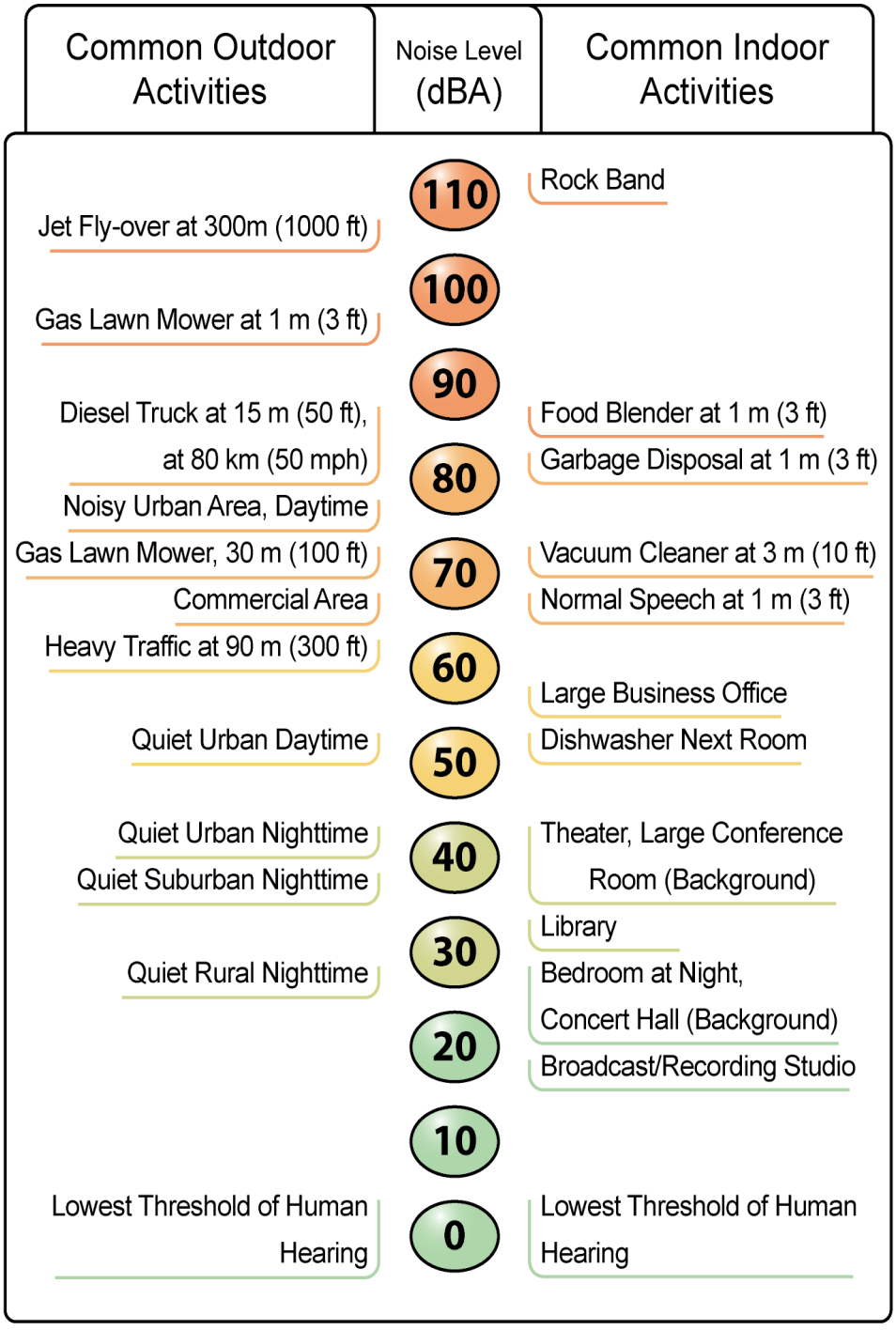
Frequency

The frequency of a sound is defined as the number of fluctuations of the pressure wave per second. The unit of frequency is the Hertz (Hz). One Hz equals one cycle per second. The human ear is not equally sensitive to sound of different frequencies. For instance, the human ear is more sensitive to sound in the higher portion of this range than in the lower and sound waves below 16 Hz or above 20,000 Hz cannot be heard at all. To approximate the sensitivity of the human ear to changes in frequency, environmental sound is usually measured in what is referred to as "A-weighted decibels" (dBA). On this scale, the normal range of human hearing extends from about 10 dBA to about 140 dBA (U.S. EPA 1971). Common community noise sources and associated noise levels, in dBA, are depicted in Figure 2.

Addition of Decibels

Because decibels are logarithmic units, sound levels cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3 dB increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions. For example, if one automobile produces a sound level of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB; rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together would produce an increase of 5 dB.

Figure 2. Typical Noise Levels



Source: Caltrans 2022

Sound Propagation & Attenuation

Geometric Spreading

Sound from a localized source (i.e., a point source) propagates uniformly outward in a spherical pattern. The sound level decreases (attenuates) at a rate of approximately 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path, and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately 3 dB for each doubling of distance from a line source, depending on ground surface characteristics. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water,), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver, such as soft dirt, grass, or scattered bushes and trees), an excess ground-attenuation value of 1.5 decibels per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation for soft surfaces results in an overall attenuation rate of 4.5 decibels per doubling of distance from the source.

Atmospheric Effects

Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) from the highway due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects.

Shielding by Natural or Human-Made Features

A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. Walls are often constructed between a source and a receiver specifically to reduce noise. A barrier that breaks the line of sight between a source and a receiver will typically result in a minimum of 5 dB of noise reduction. Taller barriers provide increased noise reduction.

Noise reductions afforded by building construction can vary depending on construction materials and techniques. Standard construction practices typically provide approximately 15 dBA exterior-to-interior noise reductions for building facades, with windows open, and approximately 25-30 dBA, with windows closed. With compliance with current Title 24 energy efficiency standards, which require increased building insulation and inclusion of an interior air ventilation system to allow windows on noise-impacted façades to remain closed, exterior-to-interior noise reductions typically average approximately 25 dBA. The absorptive characteristics of interior rooms, such as carpeted floors, draperies and furniture, can result in further reductions in interior noise.

