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**APPENDIX A**  
***Scoping Summary***

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**California Department of Food and Agriculture  
Turlock North Valley Laboratory  
Replacement Project**

**Scoping Summary**

**Prepared for:**

State of California  
Department of General Services  
707 Third Street  
West Sacramento, CA 95605

**On behalf of the Lead Agency:**

California Department of Food and Agriculture  
1220 N Street  
Sacramento, CA 95814

**Prepared by:**

Horizon Water and Environment, LLC  
400 Capitol Mall, Suite 2500  
Sacramento, CA 95814  
Contact: Tom Engels, Ph.D.  
(916) 790-8548

**May 2021**



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### Attachments

- Public Notices
- Meeting Materials
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## SCOPING SUMMARY

*Scoping* refers to the public outreach process used under the California Environmental Quality Act (CEQA) to determine the coverage and content of an environmental impact report (EIR). The scoping comment period offers an important opportunity for the public and agencies to review and comment during the early phases of the environmental compliance process. Scoping contributes to the selection of a range of alternatives to be considered in the EIR, and can also help to establish methods of analysis, identify the environmental effects that will be considered in detail, and develop mitigation measures to avoid or compensate for adverse effects. In some cases, it may also identify issues that the public feels do not warrant analysis.

This summary describes the scoping process undertaken by the California Department of Food and Agriculture (CDFA) for the Turlock North Valley Laboratory Project (Project). It also summarizes comments received. Comments are reproduced in their entirety in the attachments to this report.

### Overview of Project Scoping Process

Scoping is initiated when the lead agency issues a Notice of Preparation (NOP) announcing the beginning of the EIR process. As required by CEQA and the CEQA Guidelines, an NOP was developed that provided information on the background, goals, and objectives of the Proposed Project; announced preparation of, and requested public and agency comment on, the EIR; and provided information on the public scoping meeting to be held in support of the EIR. A copy of the NOP and the accompanying initial study (IS) is included in the attachments to this report.

The NOP and IS for the Project were prepared in accordance with CEQA Guidelines Section 15082 and received by the State Office of Planning and Research, State Clearinghouse on February 26, 2021, which initiated the public scoping period. The NOP was distributed for review and comment to numerous federal and state agencies; departmental and public services agencies within Stanislaus County and the City of Turlock; and private property owners within 500 feet of the Project's 27-acre parcel. The private property owner mailing list was provided by the Stanislaus County Assessor's Office. The public review continued for 40 days and ended on April 7, 2021.

On March 16, 2021, the CDFA conducted a virtual public scoping meeting via Zoom for the Proposed Project. The meeting was held from 5:30 p.m. to 7:30 p.m. The meeting was held virtually because of the Governor's mandated restrictions on group gatherings related to COVID-19. Notices of the meeting were mailed to interested parties. In addition, scoping meeting information was published in two local area newspapers, the *Modesto Bee* and the *Turlock Journal*, and on the project website (<http://bit.ly/DGSCEQA>) before the event to encourage attendance. The public meeting date, time, and location information were also included in the NOP and mailed to numerous households, offices, and agencies. Copies of the newspaper advertisement and NOP distribution list are included in the attachments to this report.

In addition to DGS and contractor staff, approximately seven individuals attended the scoping meeting. The meeting began with a brief presentation to provide an overview of the Proposed Project and the CEQA process. Afterward, attendees were given an opportunity to provide verbal and written scoping comments. No attendees provided comments. All of the meeting materials from the scoping meeting, including the PowerPoint presentation, have been included as attachments to this report.

CDFA accepted written comments at the meeting, as well as during the 40-day scoping period. During the scoping period, three comment letters were received. These comments have been included as an attachment to this report.

## Public Comments Received

### March 16, 2021 Meeting Summary

Because the meeting was held virtually, no sign-in list was available for attendees. Approximately seven individuals attended at least a portion of the meeting. No attendees provided comments.

### Comment Letters

Three comment letters were received during the scoping period. Copies of all comments received from the public are included in the attachments to this report.

## Comment Summary by Topic

Comments received during the scoping period may be placed in one of three categories, as follows: Initial Study, EIR, and Permits and Regulations. No comments on the Initial Study were submitted. Comments addressing the scope of the EIR relate to biological



resources, cultural and tribal cultural resources, and hydrology and water quality. Comments on permits and regulations relate to suggested recommendations on permits that may need to be obtained for the project and compliance with regulations. These comments have been considered in the EIR evaluation.

## Initial Study

- No comments on the Initial Study were submitted.

## EIR

### *Project Description*

- A resident near the proposed site requested information about hours and days of business for the facility, as well as possible obstruction of a dirt road between the resident's property and the facility.

### *Air Quality*

- A nearby resident inquired whether the Cremator would emit odors or unwanted gaseous pollutants such as methane.

### *Biological Resources*

- CDFW is concerned regarding potential impacts to special-status species from the ground disturbance development activities, including but not limited to, the State threatened Swainson's hawk (*Buteo swainsoni*), and the State species of special concern burrowing owl (*Athene cunicularia*).
- CDFW provided recommended mitigation measures for Swainson's hawk surveys, no-disturbance buffers, foraging habitat, and take authorization.
- CDFW provided recommended mitigation measures for burrowing owl surveys, avoidance, and passive relocation.
- CDFA provided recommendations to avoid impacts on nesting birds.
- CDFW requested that information on special-status species be reported to the California Natural Diversity Database.
- CDFW provided information about filing fees.

### *Cultural and Tribal Cultural Resources*

- The Native American Historical Commission (NAHC) provided information about the tribal consultation process and recommendations for cultural resource assessments.

### *Hydrology and Water Quality*

- The Central Valley Regional Water Quality Control Board (RWQCB) provided information about the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins* (Basin Plan) and antidegradation considerations for wastewater discharges.
- A nearby resident asked whether stormwater runoff from project access roads would be routed away from existing properties.
- A resident voiced concerns about the potential for the project to affect the quality of water in domestic wells.

### *Transportation*

- A resident noted that traffic on Dianne Drive is often busy and the speed limit (45 mph) makes access difficult.

### *Utilities and Service Systems*

- A resident asked whether the existing overhead telephone lines would be removed or replaced, possibly with fiber optic connections.

## **Permits and Regulations**

- CDFW may need to exercise regulatory authority under the Fish and Game Code; the project may be subject to a Lake and Streambed Alteration Agreement and/or authorization under the California Endangered Species Act.
- The Central Valley RWQCB provided information about the need for a Construction Storm Water General Permit for projects that disturb one or more acres of soil; Phase I and II Municipal Separate Storm Sewer System (MS4) permits; Industrial Storm Water General permits; Clean Water Act Section 404 permits and Section 401 water quality certification; waste discharge requirements (WDRs); and dewatering permits.

## **Public Notices**

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## **Notice of Preparation**

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## Notice of Preparation

Date: February 26, 2021

To: State Clearinghouse, Responsible Agencies, Trustee Agencies, Federal Agencies, Interested Parties, and Organizations

Subject: **Notice of Preparation of a Draft Environmental Impact Report for the CDFA Turlock Laboratory Replacement Project in Turlock, California**

Lead Agency: California Department of Food and Agriculture, 1220 N Street, Sacramento, CA 95814

Contact: Dakota Smith, Senior Environmental Planner  
State of California Department of General Services  
Real Estate Services Division, Project Management & Development Branch  
707 Third Street, 4<sup>th</sup> Floor, MS509  
West Sacramento, CA 95605  
[Dakota.Smith@dgs.ca.gov](mailto:Dakota.Smith@dgs.ca.gov)

### Purpose of Notice

The California Department of Food and Agriculture (CDFA), with assistance from the Department of General Services – Real Estate Services Division (DGS), is the lead agency for preparation of an environmental impact report (EIR) pursuant to the California Environmental Quality Act (CEQA) for construction and operation of the CDFA Turlock Laboratory Replacement Project (Proposed Project).

Pursuant to provisions of CEQA, DGS has prepared a Notice of Preparation (NOP) for the Proposed Project. The purpose of the NOP is to solicit comments from responsible and trustee agencies, and interested parties on the scope and content of the environmental information to be included in the EIR.

### Project Location

The Proposed Project site will be an approximately 7-acre development within an approximately 27-acre parcel, located at 830 Dianne Drive (Assessor's parcel number 089-021-004-000) in the City of Turlock in Stanislaus County (see the attached figure). The 27-acre parcel has been acquired by the State of California for this Project.

### Project Description

The project description is contained in the Initial Study. The NOP and Initial Study can be downloaded at <http://bit.ly/DGSCEQA>

### Potential Environmental Effects

The EIR will analyze the reasonably foreseeable direct, indirect and cumulative effects (e.g., climate change) of the Proposed Project and on focused resources, including but not limited to:

- Agriculture
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Energy
- Hazards and Hazardous Materials
- Hydrology/Water Quality
- Noise
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems

Comments provided in response to the NOP and during the scoping meeting, and ensuing analyses, may identify additional environmental resources to be evaluated.

### **Public Review Period**

The Notice of Preparation is being circulated for public review and comment for a period of 40 days beginning **February 26, 2021**. **Written comments will be accepted by DGS through 5:00 P.M. on April 7, 2021**. Comments must be mailed or emailed to Dakota Smith at the above addresses.

The Notice of Preparation is available for review at the following locations:

California Department of General Services: 707 Third Street, Fourth Floor, Suite 401, West Sacramento, CA 95605 (916) 591-1609

<http://bit.ly/DGSCEQA>

Alternate formats of this document are available upon request.

### **Scoping Meeting**

To provide the public and regulatory agencies an opportunity to provide input on the scope of the EIR, a scoping meeting will be held during the NOP review period. The scoping meeting will solicit input from the public and public agencies regarding the nature and scope of environmental impacts to be addressed in the Draft EIR. Prepared written comments will be accepted during the meetings, as well as throughout the 40-day NOP review period. A virtual scoping meeting will be held from **5:30 pm - 7:30 pm on Tuesday, March 16, 2021 via Zoom using the Zoom information identified below**. If reasonable accommodation is needed, please contact Dakota Smith at the contact information listed above.

**Zoom Link:** <https://zoom.us/j/99404436022>

**Webinar ID:** 994 0443 6022

**Or by Telephone:** 1-669-900-9128 or 1-253-215-8782

Please contact Dakota Smith if you have any questions about the environmental review process for the CDFA Turlock Laboratory Replacement Project.

Sincerely,

*Kevin Masuhara*      2/26/2021

Kevin Masuhara, Deputy Secretary Administration and Finance  
California Department of Food and Agriculture

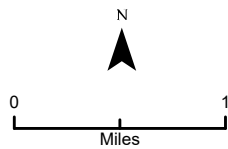




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Basemap Sources: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand),

Prepared by:



**Figure 1.**  
Project Vicinity



## **Newspaper Ad**

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# Air district issues health caution

STAFF REPORTS  
Turlock Journal

Blowing dust as a result of gusty winds has prompted local air pollution officials to issue a health cautionary statement through Saturday evening for San Joaquin, Stanislaus, Merced, Madeira, Fresno, Kings, Tulare, and the Valley portion of Kern counties.

A low pressure system will generate gusty northwesterly winds as it moves across the region. Winds will begin increasing in the northern and western parts of the Valley and then spread across the rest of the Valley through Saturday evening. The gusty winds will cause localized blowing dust in areas where soils are exceptionally dry—creating

unhealthy concentrations of particulate matter 10 microns and smaller (PM10). Exposure to particulate pollution can cause serious health problems, aggravate lung disease, trigger asthma attacks and bronchitis, and increase risk of respiratory infections.

Where conditions warrant, people with heart or lung disease should follow

their doctors' advice for dealing with episodes of particulate exposure. Additionally, older adults and children should avoid prolonged exposure or heavy exertion, depending on their local conditions.

For more information, visit [www.valleyair.org](http://www.valleyair.org) or call 209-557-6400.

# AgREPORT

## ► STATE BOARD OF FOOD AND AG TO DISCUSS FOOD ASSISTANCE INITIATIVES AND NUTRITION

The California State Board of Food and Agriculture will discuss a variety of initiatives related to food assistance and farm to school programs at its upcoming meeting on March 2. The Board will also hear updates on California farmers' markets and have a presentation on California's Master Plan For Aging, which includes priorities to address hunger and nutritional needs of older Californians.

The meeting will be held from 10 a.m. – 1 p.m. Tuesday via GoToWebinar.

Meeting Link: <https://attendee.gotowebinar.com/register/7250741937101739276>

Webinar ID: 629-625-083

"California's farmers and ranchers are an invaluable part of food and nutritional assistance programs," said CDFA Secretary Karen Ross. "There are many opportunities for engagement and great work is being done at the local level to improve access and support communities and individuals in need."