NOISE DESCRIPTORS

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the sound-pressure level in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz, and perceive sounds within that range better than sounds of the same amplitude in higher or lower frequencies. To approximate the response of the human ear, sound levels of individual frequency bands

are weighted, depending on the human sensitivity to those frequencies, which is referred to as the "A-weighted" sound level (expressed in units of dBA). The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Other weighting networks have been devised to address high noise levels or other special problems (e.g., B-, C-, and D-scales), but these scales are rarely used in conjunction with environmental noise.

The intensity of environmental noise fluctuates over time, and several descriptors of time-averaged noise levels are typically used. For the evaluation of environmental noise, the most commonly used descriptors are equivalent sound level (L_{eq}), day-night average level (L_{dn}), and community noise equivalent level (CNEL). The energy-equivalent noise level, L_{eq}, is a measure of the average energy content (intensity) of noise over any given period. Many communities use 24-hour descriptors of noise levels to regulate noise.

The day-night average noise level, L_{dn}, is the 24-hour average of the noise intensity, with a 10-dBA "penalty" added for nighttime noise (10 p.m. to 7 a.m.) to account for the greater sensitivity to noise during this period. CNEL, the community equivalent noise level, is similar to L_{dn} but adds an additional 5-dBA penalty for evening noise (7 p.m. to 10 p.m.) Typical noise level descriptors are summarized in Table 1.

Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels. When community noise interferes with human activities or contributes to stress, public annoyance with the noise source increases. The acceptability of noise and the threat to public well-being are the basis for land use planning policies preventing exposure to excessive community noise levels.

Unfortunately, there is no completely satisfactory way to measure the subjective effects of noise or of the corresponding reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and habituation to noise over differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted: the so-called "ambient" environment. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged. Regarding increases in A-weighted noise levels, knowledge of the following relationships will be helpful in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1 dB cannot be perceived by humans;
- Outside of the laboratory, a 3-dB change is considered a just-perceivable difference;
- A change in level of at least 5 dB is required before any noticeable change in community response would be expected.
- A 10-dB change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

Table 1. Common Acoustical Descriptors

Descriptor	Definition
Energy Equivalent Noise Level (L_{eq})	The energy mean (average) noise level. The instantaneous noise levels during a specific period of time in dBA are converted to relative energy values. From the sum of the relative energy values, an average energy value (in dBA) is calculated.
Statistical Descriptor (L_X)	The noise level exceeded a percentage of time during a measurement period. For instance, L_{50} is a statistical descriptor of the noise level exceeded 50% of the time during the measurement period. Over a one-hour period the L_{50} noise level is roughly equivalent to the L_{eq} noise level.
Minimum Noise Level (L_{min})	The minimum instantaneous noise level during a specific period of time.
Maximum Noise Level (L_{max})	The maximum instantaneous noise level during a specific period of time.
Day-Night Average Noise Level (DNL or L_{dn})	The DNL was first recommended by the U.S. EPA in 1974 as a "simple, uniform and appropriate way" of measuring long term environmental noise. DNL takes into account both the frequency of occurrence and duration of all noise events during a 24-hour period with a 10 dBA "penalty" for noise events that occur between the more noise-sensitive hours of 10 p.m. and 7 a.m. In other words, 10 dBA is "added" to noise events that occur in the nighttime hours to account for increases sensitivity to noise during these hours.
Community Noise Equivalent Level (CNEL)	The CNEL is similar to the Ldn described above, but with an additional 5 dBA "penalty" added to noise events that occur between the hours of 7:00 p.m. to 10 p.m. The calculated CNEL is typically approximately 0.5 dBA higher than the calculated Ldn.

Effects of Noise on Human Activities

The extent to which environmental noise is deemed to result in increased levels of annoyance, activity interference, and sleep disruption varies greatly from individual to individual depending on various factors, including the loudness or suddenness of the noise, the information value of the noise (e.g., aircraft overflights, child crying, fire alarm), and an individual's sleep state and sleep habits. Over time, adaptation to noise events and increased levels of noise may also occur. In terms of land use compatibility, environmental noise is often evaluated in terms of the potential for noise events to result in increased levels of annoyance, sleep disruption, or interference with speech communication, activities, and learning. Noise-related effects on human activities are discussed in more detail, as follows:

Speech Communication

For most noise-sensitive land uses, an interior noise level of 45 dB L_{eq} is typically identified for the protection of speech communication in order to provide for 100-percent intelligibility of speech sounds. For outdoor voice communication, an exterior noise level of 60 dBA L_{eq} allows normal conversation at distances up to 2 meters with 95 percent sentence intelligibility (U.S. EPA 1974.) Based on this information, speech interference begins to become a problem when steady noise levels reach approximately 60 to 65 dBA. Within interior noise environments, an average-hourly background noise level of 45 dBA L_{eq} is typically recommended for noise-sensitive land uses, such as educational facilities (Caltrans 2002).

Annoyance & Sleep Disruption

With regard to potential increases in annoyance, activity interference, and sleep disruption, land use compatibility determinations are typically based on the use of the cumulative noise exposure metrics (i.e., CNEL or L_{dn}). Perhaps the most comprehensive and widely accepted evaluation of the relationship between noise exposure and the extent of annoyance was one originally developed by Theodore J. Schultz in 1978. In 1978 the research findings of Theodore J. Schultz provided support for L_{dn} as the descriptor for environmental noise. Research conducted by Schultz identified a correlation between the cumulative noise exposure metric and individuals who were highly annoyed by transportation noise. The Schultz curve, expressing this correlation, became a basis for noise standards. When expressed graphically, this relationship is typically referred to as the Schultz curve. The Schultz curve indicates that approximately 13 percent of the population is highly annoyed at a noise level of 65 dBA L_{dn}. It also indicates that the percentage of people describing themselves as being highly annoyed accelerates

smoothly between 55 and 70 dBA L_{dn}. A noise level of 65 dBA L_{dn} is a commonly referenced dividing point between lower and higher rates of people describing themselves as being highly annoyed (Caltrans 2002).

The Schultz curve and associated research became the basis for many of the noise criteria subsequently established for federal, state, and local entities. Most federal and state of California regulations and policies related to transportation noise sources establish a noise level of 65 dBA CNEL/L_{dn} as the basic limit of acceptable noise exposure for residential and other noise-sensitive land uses. For instance, with respect to aircraft noise, both the Federal Aviation Administration (FAA) and the State of California have identified a noise level of 65 dBA L_{dn} as the dividing point between normally compatible and normally incompatible residential land use generally applied for determination of land use compatibility. For noise-sensitive land uses exposed to aircraft noise, noise levels in excess of 65 dBA CNEL/L_{dn} are typically considered to result in a potentially significant increase in levels of annoyance (Caltrans 2002).