Invited speakers include: Director Kim McCoy Wade, California Department of Aging; Stacia Levenfeld and Maria Houlne, California Association of Food Banks; Steve Brazeel, SunTerra Produce; Stephen Gutwillig, Sustainable Economic Enterprises of Los Angeles (SEELA); Sarah Hansen and Nicholas Anicich, CDFA's Office of Farm to Fork; Paul Towers, Community Alliance with Family Farmers (CAFF); and Allen Moy, Pacific Coast Farmers' Market Association.

"Over the last year, we have seen an evolution in the connection between growers and food banks, food pantries and faith based organizations," said President Don Cameron, California State Board of Food and Agriculture. "As a result, I believe the agricultural community is valuing food donations as an integral part of business operations."

The California State Board of Food and Agriculture advises the governor and CDFA secretary on agricultural issues and consumer needs. The Board conducts forums that bring together local, state and federal government officials; agricultural representatives; and citizens to discuss current issues and concerns to California agriculture.

This meeting will have simultaneous audio translation in Spanish and can be accessed at (844) 460-0074 at the start of the meeting.

Follow the board on twitter at: [www.twitter.com/California\\_food\\_agboard](http://www.twitter.com/California_food_agboard)

## Turlock home targeted in drive by shooting

BY SABRA STAFFORD  
Turlock Journal

A Turlock home was struck by several rounds of gunfire Thursday but none of the occupants were injured.

The shooting happened around 1:30 a.m. Thursday at a home in the 100 block

of Sunday Drive.

The police were alerted to the incident when they received multiple calls reporting shots fired in the area of Sunday and Sunbird drives.

"Officers responded and checked the area but did not locate anyone," said Turlock Police spokesperson Sgt. Michael Parmley. "Approximately 30 minutes later, we

received a call of a drive-by shooting at a residence at this location."

The three adult occupants told officers they had been asleep when the shooting happened and didn't call until they noticed their residence had been struck multiple times.

Officers on scene located evidence of the shooting in front of the home, in the roadway and inside the house, Parmley said.

Officers will be doing follow up investigations to see if any nearby residences captured the suspect vehicle on camera.

## Man pretends to be law enforcement to get a free Turlock motel room

BY SABRA STAFFORD  
Turlock Journal

A man was arrested for impersonating a peace officer after using a phony badge to try and get into a Turlock motel room, the Stanislaus County Sheriff's Department reported.

A housekeeper at the motel in the 5000 block of N. Golden State Boulevard said she was approached by a man who pulled out a gold-

colored badge and advised her that he was an undercover police officer and needed to be let into a room. The housekeeper told him that he needed to go to the front desk. The housekeeper then notified the front desk who called law enforcement, according to the sheriff's department.

A deputy responded to the scene but the suspect had already left.

Shortly before 11 a.m. the motel called the sheriff's department again to report the suspect was back. Again, a deputy responded and again the suspect was gone.

However, the deputy located him in a restaurant parking lot next door.

The suspect was identified as Alejandro Madrigal, 35. He was taken into custody and the badge was booked into evidence.



Alejandro Madrigal

## Stanislaus County serial robber charged with Iowa murder

BY SABRA STAFFORD  
Turlock Journal

A Modesto man convicted for a series of armed robberies in Turlock and Modesto has been extradited to Iowa to face a murder charge.

Mykel Roberts, 29, was convicted in 2019 for a series of armed robberies of gas stations, mini marts and one pizza place during a spree that started in March 2019 and continued through July 2019.

The Modesto Police Department said Roberts would enter the businesses either alone or with an accomplice and use a firearm to threaten the employees and demand the cash. He was usually wearing a mask. In the Turlock robbery, which happened at the Chevron gas station at 2901 Geer Rd., Roberts fired a gun at the clerk, however, no injuries were reported.

Roberts' capture was put into motion when the Modesto Police Department Street Gang Unit spotted him while patrolling in the area of Sutter and Rouse avenues. Roberts matched the description of a suspect wanted for robbing a Little Caesar's Pizza shop and was driving a black older model Honda Accord that was reported stolen out of Turlock earlier that day.

The officers attempted to stop Roberts, but he sped away. The decision was made to end the pursuit quickly because of Robert's reckless driving and the number of motorists on the street. He was last seen getting onto Highway 99, headed south.

Roberts took the Crows Landing Road exit and continued to Ustick and Lynne Renee Court where he crashed the stolen vehicle and fled on foot. He was eventually captured hiding inside a friend's house in the 1500 block of Lynne Renee Court.

Detectives with the Major Crimes Unit took over the investigation and a search warrant was served at the address on Lynne Renee Court. As the investigation progressed, Roberts was found to be the suspect in seven commercial robberies involving a suspect using a short barreled AR15 type rifle. Four robberies occurred within the jurisdiction of the Stanislaus County Sheriff's Department, three in Modesto and the one robbery in Turlock.

Roberts was convicted of the robberies and was serving his sentence when in March 2020, he decided to confess to a shooting in Cedar Rapids, Iowa.

Roberts allegedly had some information, but was uncertain of the victim's name. A detective in the Stanislaus County Sheriff's Department interviewed Roberts to attempt to collect further details and verify the confession and eventually the victim was identified as Dexter Meeks, 22, of Cedar Rapids.

Shortly before 3 a.m. June 26, 2011, Meeks was sitting on the porch of his apartment building with his brother, Andrew Meeks. The two had just walked home from the Tycoon Bar in downtown Cedar Rapids, according to the Cedar Rapids Police Department.

"While they were outside talking, Andrew Meeks observed a man walk eastbound out of the alley next to their apartment building," the police department said. "The subject stopped in the street and began shooting a handgun at Dexter and Andrew Meeks. Andrew Meeks told investigators that he was able to get inside the main door of the building while Dexter Meeks pushed him through the doorway. After getting inside the building, Andrew Meeks stated that he looked back to see Dexter Meeks had fallen in the entryway. Dexter Meeks had sustained a gunshot wound



Mykel Roberts

to the head and would succumb to his injuries a short time later."

Investigators believe the shooting was tied to an altercation that had happened earlier at the bar.

"Investigators interviewed Roberts and obtained a complete, detailed confession that supported and corroborated many details of the shooting incident that were learned during the investigation," the police department said.

The Linn County Attorney's Office in Iowa filed a three-count complaint charging Roberts with murder in the first degree, attempted murder and going armed with intent. He is being held on a \$3 million bail.

The warrant was served to Roberts in California and he was extradited to the Linn County Jail.

## Conservation Corner

### Annual irrigation system maintenance helps prevent water loss

A poorly maintained irrigation system prevents water from reaching its intended source and instead a significant amount of precious water can be lost to runoff, evaporation and deep watering below the root zone. Maintaining your irrigation system is one of the most effective ways to reduce wasted water, reduce pollution from run-off and over-irrigation, and improve plant health by applying the correct amount of water

where it can be utilized by the plants, trees and turf. Ideally, irrigation systems should be checked on a monthly basis. However, a minimum check of the irrigation system should be performed twice seasonally. Once at the beginning of the season when the system is first turned on and again halfway through the season.

#### THE BASICS OF IRRIGATION MAINTENANCE ARE:

1. Inspect the controller and

make sure it's plugged in and functioning.  
2. Update the time and date.  
3. Check the connection on all of the wires – make sure that rain, wind, or soil moisture sensors are connected.  
4. Replace the back-up battery.  
5. Change the schedule to reflect the City of Turlock's current watering schedule for allowed watering days and times.  
6. Turn on each zone and

look for system damage such as:  
(a) Leaking valves or pipes  
(b) Broken or missing heads  
(c) Clogged nozzles  
(d) Seal leaks  
(e) Sunken heads  
(f) Tilted heads

For questions or additional information, please contact Municipal Services at 209-668-5590. Brought to you by the City of Turlock Municipal Services Department.

### CONSERVATION TIP

Winter Watering Schedule: The City of Turlock's Winter Water Schedule, which limits watering to one day per week, remains in effect through Feb. 28. Even numbered residences can water on Saturdays only and odd numbered residences can water on Sundays. Watering is prohibited between the hours of 9 a.m. and 7 p.m.

## Join us for a Virtual CEQA public scoping meeting

on the

## CDFA Turlock Laboratory Replacement Project

The California Department of Food and Agriculture (CDFA), with assistance from the Department of General Services (DGS), is preparing an environmental impact report (EIR) for construction and operation of the CDFA Turlock Laboratory Replacement Project at 830 Dianne Dr in Turlock, CA, pursuant to the California Environmental Quality Act (CEQA). Information regarding the project is available at: <http://bit.ly/DGSCEQA>. DGS requests input from interested individuals, public agencies, and other parties regarding the scope and content of the EIR during the public scoping period. The scoping period will begin on Friday, February 26, 2021 and ends on Wednesday, April 7, 2021 at 5:00 p.m. During this period, DGS will hold a virtual public meeting on the following date and location via the online meeting platform, Zoom, using the link, meeting ID, and password identified below.

**Tuesday, March 16, 2021 from 5:30 p.m. to 7:30 p.m.**

**Zoom Link:**

<https://zoom.us/j/99404436022>

**Webinar ID: 994 0443 6022**

**Or by Telephone: 1-669-900-9128 or 1-253-215-8782**

Will you need an accommodation in order to attend and/or participate in this event? If so, please contact Dakota Smith, Department of General Services, at [Dakota.smith@dgs.ca.gov](mailto:Dakota.smith@dgs.ca.gov) or (916) 591-0483.



## AFFIDAVIT OF PUBLICATION

Account #	Ad Number	Identification	PO	Amount	Cols	Depth
805952	0004878120	Join us for a Virtual CEQA public scoping meeting	Legal Notice	\$245.10	2	2.50 In

**Attention:** Megan Giglini

HORIZON WATER AND ENVIRONMENT, LLC  
400 CAPITOL MALL, SUITE 2500  
SACRAMENTO, CA 95814

Join us for a  
Virtual CEQA public scoping meeting  
on the  
CDFA Turlock Laboratory Replacement Project

The California Department of Food and Agriculture (CDFA), with assistance from the Department of General Services (DGS), is preparing an environmental impact report (EIR) for construction and operation of the CDFA Turlock Laboratory Replacement Project at 830 Dianne Dr in Turlock, CA, pursuant to the California Environmental Quality Act (CEQA). Information regarding the project is available at: <http://bit.ly/DGSCEQA>. DGS requests input from interested individuals, public agencies, and other parties regarding the scope and content of the EIR during the public scoping period. The scoping period will begin on Friday, February 26, 2021 and ends on Wednesday, April 7, 2021 at 5:00 p.m. During this period, DGS will hold a virtual public meeting on the following date and location via the online meeting platform, Zoom, using the link, meeting ID, and password identified below.

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Zoom Link: <https://zoom.us/j/99404436022>  
Webinar ID: 994 0443 6022  
Or by Telephone: 1-669-900-9128 or 1-253-215-8782

Will you need an accommodation in order to attend and/or participate in this event? If so, please contact Dakota Smith, Department of General Services, at [Dakota.smith@dgs.s.ca.gov](mailto:Dakota.smith@dgs.s.ca.gov) or (916) 591-0483.

### Declaration of Publication C.C.P. S2015.5

STATE OF CALIFORNIA )  
 ) ss.  
County of Stanislaus )

I am a citizen of the United States; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am a printer and principal clerk of the publisher of the The Modesto Bee, which has been adjudged a newspaper of general circulation by the Superior Court of the County of Stanislaus, State of California, under the date of February 25, 1951 Action No. 46453. The notice of which the annexed is a printed copy has been published in each issue thereof on the following dates, to wit:

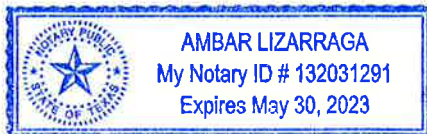
February 26, 2021

Legal Clerk

I certify (or declare) under penalty of perjury that the foregoing is true and correct and that this declaration was executed at Dallas, Texas on:

Date: 8th, day of March, 2021

Notary Signature



## Meeting Materials

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# CDFA Turlock North Valley Laboratory Replacement Project

CEQA Scoping Meeting  
March 16, 2021

# Today's Presenters

- **Annette Jones, DVM** – Director and State Veterinarian, CDFA
- **John Adaska, DVM, PhD** – Co-Director, California Animal Health and Food Safety Lab System
- **Tom Engels, PhD** – Principal, Horizon Water and Environment

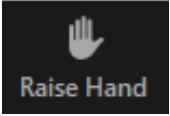
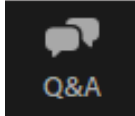
# Overview of Zoom Features

Zoom features are located along the black tool bar at the bottom of your screen:

- Chat – This feature is disabled.
- Raise Hand – Click this to indicate that you would like to speak at the end of the presentation.
- Q&A – Click this to ask a question to the panelists. Time permitting, the host will read the question aloud at the end of the presentation and provide a response.