Allowing for an average exterior-to-interior noise reduction of 25 dB, which is typical for newer building construction with windows closed, an exterior noise level of 70 dBA CNEL/L_{dn} would equate to an interior noise level of 45 dBA CNEL/L_{dn}. An interior noise level of 45 dB CNEL/L_{dn} is generally considered sufficient to protect against activity interference at most noise-sensitive land uses, including residential dwellings, and would also be sufficient to protect against sleep interference (U.S. EPA 1974.) Within California, the California Building Code establishes a noise level of 45 dBA CNEL as the maximum acceptable interior noise level for residential uses (other than detached single-family dwellings). Use of the 45 dBA CNEL threshold is further supported by recommendations provided in the State of California Office of Planning and Research's *General Plan Guidelines*, which recommend an interior noise level of 45 dB CNEL/L_{dn} as the maximum allowable interior noise level sufficient to permit "normal residential activity."

The cumulative noise exposure metric is currently the only noise metric for which there is a substantial body of research data and regulatory guidance defining the relationship between noise exposure, people's reactions, and land use compatibility. However, when evaluating environmental noise impacts involving intermittent noise events, such as aircraft overflights and train passbys, the use of cumulative noise metrics may not provide a thorough understanding of the resultant impact. The general public often finds it difficult to understand the relationship between intermittent noise events and cumulative noise exposure metrics. In such instances, supplemental use of other noise metrics, such as the L_{eq} or maximum noise level (L_{max}) descriptor, may be helpful as a means of increasing public understanding regarding the relationship between these metrics and the extent of the resultant noise impact (Caltrans 2002).

AFFECTED ENVIRONMENT

Noise-Sensitive Land Uses

Noise-sensitive receptors in the project area consist predominantly of rural residential dwellings and employee housing. The nearest employee housing is located approximately 650 feet north of the proposed pelletizing plant. The nearest off-site residential land use is located approximately 1,020 feet northwest of the proposed pelletizing plant. Additional residential dwellings are located south of the project site, along Johnson Avenue, and east of the project site, across State Route (SR) 162. Nearby noise-sensitive land uses are depicted in Figure 3.

Ambient Noise Environment

To document existing ambient noise levels at the project site, short-term ambient noise measurements were conducted on January 14, 2026. Noise measurements were conducted using a Larson Davis Laboratories, Type I, Model LxT sound-level meter positioned at a height of approximately 5 feet above ground level. Noise measurement equipment was calibrated prior to and upon completion of the noise measurement survey. Short-term measured ambient noise levels are summarized in Table 2.

Based on the noise measurements conducted, daytime ambient noise levels in the vicinity of nearby noise-sensitive land uses range from approximately 54 to 67 dBA L_{eq}. Ambient noise levels were influenced primarily by vehicle traffic on area roadways.

Table 2. Summary of Short-term Measured Ambient Noise Levels

Location	Location Description	Monitoring Period	Noise Levels (dBA)	
			L_{eq}	L_{max}
ST1	SR 165 at Fowler Road. Approximately 45 feet from SR 165.	0710-0720	65.2	81.4
ST2	Fowler Road. Near the northwestern project site boundary. Approximately 25 feet from road centerline.	0745-0755	57.6	60.3
ST3	Johnson Avenue. Near the northwestern project site boundary. Approximately 25 feet from road centerline.	0900-0910	54.1	57.3
ST4	Near the southeastern project site boundary.	0803-0813	53.7	55.4
ST5	SR 165 at Johnson Avenue . Approximately 43 feet from SR 165.	0920-0930	67.1	79.4

Ambient noise measurements were conducted using a Larson Davis Laboratories, Type I, LxT integrating sound-level meter placed at a height of approximately 5 feet above ground level. Equipment was calibrated prior to and upon completion of the noise measurements. Refer to Figure 2 for noise measurement locations.

Figure 3. Nearby Noise-Sensitive Land Uses & Noise Monitoring Locations



REGULATORY FRAMEWORK

Noise

County of Merced General Plan

The County of Merced (County) has adopted a general plan that contains limitations intended to prevent noise that may create dangerous, injurious, noxious, or otherwise objectionable conditions. These standards are to be applied at the property line of noise-sensitive land uses, such as rear yards, that are intended to accommodate leisure or active use. The County's noise standards for stationary (non-transportation) noise sources are summarized in Table 3. As depicted, noise levels for the outdoor activity areas of residential land uses are limited to 55 dBA L_{50} during the daytime hours (7 a.m. to 10 p.m.) and to 50 dBA L_{50} during the nighttime hours (10 p.m. to 7 a.m.) (County of Merced 2013).

Table 3. Non-Transportation Noise Standards Medium (L_{50})/Maximum (L_{max})[1] dBA

Receiving Land Use	Outdoor Area[2]		Interior[3]
	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)	Daytime /Nighttime
All Residential	55 / 75	50 / 70	35 / 55
Transient Lodging[4]	55 / 75	--	35 / 55
Hospitals and Nursing Home[5],[6]	55 / 75	--	35 / 55
Theaters and Auditoriums[6]	--	--	30 / 50
Churches, Meeting Halls, Schools, Libraries, etc.[6]	55 / 75	--	35 / 60
Office Buildings[6]	60 / 75	--	45 / 65
Commercial Buildings[6]	55 / 75	--	45 / 65
Playgrounds, Parks, etc. [6]	65 / 75	--	--
Industry[6]	60 / 80	--	50 / 70

1. These standards shall be reduced by 5 dB for sounds consisting primarily of speech or music, and for recurring impulsive sounds. If the existing ambient noise level exceeds the standards in this table, then the noise level standards shall be increased at 5 dB increments to encompass the ambient.
2. Sensitive Outdoor Areas include primary outdoor activity areas associated with any given land use at which noise-sensitivity exists and the location at which the County's exterior noise level standards are applied.
3. Sensitive Interior Areas includes any interior area associated with any given land use at which noise sensitivity exists and the location at which the County's interior noise level standards are applied. Examples of sensitive interior spaces include, but are not limited to, all habitable rooms of residential and transient lodging facilities, hospital rooms, classrooms, library interiors, offices, worship spaces, theaters. Interior noise level standards are applied within noise-sensitive areas of the various land uses with windows and doors in the closed positions.
4. Outdoor activity areas of transient lodging facilities are not commonly used during nighttime hours.
5. Since hospitals are often noise-generating uses, the exterior noise level standards are applicable only to clearly identified areas designated for outdoor relaxation by either hospital staff or patients.
6. The outdoor activity areas of these uses (if any) are not typically used during nighttime hours.
7. Where median (L_{50}) noise level data is not available for a particular noise source, average (L_{eq}) values may be substituted for the standards of this table provided the noise source operates for at least 30 minutes. If the source operates less than 30 minutes the maximum noise level standards shown shall apply.