# Meeting Format

- **This Zoom call is being recorded**
- Presentation slides are available on the project website
- Attendees are muted during the presentation:
  -  If an attendee would like to speak at the end of the presentation, the attendee should raise its hand
  -  To ask a question, please use the Q&A button. We will read the question aloud at the end of the presentation and response
- At the end of the presentation, attendees with raised hands will be called upon individually and unmuted so that they can speak for up to 2 minutes, time permitting.

# Meeting Agenda

1. Meeting purpose and protocol
2. Project overview
3. Overview of the California Environmental Quality Act (CEQA)
4. Receipt of public comment

# Meeting Purpose

CEQA Scoping: To allow the public and agencies to provide input on the scope and content of the project's environmental impact analysis.

Scoping comments inform the scope and nature of the CEQA environmental analysis.

# Meeting Protocol

- Make clear and succinct comments so that we can effectively capture the comment in notes.
- Be respectful of others and differing points of view.

# Project Background & Purpose

- Relocate the California Animal Health and Food Safety (CAHFS) Turlock Laboratory to a new site and facility with adequate space for necropsy, laboratory, and office functions to provide full services to the livestock and poultry farmers in the region.
- Consolidate two Animal Health and Food Safety Services (AHFSS) field offices to a central location.





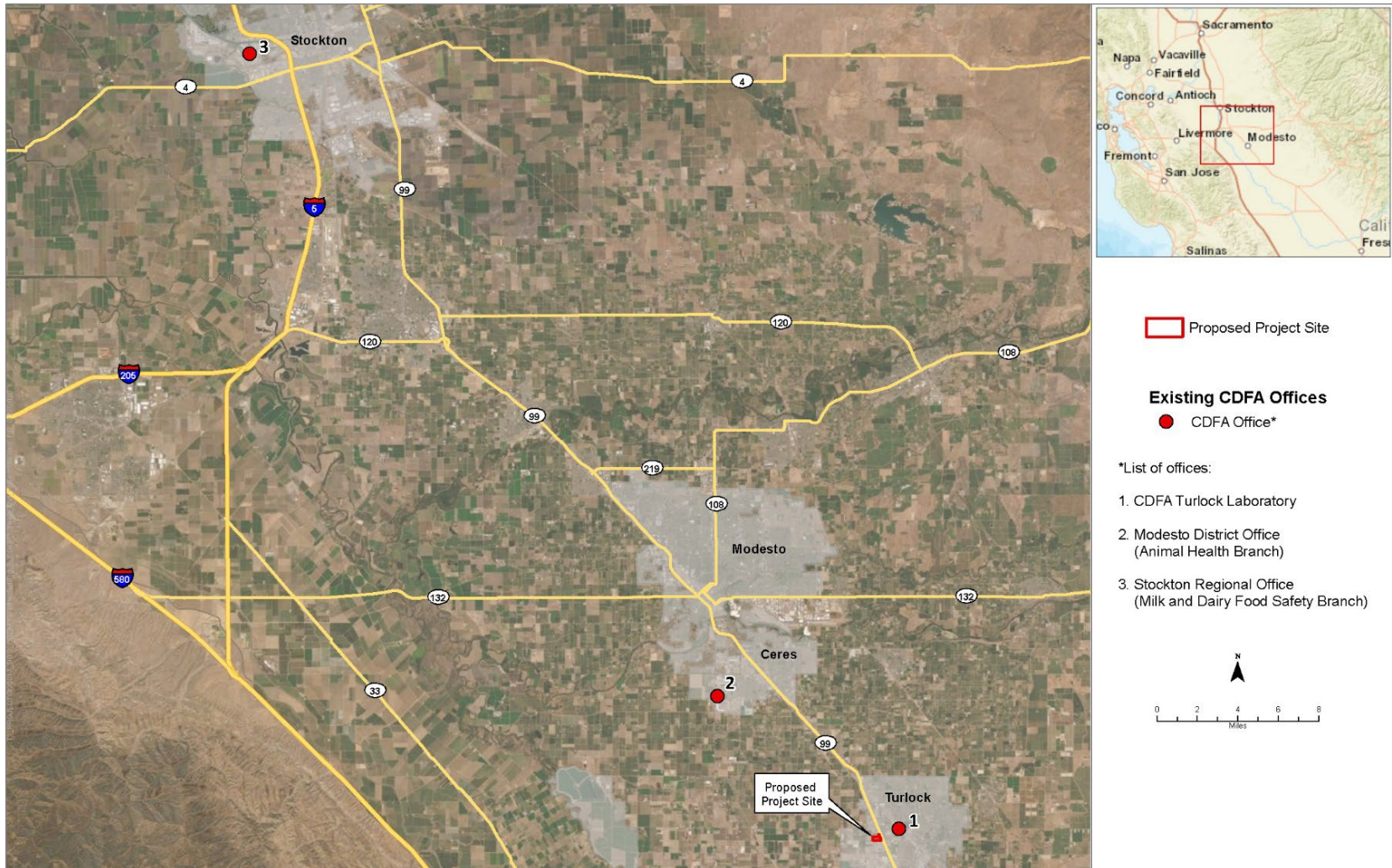
# Project Objectives

- Replace and relocate outdated and fragmented facilities with modern necropsy, laboratory, and office facilities on one campus to maximize efficiencies while maintaining the safety requirements for laboratory facilities;
- Provide improved client access to veterinary diagnostic services in a relatively underserved area;
- Provide enhanced identification of potential diseases occurring in mammalian species;
- Develop sufficient space and appropriate infrastructure to meet the current and evolving threats to public and animal health, such as emerging diseases, bioterrorism and food safety.

# Project Location



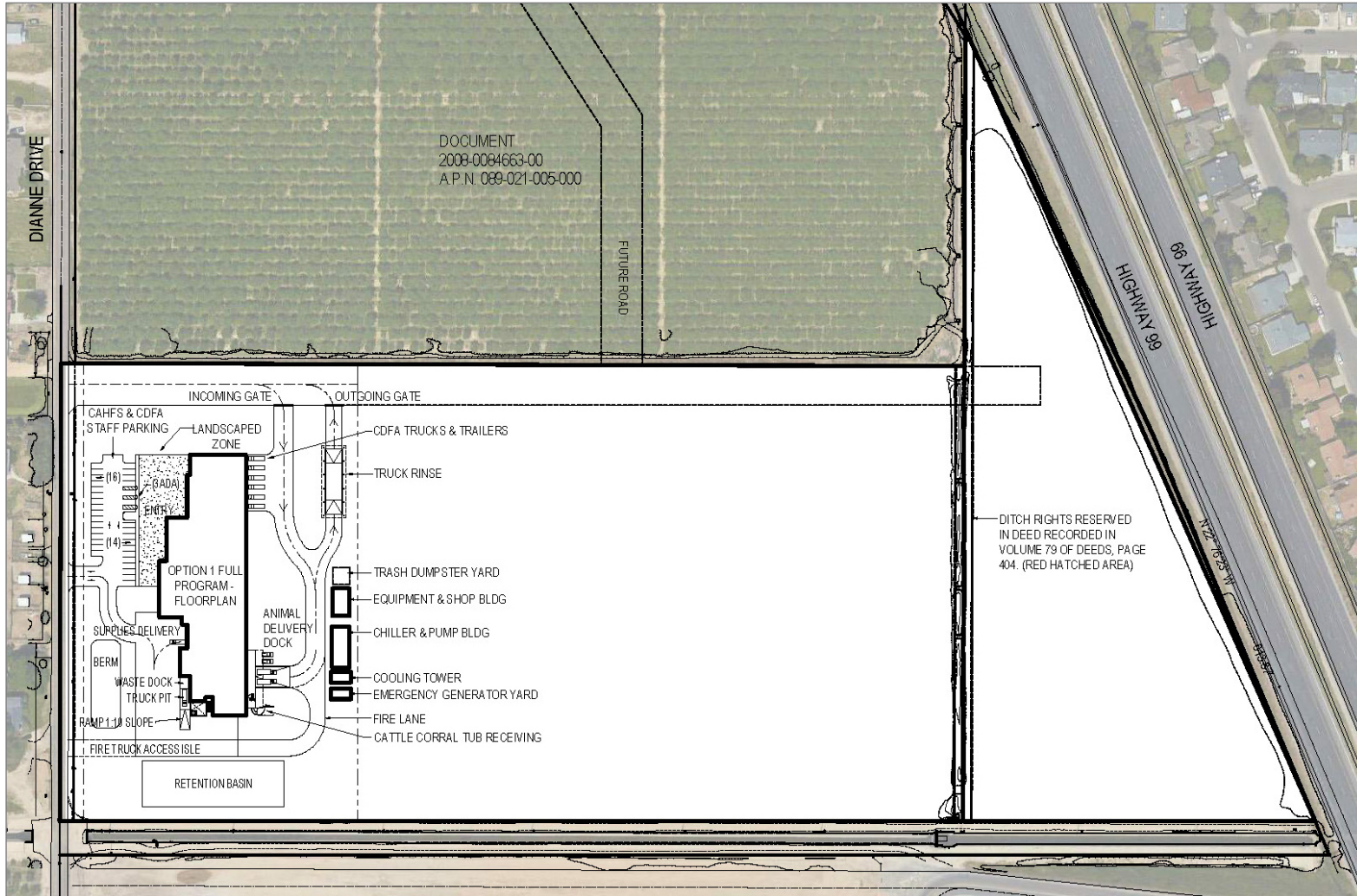
# CAHFS Offices



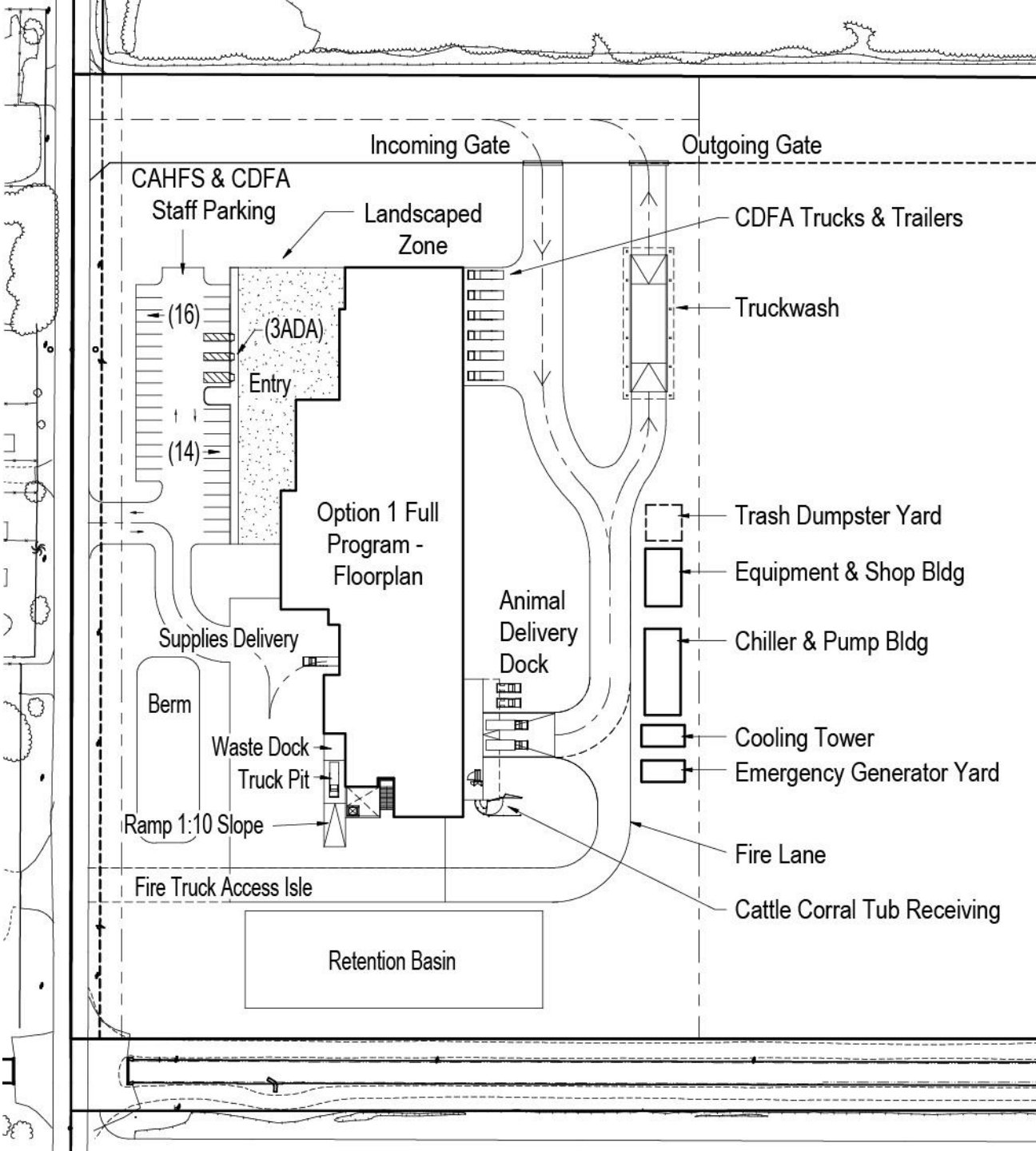
# Project Components

- Structures
  - Laboratory & office building
  - Possible cooling tower
  - Chiller and pump building
  - Hazardous waste/chemical storage area
  - Equipment shop building
- Ancillary Improvements
  - Fencing
  - Landscape & irrigation
  - Lighting
- Truck Rinse Area
- Miscellaneous Site Elements
  - Cremator
  - Generator enclosure
  - Parking
  - Access driveway
  - Sidewalk improvements