County of Merced Municipal Code

The County of Merced Municipal Code Title 18 – Zoning Code, Chapter 18.40 – Performance Standards addresses noise associated with public nuisances. The County's municipal code identifies that the maximum noise levels for all land uses be consistent with the County's general plan noise standards (discussed below). Additionally, the municipal code establishes acceptable periods for construction. Construction activities shall be conducted between the hours of 7 a.m. and 6 p.m. daily (County of Merced 2023).

Groundborne Vibration

Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of amplitude and frequency. A person's perception of the vibration will depend on their individual

sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating. Vibration can be measured in terms of acceleration, velocity, or displacement.

The effects of groundborne vibration levels, with regard to human annoyance and structural damage, is influenced by various factors, including ground type, the distance between source and receptor, and duration. Overall effects are also influenced by the type of vibration event, defined as either continuous or transient. Continuous vibration events would include most construction equipment, including pile drivers, and compactors, whereas, transient sources of vibration create single isolated vibration events, such as demolition ball drops and blasting.

The threshold criteria for continuous and transient events are summarized in Table 4. As indicated in Table 4, the threshold at which there is a risk to normal structures from continuous events is 0.5 inches per second (in/sec) peak particle velocity (ppv) for newer building construction. A threshold of 0.5 in/sec ppv also represents the structural damage threshold applied to older structures for transient vibration sources. With regard to human perception (refer to Table 4), vibration levels would begin to become distinctly perceptible at levels of 0.04 in/sec ppv for continuous events and 0.25 in/sec ppv for transient events. Continuous vibration levels are considered annoying for people in buildings at levels of 0.2 in/sec ppv (Caltrans 2020).

Table 4. Summary of Groundborne Vibration Levels and Potential Effects

Vibration Level (in/sec ppv)	Human Reaction	Effect on Buildings
0.006 - 0.019	Threshold of perception; possibility of intrusion.	Vibrations unlikely to cause damage of any type.
0.08	Vibrations readily perceptible.	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected.
0.10	Level at which continuous vibrations begin to annoy people.	Virtually no risk of "architectural" damage to normal buildings.
0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relatively short periods of vibrations).	Threshold at which there is a risk of "architectural" damage to fragile buildings.
0.3 - 0.6	Vibrations become distinctly perceptible at 0.04 in/sec ppv and considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges.	Potential risk of "architectural" damage may occur at levels above 0.3 in/sec ppv for older residential structures and above 0.5 in/sec ppv for newer structures.

The vibration levels are based on peak particle velocity in the vertical direction for continuous vibration sources, which includes most construction activities.
Source: Caltrans 2020

IMPACTS AND MITIGATION MEASURES

METHODOLOGY

Short-Term Construction Noise

Short-term noise impacts associated with construction activities were analyzed based on typical construction equipment noise levels and distances to the nearest noise-sensitive land uses. Noise levels were predicted based on representative off-road equipment noise levels derived from the Federal Highway Administration's (FHWA) Roadway Construction Noise Model based on average equipment usage rates and assuming a noise-attenuation rate of 6 dB per doubling of distance from the source. No shielding for intervening structures was applied. Equipment usage assumptions were based on information provided and modeling used for the air quality impact analysis prepared for this project.

Long-term Operational Noise

The proposed pelletizing plant would include the installation of multiple electrical motors. Based on representative manufacturer data and depending on the size of the motors, operational noise levels for individual electric motors would range from approximately 85 to 88 dBA at one meter (TMMotor 2026). Operational noise levels were calculated based on the estimated size of the motors to be installed for various processes and assuming that all process motors would operate simultaneously. An average interior-to-exterior noise reduction of 15 dB was applied. Predicted noise levels at nearby noise-sensitive receivers were calculated assuming an average noise attenuation rate of 6 dB per doubling of distance from the source. No shielding for intervening structures was applied. Noise modeling is included in Appendix A.

THRESHOLDS OF SIGNIFICANCE

In accordance with Appendix G of the California environmental Quality Act (CEQA) Guidelines Initial Study Checklist, a project would be considered to have a significant impact to climate change if it would:

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

b) Generate excessive groundborne vibration or groundborne noise levels.

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

The CEQA Guidelines do not define the levels at which temporary and permanent increases in ambient noise are considered "substantial." As discussed previously in this section, a noise level increase of 3 dBA is barely perceptible to most people, an increase of 5 dBA is readily noticeable, and a difference of 10 dBA would be perceived as a doubling of loudness. For purposes of this analysis, a significant increase in ambient noise levels would be defined as an increase of 5 dBA, or greater, that would exceed applicable noise standards.

Stationary source noise levels were evaluated in comparison to the County's noise standards (refer to **Error! Reference source not found.**). Accordingly, newly proposed non-transportation noise sources would be considered to have a potentially significant impact if predicted noise levels at nearby noise-sensitive land uses would exceed 55 dBA L_{50}/L_{eq} during the daytime hours (7 a.m. to 10 p.m.) or 50 dBA L_{50}/L_{eq} during the nighttime hours (10 p.m. to 7 a.m.).

It is important to note that no standardized criteria have been developed by the State of California or the County of Merced for assessing construction noise impacts. However, the Federal Transit Administration (FTA) has identified criteria for the assessment of construction-generated noise levels. For noise-sensitive land uses, such as residential land uses, the FTA criteria identify daytime and nighttime average-hourly noise limits of 80 and 70 dBA L_{eq}, respectively (FTA 2018). Short-term construction noise levels exceeding these levels would be determined to have a potentially significant impact.

The CEQA Guidelines also do not define the levels at which groundborne vibration levels would be considered excessive. For this reason, California Department of Transportation (Caltrans) recommended groundborne vibration thresholds were used for the evaluation of impacts based on increased potential for structural damage and human annoyance, as identified in Table 3. For purposes of this analysis, risks of architectural damage (i.e., minor cracking of plaster walls and ceilings) would be considered potentially significant if construction-generated ground vibration levels at nearby structures would exceed 0.5 in/sec ppv. Ground vibration in excess of 0.2 in/sec ppv would be expected to result in a potential for significant short-term increases in levels of annoyance for occupants of nearby sensitive structures (e.g., residential dwellings).