# Conceptual Site Layout



# Conceptual Site Layout Details

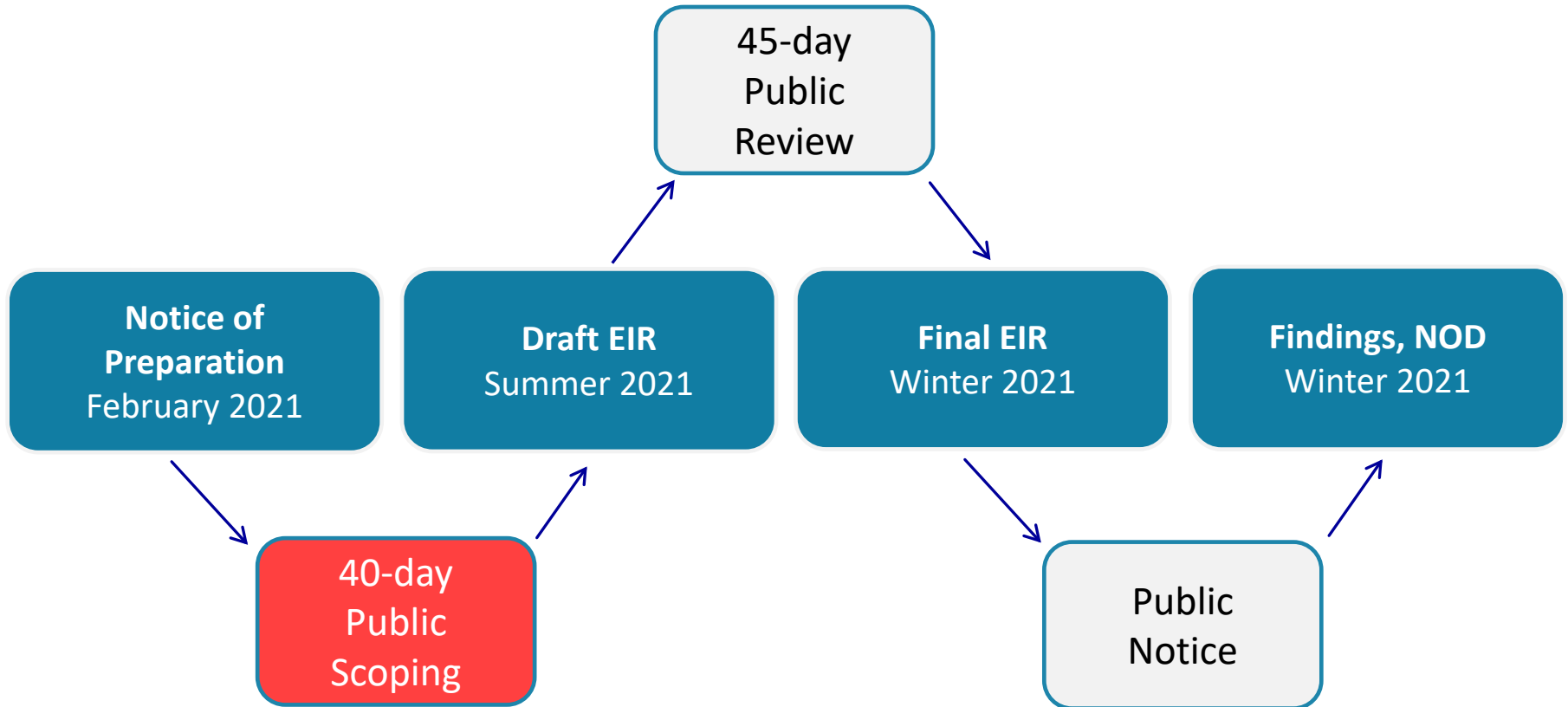


# CEQA Overview

Basic purposes of CEQA (State CEQA Guidelines, Section 15002):

- Inform governmental decision makers and public about potential, significant environmental effects of proposed activities.
- Identify ways that environmental damage can be avoided or significantly reduced.
- Prevent significant, avoidable damage to environment by requiring changes in projects through the use of alternatives or mitigation measures when governmental agency finds changes to be feasible.
- Disclose to public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

# EIR Process





# CEQA Resource Topics

- Aesthetics
- Agricultural resources
- Air quality
- Biological resources
- Cultural resources
- Energy
- Geology and soils
- Greenhouse gas emissions
- Hazards and hazardous materials
- Hydrology and water quality
- Land use and planning
- Mineral resources
- Noise
- Population and housing
- Public services
- Recreation
- Transportation
- Tribal cultural resources
- Utilities and service systems
- Wildfire
- Cumulative impacts

# Focused EIR

- The purpose of a Focused EIR is to evaluate resource topics that might have potentially significant impacts.
- These are the resource topics that have been carried forward to the EIR:
  - Agriculture
  - Air quality
  - Biological resources
  - Cultural resources
  - Energy
  - Geology/Soils
  - Greenhouse gas emissions
  - Hazards and hazardous materials
  - Hydrology and Water Quality
  - Mineral Resources
  - Noise
  - Transportation
  - Tribal Cultural Resources
  - Utilities and Service Systems

# Purpose of Scoping

To provide the public and agencies the opportunity to provide input on the scope and content of the environmental impact analysis.

Scoping comments can include information on:

- ✓ Potential environmental issues
- ✓ Potential mitigation measures
- ✓ Characteristics of the existing environment
- ✓ Resources that may be cumulatively affected

# To Download the Initial Study

The Initial Study for the Turlock Lab Replacement Project can be downloaded at the following website. Click on the Stanislaus County menu bar to see the download link.

**<http://bit.ly/DGSCEQA>**

# How to Comment

Submit oral comments tonight.

We encourage the public to submit written comments via mail or email. Send comments to:

Dakota Smith, Senior Environmental Planner  
State of California Department of General Services  
Real Estate Services Division, Project Management &  
Development Branch  
707 Third Street, 4th Floor, MS509  
West Sacramento, CA 95605  
Dakota.Smith@dgs.ca.gov

Comments accepted until **5:00 p.m.** on **Wednesday, April 7, 2021.**



## **Public Comments Received**

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**From:** Michael Daniel [REDACTED]  
**Sent:** Friday, March 19, 2021 2:09 PM  
**To:** Smith, Dakota@DGS <[Dakota.Smith@dgs.ca.gov](mailto:Dakota.Smith@dgs.ca.gov)>  
**Subject:** Turlock North Lab Replacement Project

---

Hi Dakota,

I have a few questions about this Proposed Project that is South and adjacent to our almond orchard property on Dianne Drive.

1. There is a dirt road between our almond orchard and the Proposed Property. I believe this is part of our easement with that land. We have used this dirt road since 1978 to access our burn pile, irrigation valves, and is also used for our beekeepers to install/remove and inspect bee hives. Will the Proposed Project interfere with our access to this road? Example: Fences, roads and other obstructions.
2. Will the Cremator have any environmental impacts to our almond orchard and home during the winter South winds? In other words is it going to give off nasty odors and unwanted gaseous pollutants. Methane and other gases can destroy our buds on the trees for the following crop.
3. Will we be protected from Storm water runoff from the delivery access roads next to our almond orchard? Oils and chemicals running into our almond orchard during heavy rains.
4. What are the hours and days of business for this Proposed Project?
5. Right now the speed limit on Dianne Dr. is 45mph. We have a considerable traffic right now. Getting out of our driveway, or walking across the street to get our mail is becoming more dangerous. Will the State try to reduce the speed limit or the amount of traffic on Dianne Dr. in cooperation with the City of Turlock?
6. Will the existing overhead telephone lines be removed or replaced? We have intermittent problems with this at least twice a year because it is old and beat up. If removed will the Proposed Project utilize the fiber optic across the street, will the downstream households have the fiber optic connected at the Proposed Project's cost?
7. We have a domestic well that is our only means for water. How is the Proposed Project going to guaranty that no chemicals are going to infiltrate the aquifer(groundwater)? If that becomes an issue, will the Proposed Project pay for the installation of city water to our residence? City water pipe running down Dianne Dr.
8. Is the State of California interested in purchasing our property for future further developments?

I may have more questions coming to you Dakota.

Thanks,

Michael Daniel  
[REDACTED]  
Turlock, Ca. 95380



State of California – Natural Resources Agency  
DEPARTMENT OF FISH AND WILDLIFE  
Central Region  
1234 East Shaw Avenue  
Fresno, California 93710  
(559) 243-4005  
[www.wildlife.ca.gov](http://www.wildlife.ca.gov)

**GAVIN NEWSOM, Governor**  
**CHARLTON H. BONHAM, Director**



**Governor's Office of Planning & Research**

**Apr 12, 2021**

**STATE CLEARINGHOUSE**

April 9, 2021

Kevin Masuhara, Deputy Secretary  
California Department of Food and Agriculture  
1220 N Street  
Sacramento, California 95380  
Kevin.Masuhara@cdfa.ca.gov

**Subject: CDFW Turlock Laboratory Replacement Project (Project)  
Notice of Preparation (NOP)  
SCH No.: 2021020514**

Dear Mr. Masuhara:

The California Department of Fish and Wildlife (CDFW) received a NOP from the California Department of Food and Agriculture for the above-referenced Project pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.<sup>1</sup>

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, CDFW appreciates the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under Fish and Game Code.

While the comment period may have ended, CDFW would appreciate if you will still consider our comments.

### **CDFW ROLE**

CDFW is California's **Trustee Agency** for fish and wildlife resources and holds those resources in trust by statute for all the people of the State (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a)). CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (*Id.*, § 1802). Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts,

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<sup>1</sup> CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

Kevin Masuhara  
California Department of Food and Agriculture  
April 9, 2021  
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focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW is also submitting comments as a **Responsible Agency** under CEQA (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381). CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority (Fish & G. Code, § 1600 et seq.). Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), related authorization as provided by the Fish and Game Code will be required.

**Nesting Birds:** CDFW has jurisdiction over actions with potential to result in the disturbance or destruction of active nest sites or the unauthorized take of birds. Fish and Game Code sections that protect birds, their eggs and nests include sections 3503 (regarding unlawful take, possession or needless destruction of the nest or eggs of any bird), 3503.5 (regarding the take, possession or destruction of any birds-of-prey or their nests or eggs), and 3513 (regarding unlawful take of any migratory nongame bird).

In this role, CDFW is responsible for providing, as available, biological expertise during public agency environmental review efforts (e.g., CEQA), focusing specifically on Project activities that have the potential to adversely affect fish and wildlife resources. CDFW provides recommendations to identify potential impacts and possible measures to avoid or reduce those impacts.

## **PROJECT DESCRIPTION SUMMARY**

**Proponent:** California Department of Food and Agriculture

**Objective:** The Project proposes to relocate the existing California Animal Health and Food Safety Turlock Laboratory to a new site and facility with adequate space for necropsy, laboratory, and office functions to provide full services to the livestock and poultry farmers in the region, and consolidate two field offices to a central location. The proposed Project will provide adequate workspace, equipment storage, and vehicle parking for the employees assigned to this office, approximately 44 current employees, increasing to 59 total employees in the future. Proposed facilities would include a laboratory building, cremator, access driveway, truck rinse pit, parking areas, an emergency generator, and other utility and ancillary improvements.

**Location:** The Project site will be an approximately 7-acre development within an approximately 27-acre parcel, located at 830 Dianne Drive in the City of Turlock in Stanislaus County.

**Timeframe:** N/A.

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## COMMENTS AND RECOMMENDATIONS

CDFW offers the following comments and recommendations to assist the California Department of Food and Agriculture in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Editorial comments or other suggestions may also be included to improve the document.

The EIR that will be prepared will determine the likely environmental impacts associated with the Project. CDFW is concerned regarding potential impacts to special-status species from the ground disturbance development activities, including but not limited to, the State threatened Swainson's hawk (*Buteo swainsoni*), and the State species of special concern burrowing owl (*Athene cunicularia*).

### I. Environmental Setting and Related Impact

**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 CDFW or the United States Fish and Wildlife Service (USFWS)?**

#### COMMENT 1: Swainson's Hawk (SWHA)

**Issue:** SWHA have the potential to nest and forage adjacent to the Project site. The proposed Project will involve work activities near large trees that may serve as potential nest sites.

**Specific impacts:** Without appropriate avoidance and minimization measures for SWHA, potential significant impacts that may result from Project activities include: nest abandonment, loss of nest trees, loss of foraging habitat that would reduce nesting success (loss or reduced health or vigor of eggs or young), and direct mortality. Any take of SWHA without appropriate incidental take authorization would be a violation of Fish and Game Code.

**Evidence impact is potentially significant:** SWHA exhibit high nest-site fidelity year after year and lack of suitable nesting habitat in the San Joaquin Valley limits their local distribution and abundance (CDFW 2016). Approval of the Project will lead to subsequent ground-disturbing activities that involve noise, groundwork, and movement of workers that could affect nests and has the potential to result in nest abandonment, significantly impacting local nesting SWHA.

#### Recommended Potentially Feasible Mitigation Measure(s)

To evaluate potential impacts to SWHA, CDFW recommends conducting the following evaluation of the Project site, incorporating the following mitigation measures into the

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California Department of Food and Agriculture  
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EIR prepared for this Project, and that these measures be made conditions of approval for the Project.

### **Recommended Mitigation Measure 1: SWHA Surveys**

To evaluate potential impacts, CDFW recommends that a qualified wildlife biologist conduct surveys for nesting SWHA following the survey methods developed by the Swainson's Hawk Technical Advisory Committee (SWHA TAC, 2000) prior to project implementation. The SWHA TAC recommends a 0.5-mile survey distance from the limits of disturbance. The survey protocol includes early season surveys to assist the project proponent in implementing necessary avoidance and minimization measures, and in identifying active nest sites prior to initiating ground-disturbing activities.

### **Recommended Mitigation Measure 2: SWHA No-disturbance Buffer**

If ground-disturbing activities are to take place during the normal bird breeding season (March 1 through September 15), CDFW recommends that additional pre-activity surveys for active nests be conducted by a qualified biologist no more than 10 days prior to the start of Project implementation to ensure that no SWHA have begun nesting activities near the Project site. CDFW recommends a minimum no-disturbance buffer of 0.5-mile be delineated around active nests until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival.

### **Recommended Mitigation Measure 3: SWHA Foraging Habitat Mitigation**

The Project proposed development in suitable foraging habitat. CDFW recommend compensation for the loss of Swainson's hawk foraging habitat as described in the Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (CDFG, 1994) to reduce impacts to foraging habitat to less than significant. The Staff Report recommends that mitigation for habitat loss occur within a minimum distance of 10 miles from known nest sites. CDFW has the following recommendations based on the Staff Report:

- For projects within 1 mile of an active nest tree, a minimum of one acre of habitat management (HM) land for each acre of development is advised.
- For projects within 5 miles of an active nest but greater than 1 mile, a minimum of 0.75 acres of HM land for each acre of development is advised.

For projects within 10 miles of an active nest tree but greater than 5 miles from an active nest tree, a minimum of 0.5 acres of HM land for each acre of development is advised.

### **Recommended Mitigation Measure 4: SWHA Take Authorization**

CDFW recommends that in the event an active SWHA nest is detected during surveys and a 0.5-mile no-disturbance buffer is not feasible, consultation with CDFW is

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warranted to discuss how to implement the project and avoid take. If take cannot be avoided, take authorization through the issuance of an Incidental Take Permit (ITP), pursuant to Fish and Game Code section 2081 subdivision (b) is necessary to comply with CESA.

## **COMMENT 2: Burrowing Owl (BUOW)**

**Issue:** BUOW may occur within and/or adjacent to the Project site. BUOW inhabit open grassland or adjacent canal banks, ROWs, vacant lots, etc. containing small mammal burrows, a requisite habitat feature used by BUOW for nesting and cover. Based on aerial photography, potential habitat occurs both within and bordering the Project site.

**Specific impact:** Potentially significant direct impacts associated with subsequent activities and development include burrow collapse, inadvertent entrapment, nest abandonment, reduced reproductive success, reduction in health and vigor of eggs and/or young, and direct mortality of individuals.

**Evidence impact is potentially significant:** BUOW rely on burrow habitat year-round for their survival and reproduction. Habitat loss and degradation are considered the greatest threats to BUOW in California's Central Valley (Gervais et al. 2008). Therefore, subsequent ground-disturbing activities associated with Project approval have the potential to significantly impact local BUOW populations. In addition, and as described in CDFW's "Staff Report on Burrowing Owl Mitigation" (CDFG 2012), excluding and/or evicting BUOW from their burrows is considered a potentially significant impact under CEQA.

### **Recommended Potentially Feasible Mitigation Measure(s) (Regarding Environmental Setting and Related Impact)**

To evaluate potential impacts to BUOW, CDFW recommends conducting the following evaluation of the Project site, incorporating the following mitigation measures into the EIR prepared for this Project, and that these measures be made conditions of approval for the Project.

#### **Recommended Mitigation Measure 5: BUOW Surveys**

CDFW recommends a qualified biologist determine if burrows that are suitable for BUOW are present on the Project site. If suitable burrows are present, CDFW recommends assessing presence/absence of BUOW by having a qualified biologist conduct surveys following the California Burrowing Owl Consortium's "Burrowing Owl Survey Protocol and Mitigation Guidelines" (CBOC 1993) and CDFW's "Staff Report on Burrowing Owl Mitigation" (CDFG 2012). Specifically, the California Burrowing Owl Consortium (CBOC) and CDFW's Staff Report suggest three or more surveillance surveys conducted during daylight with each visit occurring at least three weeks apart during the peak breeding season (April 15 to July 15), when BUOW are most detectable.

Kevin Masuhara  
 California Department of Food and Agriculture  
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### **Recommended Mitigation Measure 6: BUOW Avoidance**

CDFW recommends no-disturbance buffers, as outlined in the “Staff Report on Burrowing Owl Mitigation” (CDFG 2012), be implemented prior to and during any ground-disturbing activities. Specifically, CDFW’s Staff Report recommends that impacts to occupied burrows be avoided in accordance with the following table unless a qualified biologist approved by CDFW verifies through non-invasive methods that either: 1) the birds have not begun egg laying and incubation; or 2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

Location	Time of Year	Level of Disturbance		
		Low	Med	High
Nesting sites	April 1-Aug 15	200 m*	500 m	500 m
Nesting sites	Aug 16-Oct 15	200 m	200 m	500 m
Nesting sites	Oct 16-Mar 31	50 m	100 m	500 m

\* meters (m)

### **Recommended Mitigation Measure 7: BUOW Passive Relocation and Mitigation**

If BUOW are found within these recommended buffers and avoidance is not possible, it is important to note that according to the Staff Report (CDFG 2012), exclusion is not a take avoidance, minimization, or mitigation method and is considered a potentially significant impact under CEQA. However, if necessary, CDFW recommends that burrow exclusion be conducted by qualified biologists and only during the non-breeding season, before breeding behavior is exhibited and after the burrow is confirmed empty through non-invasive methods, such as surveillance. CDFW recommends replacement of occupied burrows with artificial burrows at a ratio of 1 burrow collapsed to 1 artificial burrow constructed (1:1) as mitigation for the potentially significant impact of evicting BUOW. BUOW may attempt to colonize or re-colonize an area that will be impacted; thus, CDFW recommends ongoing surveillance, at a rate that is sufficient to detect BUOW if they return.

## **II. Editorial Comments and/or Suggestions**

**Nesting birds:** CDFW encourages that Project implementation occur during the bird non-nesting season; however, if ground-disturbing or vegetation-disturbing activities must occur during the breeding season (February through mid-September), the Project applicant is responsible for ensuring that implementation of the Project does not result in violation of the Migratory Bird Treaty Act or relevant Fish and Game Codes as referenced above.

To evaluate Project-related impacts on nesting birds, CDFW recommends that a qualified wildlife biologist conduct pre-activity surveys for active nests no more than 10 days prior to the start of ground or vegetation disturbance to maximize the probability that nests that could potentially be impacted are detected. CDFW also recommends that surveys cover a

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California Department of Food and Agriculture  
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sufficient area around the Project sites to identify nests and determine their status. A sufficient area means any area potentially affected by the Project. In addition to direct impacts (i.e., nest destruction), noise, vibration, and movement of workers or equipment could also affect nests. Prior to initiation of construction activities, CDFW recommends that a qualified biologist conduct a survey to establish a behavioral baseline of all identified nests. Once construction begins, CDFW recommends having a qualified biologist continuously monitor nests to detect behavioral changes resulting from the Project. If behavioral changes occur, CDFW recommends halting the work causing that change and consulting with CDFW for additional avoidance and minimization measures.

If continuous monitoring of identified nests by a qualified wildlife biologist is not feasible, CDFW recommends a minimum no-disturbance buffer of 250 feet around active nests of non-listed bird species and a 500-foot no-disturbance buffer around active nests of non-listed raptors. These buffers are advised to remain in place until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or on-site parental care for survival. Variance from these no-disturbance buffers is possible when there is compelling biological or ecological reason to do so, such as when the construction areas would be concealed from a nest site by topography. CDFW recommends that a qualified wildlife biologist advise and support any variance from these buffers and notify CDFW in advance of implementing a variance.

## **ENVIRONMENTAL DATA**

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. (e)). Accordingly, please report any special-status species and natural communities detected during Project surveys to the CNDDDB. The CNDDDB field survey form can be found at the following link: <https://www.wildlife.ca.gov/Data/CNDDDB/Submitting-Data>. The completed form can be mailed electronically to CNDDDB at the following email address: [CNDDDB@wildlife.ca.gov](mailto:CNDDDB@wildlife.ca.gov). The types of information reported to CNDDDB can be found at the following link: <https://www.wildlife.ca.gov/Data/CNDDDB/Plants-and-Animals>.

## **FILING FEES**

If it is determined that the Project has the potential to impact biological resources, an assessment of filing fees will be necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089).



Kevin Masuhara  
California Department of Food and Agriculture  
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CDFW appreciates the opportunity to comment on the Project to assist the California Department of Food and Agriculture in identifying and mitigating the Project's impacts on biological resources.

More information on survey and monitoring protocols for sensitive species can be found at CDFW's website (<https://www.wildlife.ca.gov/Conservation/Survey-Protocols>). If you have any questions, please contact Jim Vang, Environmental Scientist, at the address provided on this letterhead, by telephone at (559) 243-4014 extension 254, or by electronic mail at [Jim.Vang@wildlife.ca.gov](mailto:Jim.Vang@wildlife.ca.gov).

Sincerely,

DocuSigned by:

*Julie A. Vance*

041A77B10D78486...

Julie A. Vance  
Regional Manager

Attachment

ec: Dakota Smith, California Department of General Services  
[Dakota.Smith@dgs.ca.gov](mailto:Dakota.Smith@dgs.ca.gov)

Kevin Masuhara  
California Department of Food and Agriculture  
April 9, 2021  
Page 9

## LITERATURE CITED

California Burrowing Owl Consortium (CBOC). 1993. Burrowing owl survey protocol and mitigation guidelines. April 1993.

California Department of Fish and Game. 1994. Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (*Buteo Swainsoni*) in the Central Valley of California. California Department of Fish and Game.

California Department of Fish and Wildlife (CDFW). 2012. Staff Report on Burrowing Owl Mitigation. California Department of Fish and Game, March 7, 2012.

CDFW. 2016. Five Year Status Review for Swainson's Hawk (*Buteo swainsoni*). California Department of Fish and Wildlife. April 11, 2016.

Gervais, J.A., D.D. Rosenberg, and L.A. Comrack. Burrowing Owl (*Athene cunicularia*) in Shuford, W.D. and T. Gardali, editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento, California, USA.

Swainson's Hawk Technical Advisory Committee (SWHA TAC). 2000. Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley. Swainson's Hawk Technical Advisory Committee, May 31, 2000.