PROJECT IMPACTS

Impact Noise-A: ***Would the project result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?***

Potential short-term and long-term noise impacts associated with the proposed project are discussed, as follows:

Short-term Construction Noise Impacts

Construction noise typically occurs intermittently and varies depending upon the phase (e.g., land clearing, grading, excavation, and erection). Noise generated by construction equipment, including earthmovers, material handlers, and portable generators can reach high levels. Noise levels commonly associated with off-road equipment anticipated to be used during project construction are summarized in Table 5.

As noted in Table 5, instantaneous noise levels generated by individual pieces of off-road equipment anticipated to be required for this project would range from approximately 75 to 80 dBA L_{max} at 50 feet. Typical operating cycles may involve 2 minutes of full power, followed by 3 or 4 minutes at lower settings. Based on typical off-road equipment usage rates, average hourly noise levels for individual equipment would be approximately 79 dBA L_{eq}, or less, at 50 feet. Assuming that multiple pieces of equipment could be operating simultaneously, predicted average-hourly noise levels could reach levels of approximately 85 dBA at 50 feet.

Table 5. Typical Construction Equipment Noise Levels

Equipment	Typical Noise Level (dBA) at 50 Feet from Source	
	L_{max}	L_{eq}
Backhoe	78	74
Concrete Truck	79	75
Trencher	80	77
Forklift	83	79
Scissor Lift	75	68
Paver	77	74
Roller	80	73
dBA = A-weighted decibels; L_{max} = Maximum sound level; L_{eq} = Equivalent sound level		
Source: FHWA Roadway Construction Noise Model		

The nearest off-site noise-sensitive land uses located in the vicinity of the proposed project site is a residential dwelling located approximately 1,020 feet northwest of the project site. The nearest worker housing is located approximately 650 feet north of the project site. Based on the equipment noise levels noted in Table 5 and assuming all equipment would be operating simultaneously, predicted noise levels at this nearest existing off-site residence would be 58 dBA L_{eq}, or less. Predicted noise levels at the nearest on-site worker housing would be 62 dBA L_{eq}. With regard to residential land uses, activities occurring during the more noise-sensitive evening and nighttime hours are of increased concern. Increases in ambient noise levels during these hours could result in increased levels of annoyance and potential sleep disruption to building occupants. Based on the modeling conducted, predicted construction noise levels would not exceed the daytime or nighttime noise standards of 80 and 70 dBA L_{eq}, respectively. However, with regard to residential land uses, increases in ambient noise levels during the more noise-sensitive evening and nighttime hours would be of particular concern. Substantial increases in ambient noise levels associated with project construction during these more noise-sensitive periods of the day could result in increased levels of annoyance and potential sleep disruption to building occupants. As a result, this impact would be considered ***potentially significant***.

Mitigation Measure Noise-1: The following measures shall be implemented to reduce short-term construction-related noise impacts:

a. Noise sources associated with construction shall be limited to between 7:00 a.m. and 6:00 p.m., daily.

b. Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.

Significance After Mitigation: Use of mufflers would reduce individual equipment noise levels by approximately 10 dBA (FHWA 2025). Implementation of the above mitigation measures would limit construction activities to the less noise-sensitive periods of the day. With implementation of the above mitigation measures and because activities would be short-term, this impact would be considered ***less than significant.***

Long-term Operational Noise Impacts

The proposed pelletizing plant would include the installation of multiple electrical motors associated with various pelletizing processes and equipment (e.g., loading hopper, sieves, mixers, feeding bins, pellet mill, line dust recovery). Electrical motors would range from less than 30 amps to as large as approximately 100 amps for motors associated with the pellet mill. Predicted operational noise levels were calculated for major processes and equipment based on representative noise levels derived from manufacturer data, which were estimated to range from approximately 95 to 98 dBA at one meter, depending on motor size. To be conservative, all process motors were assumed to operate simultaneously. An average building attenuation of 15 dB was applied. Based on the modeling conducted, the highest combined operational noise levels within the exterior of the pelletizing plant would be approximately 92 dBA L_{50}/L_{eq}.

The nearest off-site noise-sensitive land use is a residential dwelling located approximately 1,020 feet northwest of the pelletizing plant. Based on this distance and assuming a maximum noise level of 92 dBA L_{eq}/L_{50} at the plant, predicted exterior operational noise levels at this nearest residence would be approximately 41 dBA L_{50}/L_{eq}. Predicted noise levels at the nearest on-site worker housing, which is located approximately 650 feet north of the proposed pelletizing plant, would be 45 dBA L_{eq}/L_{50}. Predicted noise levels would not exceed the County's daytime or nighttime noise standards (i.e., 55 and 50 dBA L_{50}/L_{eq}, respectively). As a result, this impact would be considered ***less than significant***.

On-Road Vehicle Traffic

Typically a doubling of vehicle traffic would be required before a noticeable increase in ambient noise levels would occur, which is often defined as an increase of 3 dB. The proposed project is estimated to require the addition of approximately 15 employees. Assuming a total of approximately 15 employees and two daily trips per employee, implementation of the proposed project would be anticipated to result in approximately 30 vehicle trips per day along area roadways. Primary access to the project site would be via SR 165. Vehicle trips along SR 165 average approximately 1,500 to 1,700 vehicles during peak-hour operations (Caltrans 2026). The project would not result in increases in truck trips. As a result, implementation of the proposed project would not be anticipated to result in a substantial increase in vehicle traffic that would result in noticeable increases in ambient noise levels This impact would be considered ***less than significant***.

Impact Noise-B.	***Would the project result in the generation of excessive groundborne vibration or groundborne noise levels?***

In comparison to existing operations, operational activities associated with the proposed project would not involve the use of any new equipment or processes that would result in potentially significant levels of ground vibration. Increases in groundborne vibration levels attributable to the proposed project would be primarily associated with short-term construction-related activities. Construction equipment required for

proposed project typically includes smaller equipment (e.g., concrete trucks, backhoes, trenchers, forklifts, scissor lifts, roller compactors). Groundborne vibration levels associated with these types of construction equipment would be approximately 0.003 to 0.076 in/sec ppv at 25 feet (Caltrans 2020).

The nearest existing off-site structures in relation to proposed on-site construction areas would be located approximately 1,020 feet, or more, from on-site construction areas. Based on this distance and assuming a maximum vibration level of 0.076 in/sec ppv at 25 feet, predicted vibration levels at the nearest off-site structures would be approximately 0.001 in/sec ppv. Predicted groundborne vibration levels at the nearest on-site worker housing would be approximately 0.002 in/sec ppv. Predicted vibration levels at the nearest existing off-site structures would not be projected to exceed commonly applied criteria for structural damage (i.e., 0.5 in/sec ppv). Predicted vibration levels at the nearest occupied off-site and on-site residences would not exceed the threshold for human annoyance (i.e., 0.2 in/sec ppv). As a result, this impact would be considered ***less than significant***.

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

The project site is not located within two miles of a public airport or private airstrip. The nearest airport is the Turlock Airport located approximately 1.9 miles north of the project site. The proposed project site is not located within the projected noise contours of Turlock Airport (County of Merced 2012). Implementation of the proposed project would not result in the exposure of sensitive receptors to aircraft noise levels, nor would the proposed project affect airport operations. ***No impact***.

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APPENDIX A

Noise Prediction Modeling & Supportive Documentation

PREDICTED CONSTRUCTION NOISE LEVELS

Input Data

Case Description: Gemperle Pelletizing Project

Receptor

	Description	Land Use	Daytime Baseline (dBA)	Evening Baseline (dBA)	Nighttime Baseline (dBA)
1	Site Preparation	Residential	5.0	5.0	5.0
2					
3					
4					

Noise Metric: Leq

Noise Limit Criteria

Receptor #1

Noise Limits

Equipment — **Receptor #1: Site Preparation**

	Active	Description	Impact Device	Usage(%)	Spec Lmax (dBA)		Actual Lmax (dBA)		Distance to Receptor (feet)	Estimated Shielding (dBA)
5	☑	Slurry Trenching Machine	☐	50%	☐	82.0	☑	80.4	1200.0	0.0
6	☐	Man Lift	☐	20%	☐	85.0	☑	74.7	1200.0	0.0
7	☐	Man Lift	☐	20%	☐	85.0	☑	74.7	1200.0	0.0
8	☐	Man Lift	☐	20%	☐	85.0	☑	74.7	1200.0	0.0
9	☐		☐		☐		☐			
10	☐		☐		☐		☐			

Results

Receptor #1: Site Preparation

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
	Equipment	Lmax*	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
	Total	52.8	51.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	Backhoe	50.0	46.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	Slurry Trenching Machine	52.8	49.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3															
4															
5															

*Total Lmax is the value for the loudest piece of equipment.

Input Data

Case Description: Gemperle Pelletizing Project

Receptor

	Description	Land Use	Daytime Baseline (dBA)	Evening Baseline (dBA)	Nighttime Baseline (dBA)
1	Construction	Residential	5.0	5.0	5.0
2					
3					
4					

Noise Metric: Leq

Noise Limit Criteria

Receptor #1

Noise Limits

Equipment — **Receptor #1: Construction**

	Active	Description	Impact Device	Usage(%)	Spec Lmax (dBA)		Actual Lmax (dBA)		Distance to Receptor (feet)	Estimated Shielding (dBA)
3	☑	Gradall	☐	40%	☐	85.0	☑	83.4	1200.0	0.0
4	☑	Backhoe	☐	40%	☐	80.0	☑	77.6	1200.0	0.0
5	☑	Slurry Trenching Machine	☐	50%	☐	82.0	☑	80.4	1200.0	0.0
6	☑	Man Lift	☐	20%	☐	85.0	☑	74.7	1200.0	0.0
7	☑	Man Lift	☐	20%	☐	85.0	☑	74.7	1200.0	0.0
8	☑	Man Lift	☐	20%	☐	85.0	☑	74.7	1200.0	0.0

Results

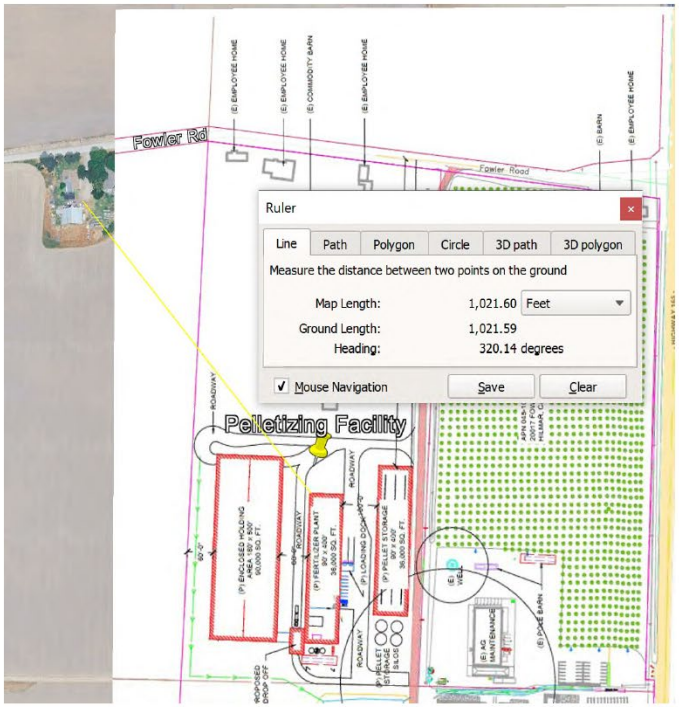
Receptor #1: Construction

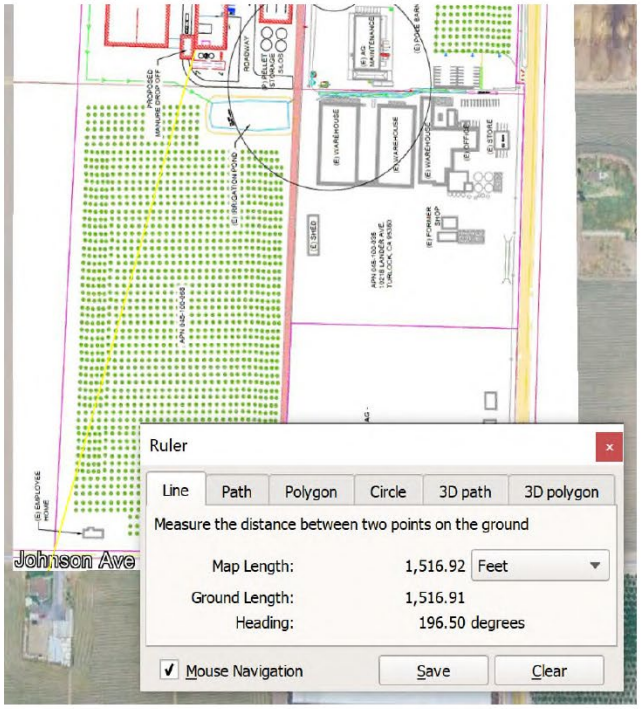
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
	Equipment	Lmax*	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
	Total	55.8	57.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	Gradall	55.8	51.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	Gradall	55.8	51.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	Gradall	55.8	51.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	Backhoe	50.0	46.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	Slurry Trenching Machine	52.8	49.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