**Attachment 1**

**CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE  
RECOMMENDED MITIGATION MONITORING AND REPORTING PROGRAM  
(MMRP)**

**PROJECT: CDFA Turlock Laboratory Replacement Project**

**SCH No.: 2021020514**

<b>RECOMMENDED MITIGATION MEASURE</b>	<b>STATUS/DATE/INITIALS</b>
<i>Before Disturbing Soil or Vegetation</i>	
Mitigation Measure 1: SWHA Surveys	
Mitigation Measure 3: SWHA Foraging Habitat Mitigation	
Mitigation Measure 4: SWHA Take Authorization	
Mitigation Measure 5: BUOW Surveys	
Mitigation Measure 7: BUOW Passive Relocation and Mitigation	
<i>During Construction</i>	
Mitigation Measure 2: SWHA No-disturbance Buffer	
Mitigation Measure 6: BUOW Avoidance	

## NATIVE AMERICAN HERITAGE COMMISSION

March 1, 2021

Kevin Masuhara, Deputy Secretary  
California Department of Food and Agriculture  
1220 N Street  
Sacramento, CA 95814

**Re: 2021020514, CDFA Turlock Laboratory Replacement Project, Stanislaus County**

Dear Mr. Masuhara:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b))). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1))). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

**Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.**



CHAIRPERSON  
**Laura Miranda**  
*Luiseño*

VICE CHAIRPERSON  
**Reginald Pagaling**  
*Chumash*

SECRETARY  
**Merri Lopez-Keifer**  
*Luiseño*

PARLIAMENTARIAN  
**Russell Attebery**  
*Karuk*

COMMISSIONER  
**William Mungay**  
*Paiute/White Mountain Apache*

COMMISSIONER  
**Julie Tumamait-Stenslie**  
*Chumash*

COMMISSIONER  
[Vacant]

COMMISSIONER  
[Vacant]

COMMISSIONER  
[Vacant]

EXECUTIVE SECRETARY  
**Christina Snider**  
*Pomo*

**NAHC HEADQUARTERS**  
1550 Harbor Boulevard  
Suite 100  
West Sacramento,  
California 95691  
(916) 373-3710  
[nahc@nahc.ca.gov](mailto:nahc@nahc.ca.gov)  
[NAHC.ca.gov](http://NAHC.ca.gov)

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

- 1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project:** Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:
  - a.** A brief description of the project.
  - b.** The lead agency contact information.
  - c.** Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
  - d.** A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).
  
- 2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report:** A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subs. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1 (b)).
  - a.** For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).
  
- 3. Mandatory Topics of Consultation If Requested by a Tribe:** The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
  - a.** Alternatives to the project.
  - b.** Recommended mitigation measures.
  - c.** Significant effects. (Pub. Resources Code §21080.3.2 (a)).
  
- 4. Discretionary Topics of Consultation:** The following topics are discretionary topics of consultation:
  - a.** Type of environmental review necessary.
  - b.** Significance of the tribal cultural resources.
  - c.** Significance of the project's impacts on tribal cultural resources.
  - d.** If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).
  
- 5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process:** With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).
  
- 6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document:** If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
  - a.** Whether the proposed project has a significant impact on an identified tribal cultural resource.
  - b.** Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

- 7. Conclusion of Consultation:** Consultation with a tribe shall be considered concluded when either of the following occurs:
- a.** The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
  - b.** A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).
- 8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document:** Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).
- 9. Required Consideration of Feasible Mitigation:** If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).
- 10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:**
- a.** Avoidance and preservation of the resources in place, including, but not limited to:
    - i.** Planning and construction to avoid the resources and protect the cultural and natural context.
    - ii.** Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
  - b.** Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
    - i.** Protecting the cultural character and integrity of the resource.
    - ii.** Protecting the traditional use of the resource.
    - iii.** Protecting the confidentiality of the resource.
  - c.** Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
  - d.** Protecting the resource. (Pub. Resource Code §21084.3 (b)).
  - e.** Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).
  - f.** Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).
- 11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource:** An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
- a.** The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.
  - b.** The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
  - c.** The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: [http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation\\_CalEPAPDF.pdf](http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf)

## SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: [https://www.opr.ca.gov/docs/09\\_14\\_05\\_Updated\\_Guidelines\\_922.pdf](https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf).

Some of SB 18's provisions include:

1. **Tribal Consultation:** If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. **No Statutory Time Limit on SB 18 Tribal Consultation.** There is no statutory time limit on SB 18 tribal consultation.
3. **Confidentiality:** Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. **Conclusion of SB 18 Tribal Consultation:** Consultation should be concluded at the point in which:
  - a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
  - b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: <http://nahc.ca.gov/resources/forms/>.

### NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center ([http://ohp.parks.ca.gov/?page\\_id=1068](http://ohp.parks.ca.gov/?page_id=1068)) for an archaeological records search. The records search will determine:
  - a. If part or all of the APE has been previously surveyed for cultural resources.
  - b. If any known cultural resources have already been recorded on or adjacent to the APE.
  - c. If the probability is low, moderate, or high that cultural resources are located in the APE.
  - d. If a survey is required to determine whether previously unrecorded cultural resources are present.
2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
  - a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
  - b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
  - a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
  - b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.
  
4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
  - a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
  - b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
  - c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: [Nancy.Gonzalez-Lopez@nahc.ca.gov](mailto:Nancy.Gonzalez-Lopez@nahc.ca.gov).

Sincerely,



Nancy Gonzalez-Lopez  
Cultural Resources Analyst

cc: State Clearinghouse



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## Central Valley Regional Water Quality Control Board

6 April 2021

Governor's Office of Planning & Research

**Apr 06 2021**

Dakota Smith  
Department of General Services  
707 Third Street, 4th Floor, MS509  
West Sacramento, CA 95605

**STATE CLEARINGHOUSE**

### **COMMENTS TO REQUEST FOR REVIEW FOR THE NOTICE OF PREPARATION FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT, TURLOCK LABORATORY REPLACEMENT PROJECT, SCH#2021020514, STANISLAUS COUNTY**

Pursuant to the State Clearinghouse's 26 February 2021 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Notice of Preparation for the Draft Environmental Impact Report* for the Turlock Laboratory Replacement Project, located in Stanislaus County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

#### **I. Regulatory Setting**

##### **Basin Plan**

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases, the United States Environmental

KARL E. LONGLEY SCD, P.E., CHAIR | PATRICK PULUPA, ESQ., EXECUTIVE OFFICER

Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues. For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:

[http://www.waterboards.ca.gov/centralvalley/water\\_issues/basin\\_plans/](http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/)

### **Antidegradation Considerations**

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Implementation Policy is available on page 74 at:

[https://www.waterboards.ca.gov/centralvalley/water\\_issues/basin\\_plans/sacsjr\\_2018\\_05.pdf](https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_2018_05.pdf)

In part it states:

*Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.*

*This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.*

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

## **II. Permitting Requirements**

### **Construction Storm Water General Permit**

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), Construction General Permit Order No. 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). For more information on the Construction General Permit, visit the State Water Resources Control Board website at:

[http://www.waterboards.ca.gov/water\\_issues/programs/stormwater/constpermits.shtml](http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml)

### **Phase I and II Municipal Separate Storm Sewer System (MS4) Permits<sup>1</sup>**

The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:

[http://www.waterboards.ca.gov/centralvalley/water\\_issues/storm\\_water/municipal\\_permits/](http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/)

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:

[http://www.waterboards.ca.gov/water\\_issues/programs/stormwater/phase\\_ii\\_municipal.shtml](http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml)

### **Industrial Storm Water General Permit**

Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 2014-0057-DWQ. For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:

[http://www.waterboards.ca.gov/centralvalley/water\\_issues/storm\\_water/industrial\\_general\\_permits/index.shtml](http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml)

### **Clean Water Act Section 404 Permit**

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACE). If a Section 404 permit is required by the USACE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements. If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACE at (916) 557-5250.

### **Clean Water Act Section 401 Permit – Water Quality Certification**

If an USACE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic

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<sup>1</sup> Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications. For more information on the Water Quality Certification, visit the Central Valley Water Board website at:  
[https://www.waterboards.ca.gov/centralvalley/water\\_issues/water\\_quality\\_certification/](https://www.waterboards.ca.gov/centralvalley/water_issues/water_quality_certification/)

**Waste Discharge Requirements – Discharges to Waters of the State**

If USACE determines that only non-jurisdictional waters of the State (i.e., “non-federal” waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation. For more information on the Waste Discharges to Surface Water NPDES Program and WDR processes, visit the Central Valley Water Board website at:  
[https://www.waterboards.ca.gov/centralvalley/water\\_issues/waste\\_to\\_surface\\_water/](https://www.waterboards.ca.gov/centralvalley/water_issues/waste_to_surface_water/)

Projects involving excavation or fill activities impacting less than 0.2 acre or 400 linear feet of non-jurisdictional waters of the state and projects involving dredging activities impacting less than 50 cubic yards of non-jurisdictional waters of the state may be eligible for coverage under the State Water Resources Control Board Water Quality Order No. 2004-0004-DWQ (General Order 2004-0004). For more information on the General Order 2004-0004, visit the State Water Resources Control Board website at:  
[https://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/water\\_quality/2004/wqo/wqo2004-0004.pdf](https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2004/wqo/wqo2004-0004.pdf)

**Dewatering Permit**

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Threat General Order) 2003-0003 or the Central Valley Water Board’s Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Threat Waiver) R5-2018-0085. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at:  
[http://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/water\\_quality/2003/wqo/wqo2003-0003.pdf](http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf)

For more information regarding the Low Threat Waiver and the application process, visit the Central Valley Water Board website at:  
[https://www.waterboards.ca.gov/centralvalley/board\\_decisions/adopted\\_orders/waivers/r5-2018-0085.pdf](https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2018-0085.pdf)

If you have questions regarding these comments, please contact me at (916) 464-4856 or [Nicholas.White@waterboards.ca.gov](mailto:Nicholas.White@waterboards.ca.gov).



Nicholas White  
Water Resource Control Engineer

cc: State Clearinghouse unit, Governor's Office of Planning and Research,  
Sacramento

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**APPENDIX B**  
***Local Laws, Regulations, and Policies***

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# Appendix B

## LOCAL LAWS, REGULATIONS, AND POLICIES

Development activities on state-owned land are exempt from local laws, regulations, and policies. However, such laws, regulations, and policies may apply to development activities not located on the Proposed Project site (e.g., connections to infrastructure within the public right-of-way). The following list identifies local laws, regulations, and policies that may be applicable to the Proposed Project.

### ACRONYMS AND ABBREVIATIONS

AB 32	(Assembly Bill 32) California Global Warming Solutions Act
BMP	best management practices
BPS	best performance standards
CAP	climate action plan
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
City	City of Turlock
CNL	community noise equivalent level
dB	decibel
dba	a-weighted decibel
ESA	Endangered Species Act
FMP	Farmland Mitigation Program
GHG	greenhouse gas emissions
HVAC	heating, ventilation, air conditioning
LAFCO	Stanislaus County Local Agency Formation Commission
Leq	equivalent noise level
LID	low impact development
NEPA	National Environmental Policy Act
RST	Stanislaus Regional Sustainability Toolbox
SJVAPCD	San Joaquin Valley Air Pollution Control District
TID	Turlock Irrigation District
VMT	vehicle miles traveled

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## AGRICULTURAL AND FORESTRY RESOURCES

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### Stanislaus County Local Agency Formation Commission

The Stanislaus County Local Agency Formation Commission's (LAFCO's) mission is to discourage urban sprawl, preserve open space and prime agricultural lands, promote the efficient provision of government services, and encourage the orderly formation of local agencies (LAFCO 2020). California Government Code Section 56668(e) requires LAFCO to consider the effect of a proposed project on the maintenance of the physical and economic integrity of agricultural lands (LAFCO 2020). To meet its mission and fulfill the requirements of Section 56668(e), LAFCO adopted the Agricultural Preservation Policy on September 26, 2012. The amended policy, adopted in 2019, contains the following goals (LAFCO 2020):

- Guide development away from agricultural lands where possible and encourage efficient development of existing vacant lands and infill properties within an agency's boundaries prior to conversion of additional agricultural lands;
- Fully consider the impacts a proposal will have on existing agricultural lands;
- Minimize the conversion of agricultural land to other uses; and
- Promote preservation of agricultural lands for continued agricultural uses while balancing the need for planned, orderly development and the efficient provision of services.

As required by the Agricultural Preservation Policy, a plan for agricultural preservation must be provided with any application for a sphere of influence expansion or annexation to a city or special district ("agency") providing one or more urban services (e.g., potable water, sewer services) that includes agricultural lands. Once the plan is provided, LAFCO then evaluates it based on specific criteria that must be met (LAFCO 2020).

### Stanislaus County General Plan

The Stanislaus County General Plan Agricultural Element includes goals and policies that are intended to promote and protect local agricultural resources (Stanislaus County 2016). The main goals of the Agricultural Element are to strengthen the agricultural sector of the local economy, conserve the county's agricultural lands for agricultural uses and protect the natural resources that sustain agriculture in Stanislaus County.

The following policies related to agricultural resources may be relevant to the Proposed Project:

#### **Land Use Element**

**Goal 1.** Provide for diverse land use needs by designating patterns which are responsive to the physical characteristics of the land as well as to environmental, economic, and social concerns of the residents of Stanislaus County.