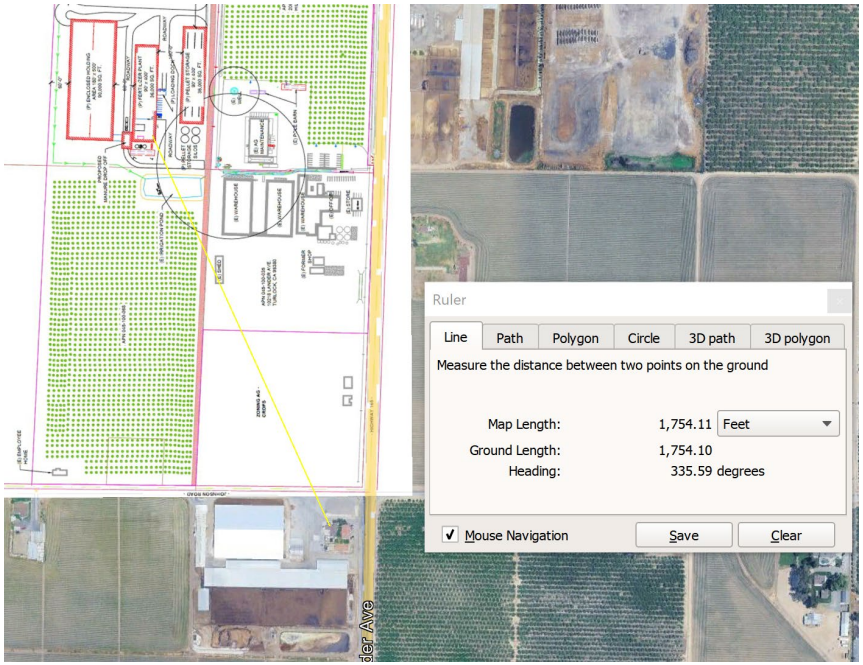
*Total Lmax is the value for the loudest piece of equipment.

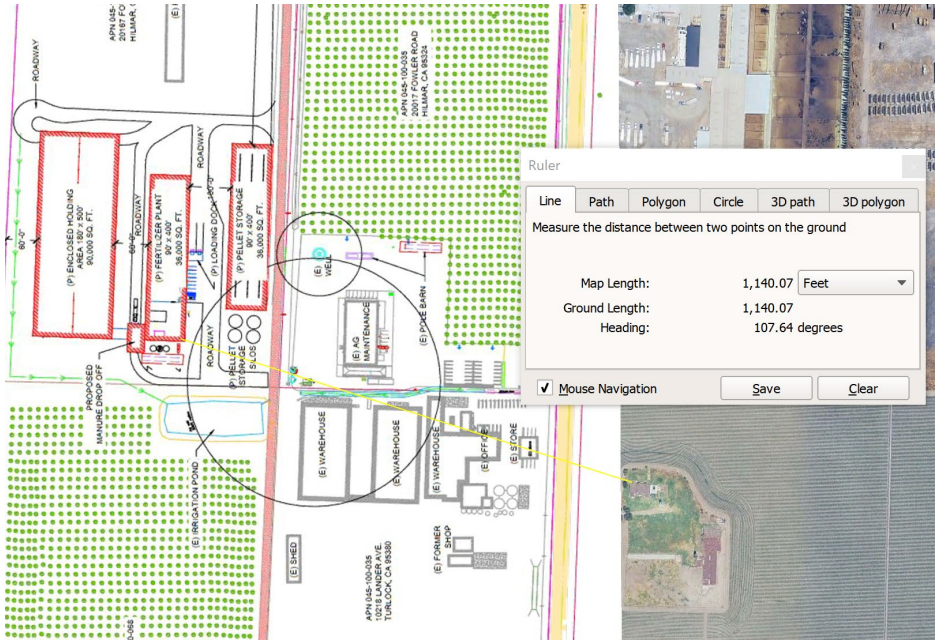
PREDICTED OPERATIONAL NOISE LEVELS

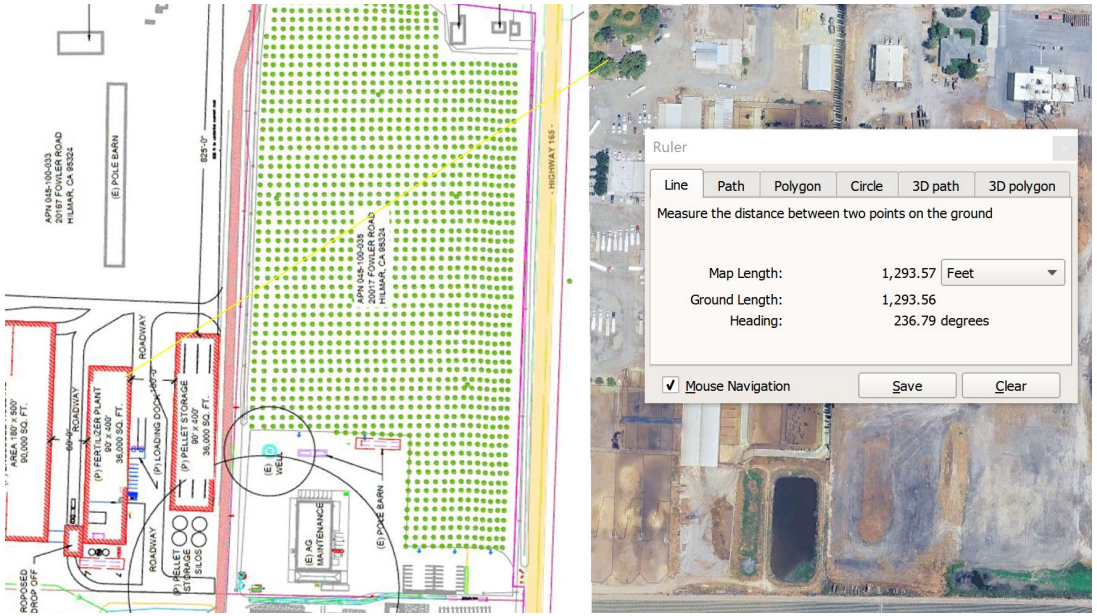
MAJOR PROCESSES WITH LARGE MOTORS	NUMBER	AMPS	REFERENCE NOISE LEVEL (DBA)	REFERENCE DISTANCE (M)	COMBINED NOISE LEVEL (DBA)	BUILDING ENCLOSURE	HIGHEST NOISE LEVEL AT BUILDING EXTERIOR (DBA)	DISTANCE TO NEAREST RECEPTOR (FEET)	PREDICTED NOISE LEVEL (DBA)	EXCEEDS 55/75 EXTERIOR STANDARD?
LOADING HOPPER	1	65	98	1	98	-15	83	1020	32	
SIEVE	1	51	95	1	95	-15	80	1020	29	
MIXER	1	65	98	1	98	-15	83	1020	32	
FEEDING BIN FOR PELLET LINE	1	30	95	1	95	-15	80	1020	29	
PELLET MILL	3	100	98	1	103	-15	88	1020	37	
PELLET DRYER	1	30	95	1	95	-15	80	1020	29	
SIEVE	1	40	95	1	95	-15	80	1020	29	
LINE DUST RECOVERY	2	32	95	1	98	-15	83	1020	32	
					107	-15	92	1020	41	NO






Ruler
Line
Path
Polygon
Circle
3D path
3D polygon
Measure the distance between two points on the ground
Map Length: 1,754.11 Feet
Ground Length: 1,754.10
Heading: 335.59 degrees
Mouse Navigation
Save
Clear


Ruler
Line
Path
Polygon
Circle
3D path
3D polygon
Measure the distance between two points on the ground
Map Length: 1,140.07 Feet
Ground Length: 1,140.07
Heading: 107.64 degrees
Mouse Navigation
Save
Clear


Ruler
Line
Path
Polygon
Circle
3D path
3D polygon
Measure the distance between two points on the ground
Map Length: 1,293.57 Feet
Ground Length: 1,293.56
Heading: 236.79 degrees
Mouse Navigation
Save
Clear

APPENDIX D

Transportation Impact Analysis

Central Coast Transportation Consulting
Traffic Engineering & Transportation Planning

MEMORANDUM

Date: December 1, 2025

To: Matthew "Lee" Moore, SWCA Environmental Consultants

From: Michelle Matson and Joe Fernandez, CCTC

Subject: Merced Pellet Plant –Transportation Impact Analysis

This memorandum evaluates transportation issues associated with the proposed manure pelletizing facility located at 20167 Fowler Road in the unincorporated area of Hilmar in Merced County. The project proposes the storage and processing of manure into a pelletized fertilizer including a 39,000 square foot processing facility, a 90,000 square foot manure storage facility, and a 37,000 square foot bulk storage facility on eight acres of land. Typical operations of the proposed project would have a less-than-significant impact on transportation.

PROJECT IMPACT ANALYSIS

This section evaluates potential transportation impacts of the project including the existing setting, trip generation, and vehicle miles traveled (VMT).

Existing Setting

Fowler Road is an east/west two-lane undivided road with no posted speed limit or pedestrian or bicycle facilities in the vicinity of the project. State Route (SR) 165 is a north/south two-lane highway with left turn lanes at the Fowler Road intersection.

Collision data was obtained from the California Crash Reporting System (CCRS). Between 2022 and 2024, one collision was reported on Fowler Road west of State Route (SR) 165 when an eastbound driver ran off the road and hit a parked vehicle and the mailbox adjacent to the on-site home at 20215 Fowler Road.

Trip Generation

The proposed facility is anticipated to operate up to six days per week and 24 hours per day. The facility will initially operate Monday through Thursday from 6 AM to 6 PM. Eventually the facility will operate Monday through Saturday with two shifts (5 AM to 5PM and 5 PM to 5 AM) with approximately 10 to 15 employees.

The number of vehicle trips generated by the project was estimated using the Institute of Transportation Engineer's (ITE) Trip Generation Manual 12th Edition. **Table 1** summarizes the trip generation for the proposed manure pelletizing facility.

Table 1: Trip Generation

Trip Generation								
		Weekday	AM Peak Hour			PM Peak Hour		
Land Use	Size	Daily	In	Out	Total	In	Out	Total
Manufacturing	15 Employees	54	4	2	6	6	13	19
Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 12th Edition. Land Use Code #140, Manufacturing; fitted curve equations used.								

The proposed project would generate 54 net new vehicle trips per weekday, including six AM peak hour trips and 19 PM peak hour trips using ITE rates. Note that this estimate is conservatively since it does not apply any

reduction for internal employee trips from the on-site employee residences. It also does not apply a credit for current uses on site. The applicant estimates approximately 30 trips per day.

Vehicle Miles Traveled

CEQA Guidelines §15064.3 covers the evaluation of a project's transportation impacts and requires that the transportation impact analysis consider vehicle miles traveled (VMT). CEQA Guidelines §15064.3(a), states, "For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project." Here, the term "automobile" refers to on-road passenger vehicles, specifically cars and light trucks (Governor's Office of Planning and Research, Technical Advisory on Evaluating Transportation Impact in CEQA (2018). Heavy duty trucks, such as those associated with materials and equipment delivery, would not be considered in the evaluation of VMT impacts under the requirements of CEQA Guidelines §15064.3.

OPR's Technical Advisory cited above notes that projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant impact. The County has not adopted VMT thresholds at this time but is expected to consider and possibly adopt the VMT Thresholds and Implementation Guidelines prepared for the Merced County Association of Governments (MCAG, November 2022). These Guidelines recommend a screening threshold of 1,000 trips per day for projects consistent with the lead agency's General Plan.

The estimated project trip generation is well below the recommended screening thresholds from both OPR and MCAG. Therefore, the project would have a less than significant impact on VMT.

REFERENCES

Gemperle Family Farms. Operation Statement.

Institute of Transportation Engineers. 2025. Trip Generation Manual, 12th Edition.

Merced County Association of Governments. 2022. VMT Thresholds and Implementation Guidelines.

_____. 2013. 2030 Merced County General Plan Background Report.