**Policy 2.** Land designated Agriculture shall be restricted to uses that are compatible with agricultural practices, including natural resources management, open space, outdoor recreation, and enjoyment of scenic beauty.

**Goal 2.** Ensure compatibility between land uses.

**Policy 14.** Uses shall not be permitted to intrude into or be located adjacent to an agricultural area if they are detrimental to continued agricultural usage of the surrounding area.

**Goal 3.** Foster stable economic growth through appropriate land use policies.

**Policy 17.** Agriculture, as the primary industry of the County, shall be promoted and protected.

### **Open Space Element**

**Goal 3.** Provide for the long-term conservation and use of agricultural lands.

**Policy 11.** In areas designated “Agriculture” on the Land Use Element, discourage land uses which are incompatible with agriculture.

### **Agricultural Element**

**Goal 2.** Conserve agricultural lands for agricultural uses.

**Policy 2.5.** To the greatest extent possible, development shall be directed away from the County’s most productive agricultural areas.

### **Buffer and Setback Guidelines**

Appendix VII-A of the Stanislaus County General Plan includes buffer and setback guidelines. These guidelines are intended to establish standards for the development and maintenance of buffers and setbacks that are designed to physically avoid conflicts between agricultural and nonagricultural uses (Stanislaus County 2016). Specific guidelines that may relate to the Proposed Project are listed below:

- All projects shall incorporate a minimum 150-foot-wide buffer.
- A 6-foot-high fence of uniform construction shall be installed along the perimeter of the developed area of the use to prevent trespassing onto adjacent agricultural lands. Fencing shall not be required for uses which do not directly establish the potential for increased trespassing onto adjacent agricultural lands.
- Permitted uses within a buffer area shall include public roadways, utilities, drainage facilities, landscaping, parking lots and similar low human intensity uses. Walking and bike trails shall be allowed within buffers provided they are designed without rest areas.
- Landscaping within a buffer setback shall be designed to exclude turf areas which could induce activities and add to overall maintenance costs and water usage.

- A landowners association or other appropriate entity shall be required to maintain buffers to control litter, fire hazards, pests, and other maintenance problems when a project consists of multiple parcels which may be held, or have the potential to be held, under separate ownership.
- The property owner, landowners association, or responsible entity shall be responsible for maintaining landscape plants in a healthy and attractive condition. Dead or dying plants shall be replaced with materials of equal size and similar variety within 30 days of weather permitting.
- The Board of Supervisors may authorize the abandonment and reuse of buffer areas if agricultural uses on all adjacent parcels within a 150-foot radius of the project site have permanently ceased.

### **Farmland Mitigation Program**

Stanislaus County has established a Farmland Mitigation Program (FMP) as Appendix VII-B of its general plan (Stanislaus County 2016). The purpose of the FMP is to establish an approach to mitigation for the loss of farmland resulting from residential development in the unincorporated areas of Stanislaus County by requiring the permanent protection of farmland based on a 1:1 ratio to the amount of farmland converted. The FMP is designed to utilize agricultural conservation easements granted in perpetuity as a means of minimizing the loss of farmland. These guidelines apply to any development project requiring a General Plan or Community Plan amendment from Agriculture to a residential land use designation of the Stanislaus County General Plan.

### **City of Turlock General Plan**

The Turlock General Plan (City of Turlock 2012) includes several goals and policies that are relevant to the Proposed Project. Goals and policies relevant to agriculture resources are generally found within the major areas of Land Use, Parks and Open Space, Agriculture, and Hydrology.

### **Parks and Open Space**

**Policy 6.1-d.** Minimize conflict. Minimize conflict between urban and agricultural uses.

**Policy 6.1-k.** Agricultural Buffer Design. Implement an “agricultural – urban buffer design” to minimize the impact of urban development near active agricultural operations.

### **Agriculture**

**Policy 7.2-g.** Participation in county-wide agricultural mitigation program. Continue to work collaboratively with Stanislaus County and jurisdictions within the county on the development of a countywide agricultural mitigation program, which would mitigate the loss of important farmland to urban development through the required purchase of agricultural easements or other similar measures.

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## AIR QUALITY

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### Stanislaus County General Plan

The Stanislaus County General Plan 2016 Conservation/Open Space Element (Stanislaus County 2016) identifies air quality–related goals and policies. These would contribute to reduced criteria pollutant emissions and improved regional air quality by requiring all development projects to include reasonable air quality mitigation measures, reducing motor vehicle emissions, and increasing public awareness of air quality problems and solutions.

The following goal and policy may also apply to the Proposed Project:

**Goal Six.** Improve air quality.

**Policy Nineteen.** The County will strive to accurately determine and fairly mitigate the local and regional air quality impacts of proposed projects.

### City of Turlock General Plan

The Turlock General Plan (2012) contains the following policies that may be relevant to the Proposed Project:

**Policy 8.1-a.** Prioritize Air Quality in Local Planning. Continue efforts to improve air quality in Turlock by integrating air quality analysis and mitigation in land use and transportation planning, environmental review, public facilities and operations, and special programs.

**Policy 8.1-n.** Construction-Related Air Emissions Impacts. Continue to require mitigation measures as a condition of obtaining permits to minimize dust and air emissions impacts from construction. Require contractors to implement dust suppression measures during excavation, grading, and site preparation activities. Techniques may include, but are not limited to:

- Site watering or application of dust suppressants;
- Phasing or extension of grading operations;
- Covering of stockpiles;
- Suspension of grading activities during high wind periods (typically winds greater than 25 miles per hour); and
- Revegetation of graded areas.

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## BIOLOGICAL RESOURCES

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### Stanislaus County General Plan

The Stanislaus County General Plan's Conservation/Open Space Element (2016) contains the following goals and policies related to biological resources that may be relevant to the Proposed Project:

**Goal One.** Encourage the protection and preservation of natural and scenic areas throughout the County.

**Policy Two.** Assure compatibility between natural areas and development.

**Policy Three.** Areas of sensitive wildlife habitat and plant life (e.g., vernal pools, riparian habitats, flyways, and other waterfowl habitats, etc.) including those habitats and plant species listed by state or federal agencies shall be protected from development and/or disturbance.

**Goal Two.** Conserve water resources and protect water quality in the County.

**Policy Five.** Protect groundwater aquifers and recharge areas, particularly those critical for the replenishment of reservoirs and aquifers.

**Policy Seven.** New development that does not derive domestic water from pre-existing domestic and public water supply systems shall be required to have a documented water supply that does not adversely impact Stanislaus County water resources.

**Goal Ten.** Protect fish and wildlife species of the County.

**Policy Twenty-Nine.** Habitats of rare and endangered fish and wildlife species, including special status wildlife and plants, shall be protected.

### City of Turlock General Plan

The Conservation Element in the Turlock General Plan (2012) contains the following policies that may be relevant to the Proposed Project:

**Policy 3.3-a.** Protect Water Quality and Supply. Continue efforts to safeguard the quality and availability of Turlock's water supply.

**Policy 7.4-e.** Identify and Protect Nesting Habitat. Projects on greenfield sites proposing to commence construction or other ground-disturbing activities during the typical nesting season (February through mid-September) shall be required to conduct a survey by a qualified biologist no more than 10 days prior to the start of disturbance activities. If nests are found, no-disturbance buffers around active nests shall be established as

follows until the breeding season has ended or until a qualified biologist determines that the birds have fledged and are no longer dependent on the nest for survival:

- 250 feet for non-listed bird species;
- 500 feet for migratory bird species; and
- One-half mile for listed species and fully protected species.

**Policy 7.4-f. Swainson's Hawk Protection.** If Swainson's hawks are found foraging in an agricultural area prior to or during construction, project proponents shall consult a qualified biologist for recommended proper action, and incorporate appropriate mitigation measures. If specific project activities on sites where suitable nesting habitat may exist are to take place during normal breeding season (February through mid-September), project proponents shall be required to conduct a survey by a qualified biologist for nesting raptors in all potentially suitable trees no more than 10 days prior to the start of disturbance activities. If an active Swainson's hawk nest is found, appropriate mitigation measures may include, but are not limited to:

- Establishing a one-half mile buffer around the nest until the breeding season has ended or until a qualified biologist determines that the birds have fledged and are no longer dependent on the nest for survival;
- Mitigating habitat loss within a 10 mile radius of known nest sites as follows:
  - Providing a minimum of one acre of habitat management land for each acre of development for projects within one mile of an active nest tree
  - Providing a minimum of 0.75 acres of habitat management land for each acre of development for projects within between one and five miles of an active nest tree
  - Providing a minimum of 0.5 acres of habitat management land for each acre of development for projects within between 5 and 10 miles of an active nest tree

### **City of Turlock's Westside Industrial Specific Plan**

The City of Turlock's (City's) Westside Industrial Specific Plan (2017) contains the following objectives and policies that are relevant to the Proposed Project:

**Objective 1.** Protect the wildlife habitats of the Plan Area.

**Policy R-P 1:** A biological field survey for special status species and sensitive habitats shall be completed prior to development of all existing agricultural lands. If Swainson's hawks are found foraging in an agricultural area prior to or during construction, the project proponent shall consult a qualified biologist for recommending proper action.

**Policy R-P 2.** Project proponents shall satisfy applicable U.S. Endangered Species Act (ESA), California Endangered Species Act (CESA), National Environmental Policy Act (NEPA), California Environmental Quality Act (CEQA), and other applicable local, state, and federal laws and regulation provisions through consultations with the Permitting Agencies and local planning agencies.

**Objective 2.** Protect water quality in the area’s groundwater basin.

**Policy R-P 7.** Comply with the Regional Water Control Board’s regulations and standards to maintain and improve groundwater and surface water quality.

**Objective 3.** Minimize pollution of Plan Area drainage ditches and detention basins from urban runoff.

**Policy R-P 10.** The discharge of oil, gasoline, diesel fuel, or any other petroleum derivative, or any toxic chemical or hazardous waste is prohibited.

**Policy R-P 11.** Materials and equipment shall be stored so as to ensure that spills or leaks cannot enter storm drains, or the drainage ditches or detention basins.

**Policy R-P 12.** A spill prevention and cleanup plan shall be implemented.

**Policy R-P 14.** Maintain buffer areas between drainage ditches and detention basins, and urban development to protect water quality.

**Policy R-P 15.** Utilize cost-effective urban runoff controls, including BMPs, to limit urban pollutants from entering the drainage ditches and detention basins (see Section 6.3 Hydrology and Water Quality [of the Westside Industrial Specific Plan] for a list of BMPS to include).

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## CULTURAL RESOURCES

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### Stanislaus County General Plan

The Stanislaus County General Plan (2016) includes the following goal and policy to address cultural resources under the Conservation/Open Space Element.

**Goal 8.** Preserve areas of national, state, regional, and local historical importance.

**Policy Twenty-four.** The County will support the preservation of Stanislaus County’s cultural legacy of archeological, historical, and paleontological resources for future generations.

### City of Turlock General Plan

The City of Turlock General Plan (2012) contains policies pertaining to cultural resources under “Historic Preservation” in Chapter 6, City Design, and in Chapter 7, Conservation.



Chapter 7, Conservation, of the Turlock General Plan (2008) contains Section 7.5, “Cultural and Historical Resources.” The section includes one Guiding Policy and one Implementing Policy pertaining to archaeological resources:

**Guiding Policy 7.5-a.** Protect Archaeological Resources. Protect significant archaeological resources in the Study Area that may be identified during construction.

**Implementing Policy 7.5-c.** Evaluate Resource Discoveries. Should archaeological or human remains be discovered during construction, work should be halted within 50 meters of the find until they can be evaluated by a qualified archaeologist. If it is determined to be historically or culturally significant, appropriate mitigation measures to protect and preserve the resources shall be formulated and implemented.

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## **GEOLOGY, SOILS, AND SEISMICITY**

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### **Stanislaus County General Plan**

The Stanislaus County General Plan guides land use and development in the unincorporated area of Stanislaus County (Stanislaus County 2016). The following goals and policies in the general plan related to geology, soils, seismicity, and paleontological resources may be relevant to the Proposed Project:

#### **Conservation and Open Space Element**

**Goal Two.** Conserve water resources and protect water quality in the County.

**Policy Five.** Protect groundwater aquifers and recharge areas, particularly those critical for the replenishment of reservoirs and aquifers.

**Policy Six.** Preserve natural vegetation to protect waterways from bank erosion and siltation.

**Goal Five.** Reserve, as open space, lands subject to natural disaster in order to minimize loss of life and property of residents of Stanislaus County.

**Policy Sixteen.** Discourage development on lands that are subject to flooding, landslide, faulting, or any natural disaster to minimize loss of life and property.

**Goal Eight.** Preserve areas of national, state, regional, a local historical importance.

**Policy Twenty-four.** The County will support the preservation of Stanislaus County’s cultural legacy of archeological, historical, and paleontological resources for future generations.

#### **Safety Element**

**Goal One.** Prevent loss of life and reduce property damage as a result of natural disasters.

**Policy Three.** Development should not be allowed in areas that are particularly susceptible to seismic hazard.

**Goal Two.** Minimize the effects of hazardous conditions that might cause loss of life and property.

**Policy Six.** All new development shall be designed to reduce safety and health hazards.

**Policy Fourteen.** The County will continue to enforce state-mandated structural Health and Safety Codes, including but not limited to the California Building Code, the International Property Maintenance Code, the California Fire Code, the California Plumbing Code, California Electric Code, and Title 24, Parts 1-9.

### **Agricultural Element**

**Goal Three.** Protect the natural resources that sustain our agricultural industry.

**Policy 3.7.** The County shall encourage the conservation of soil resources.

### **City of Turlock General Plan**

The City of Turlock General Plan (City of Turlock 2012) guides land use and development in the City of Turlock. The following goals and policies from the Conservation Element of the general plan related to geology, soils, seismicity, and paleontological resources may be relevant to the Proposed Project:

**Policy 7.2-c.** Protect Soil and Water. Work to protect and restore natural resources essential for agricultural production.

**Policy 7.2-n.** Minimize Soil Erosion. Require new development to implement measures to minimize soil erosion related to construction. Identify erosion-minimizing site preparation and grading techniques in the zoning code.

**Policy 10.2-a.** Minimize Geologic and Seismic Risk. Continue to use building codes as the primary tool for reducing seismic risk in structures.

**Policy 10.2-b.** Meet Most Current Seismic Standards. Continue to require all new buildings in the City to be built under the seismic requirements of the latest adopted California Building Code.

**Policy 10.2-e.** Ensure Stability of Sensitive Public Facilities. Evaluate the structural stability and ability to withstand seismic activity of water tanks, underground utilities, berms, and other sensitive public facilities, and plan for any needed repairs.

**Policy 10.2-f.** Require Geotechnical Investigations for Proposed Critical Structures. Require that geotechnical investigations be prepared for all proposed critical structures (including water towers and wastewater lift stations) before construction or approval of building permits, if deemed necessary. The investigation shall include estimation of the maximum credible earthquake, maximum ground acceleration, duration, and the potential for ground failure because of liquefaction or differential settling.

**Policy 10.2-g.** Require Investigations for All Development on Sites Where Soils Pose Risk. Require soils reports for new development projects where soils pose a potential geologic risk, and use the information to determine appropriate permitting requirements, if deemed necessary.

**Policy 10.2-h.** Require Erosion Control Plans. Require new development to include grading and erosion control plans prepared by a qualified engineer or land surveyor.

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## GREENHOUSE GAS EMISSIONS AND ENERGY

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### San Joaquin Valley Air Pollution Control District

The San Joaquin Valley Air Pollution Control District (SJVAPCD) recommends evaluating the significance of operational project-specific greenhouse gas (GHG) emission impacts on global climate change, based on the use of best performance standards (BPS). The SJVAPCD defines BPS as “the most effective achieved-in-practice means of reducing or limiting GHG emissions from a GHG emissions source.” Types of BPS include equipment type, equipment design, operational and maintenance practices, measures that improve energy efficiency, and measures that reduce vehicle miles traveled (VMT). There are not clear BPS or thresholds for the evaluation of construction-related or short-term, one-time effects under CEQA. In addition, lead agencies are not restricted by the SJVAPCD guidance from establishing their own processes and guidance for determining significance of project-related impacts on global climate change.

### Stanislaus County Regional Sustainability Toolbox

Stanislaus County, in collaboration with the nine cities within the county, completed the Stanislaus Regional Sustainability Toolbox (RST) (Stanislaus County 2017). The RST includes multiple planning tools to achieve regional GHG reductions. The planning tools include an example climate action plan (CAP) with regional CAP strategies and low impact development (LID) standards and specifications. Relevant regional strategies from this model CAP that are related to projects similar to the Proposed Project include the following (ICF 2013):

#### Goal E.1. Increase Building and Equipment Efficiency Community-Wide

**Strategy E.1.5.** Industrial Equipment Energy Efficiency Promotion. Promote understanding of San Joaquin Valley Air Pollution Control District Industrial Equipment Energy Efficiency Best Performance Standards.

**Action E.1.5a.** Make information available regarding the San Joaquin Valley Air Pollution Control District Best Performance Standards for industrial energy efficiency.

#### Goal E.3: Increase Energy Efficiency and Renewable Energy Generation and Use in Municipal Operations

**Strategy E.3.1:** Municipal Energy Efficiency. Increase energy efficiency in government operations, including City buildings and facilities.

**Strategy E.3.2:** Municipal On-site Renewable Energy Sources. Increase on-site renewable energy systems at City facilities.

### Stanislaus County General Plan

The Stanislaus County General Plan 2015 Conservation/Open Space Element (Stanislaus County 2016) identifies goals and policies that would contribute to reduced GHG emissions by conserving resources and reducing energy use. The following goal, policies, and implementation measures may apply to the Proposed Project:

**Goal Six:** Improve air quality.

**Policy Nineteen:** The County will strive to accurately determine and fairly mitigate the local and regional air quality impacts of proposed projects.

**Implementation Measure 1.** Require all development proposals, where appropriate, to include reasonable air quality mitigation measures.

**Implementation Measure 2.** Minimize case-by-case analysis of air quality impacts through the use of standard criteria for determining significant environmental effects, a uniform method of calculating project emissions, and standard mitigation methods to reduce air quality impacts.

**Policy Twenty:** The County shall strive to reduce motor vehicle emissions by reducing vehicle trips and vehicle miles traveled and increasing average vehicle ridership.

### City of Turlock General Plan

The City of Turlock General Plan (2012) contains the following policies regarding energy and climate change that may be relevant to the Proposed Project:

**Policy 8.2-a. Reduce Greenhouse Gas Emissions.** Reduce greenhouse gas emissions to support statewide GHG reduction goals under the California Global Warming Solutions Act (AB 32).

**Policy 8.2-c. Facilitate Energy-Efficient Buildings.** Encourage energy efficiency through good urban design and site-planning practices, as well as through building design, maintenance and retrofit.

**Policy 8.2-d: Promote Energy Conservation.** Support understanding of the relationship between energy consumption, air quality, and greenhouse gases, and promote energy-saving practices.

**Policy 8.2-k: Support Alternative Fuel Vehicles.** Provide incentives for the provision of priority parking for alternative fuel vehicles and electronic vehicle charging stations as individual project measures for new development.

**Policy 8.2-n. Wastewater and Water System Efficiency.** Maximize the efficiency of City-operated wastewater treatment, water treatment, pumping, and distribution

equipment. This measure may be part of the GHG Emissions Reduction Plan described in 8.2-f.

**Policy 8.2-p: Improve Energy Efficiency in Public Buildings.** Prepare and implement a plan to increase energy efficiency in public buildings, as part of the GHG Emissions Reduction Plan described in 8.2-f. Measures may include but not be limited to the following:

- Conduct energy audits for all municipal facilities;
- Retrofit municipal facilities for energy efficiency where feasible and when remodeling or replacing components, including increased insulation, installing green or reflective roofs, installing automated lighting controls, and retrofitting heating and cooling systems.
- Require that any newly constructed, purchased, or leased municipal space meet minimum standards, such as exceeding Title 24 energy efficiency by 20 percent;
- Educate employees on energy conservation.
- **Policy 8.2-q. Promote Energy Conservation Programs.** Promote and support State and Turlock Irrigation District (TID) energy conservation programs for housing construction and rehabilitation, including energy audits, weatherization assistance, and energy rebates for energy-efficient appliances and lighting, ventilation, and other systems.
- For participants in the Home Rehabilitation Loan program, provide information and technical support regarding available rebate and incentive programs (through TID and Pacific Gas and Electric Company) for energy efficient appliances and weatherization tools.
- Require Energy Star electrical appliances when replacing appliances in City-funded Home Rehabilitation projects.

**Policy 8.2-r: Encourage Greater Energy Efficiency in New Development.** For new Master Plan Areas, seek to expedite permit processing for new buildings that meet or exceed the Tier 1 optional standards in the California Green Building Standards Code.

**Policy 8.2-s. Require Energy Efficiency for Projects Receiving Public Assistance.** Require that projects receiving assistance from the City of Turlock, including but not limited to infrastructure projects and affordable housing, include energy efficiency measures beyond the minimum standards of Title 24.

**Policy 8.2-t. Encourage Solar Power Generation.** Encourage the use of passive and active solar devices such as solar collectors, solar cells, and solar heating systems into the design of buildings and parking areas by participating in existing incentive programs and considering new incentives for Turlock property owners.

**Policy 8.2-u. Encourage Other Onsite Renewable Energy Systems.** Encourage the installation of other renewable energy systems in new or existing development. Renewable power generation may count toward the Air District's proposed BPS for projects with systems capable of generation at least 2.5 percent of their energy need.

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## HAZARDS AND HAZARDOUS MATERIALS

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### City of Turlock General Plan

The 2012 Turlock General Plan contains the following policies relating to safety and hazardous materials:

**Policy 10.1-a. Protect Lives and Property.** Prevent loss of lives, injury, illness, and property damage due to hazardous materials and wastes.

**Policy 10.1-b. Protect Natural Resources.** Protect soils, surface water, and groundwater from contamination from hazardous materials.

**Policy 10.1-c. Coordinate Efforts to Minimize Risks.** Cooperate with State agencies and the Stanislaus County Environmental Resources Department efforts to identify hazardous materials users, implement hazardous materials plans, provide safe waste disposal sites, and minimize risks associated with hazardous cargoes, agricultural spraying, and electromagnetic fields.

**Policy 10.1-d. Incorporate Safety Considerations Into Land Use Policies.** Coordinate land use policies with concerns about potential hazards.

**Policy 10.1-e.** Implement Countywide Integrated Waste Management Plan.

**Policy 10.1-f. Reduce Hazardous Waste Disposal.** Continue to reduce per capita disposal of hazardous waste by promoting reuse and recycling of materials as appropriate, by providing information to the public, operating waste collection facilities, and other means.

**Policy 10.1-g. Raise Public Awareness of Appropriate Hazardous Waste Disposal.** Provide Information and conduct outreach to educate the public about proper disposal methods for household hazardous waste.

**Policy 10.1-h. Maintain Inventory of Contaminated Sites.** Maintain for public review an up-to-date inventory of identified hazardous waste sites in the City based on State database. This information should be identified and addressed if needed as part of Turlock's review and analysis of each discretionary development proposal.

**Policy 10.1-i. Support Cleanup Efforts.** Work with the Stanislaus County Environmental Resources Department, other agencies and landowners to enable clean-up of contaminated sites.

**Policy 10.1-j. Evaluate Safety of Railroad Crossings.** In close cooperation with the railroads, evaluate the safety characteristics of existing at-grade railroad crossings and promote improvements to the extent feasible and as necessary to reduce potential for mishaps involving hazardous cargo. Support grade-separated railroad crossings where feasible.

**Policy 10.1-k. Locate Buildings with High-Public-Occupancy at Safe Distance from Railroad and Highway.** To the extent feasible, locate new buildings of high public occupancy – particularly schools, hospitals, civic and institutional uses at least 100 feet from main railroad alignments and the highway, to minimize risks to life and property in the event of a hazardous cargo accident.

**Policy 10.1-l. Maintain Land Use Separation Between Hazardous Waste Handling Sites and Incompatible Uses.** Ensure compatibility between hazardous material users and surrounding land use through the development review process. Separate hazardous waste facilities from incompatible uses including, but not limited to, schools, daycares, hospitals, public gathering areas, and high-density residential housing through development standards and the review process.

**Policy 10.1-m. Require Hazardous Materials Studies When Appropriate.** Ensure that the proponents of new development projects address applicable hazardous materials concerns through the preparation of Phase I or Phase II hazardous materials studies, as necessary, for each identified site as part of the design phase for each project. Require projects to implement federal or State cleanup standards outlined in the studies during construction.

**Policy 10.1-n. Require Safe Design and Construction of Storage Tanks.** Require that all fuel and chemical storage tanks are appropriately constructed; include spill containment areas to prevent seismic damage, leakage fire and explosion; and are structurally or spatially separated from sensitive land uses.

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## HYDROLOGY AND WATER QUALITY

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### Stanislaus County General Plan

The Stanislaus County General Plan's Conservation/Open Space Element (2016) contains the following goals and policies related to biological resources that may be relevant to the Proposed Project:

**Goal Two.** Conserve water resources and protect water quality in the County.

**Policy Five.** Protect groundwater aquifers and recharge areas, particularly those critical for the replenishment of reservoirs and aquifers.

**Policy Seven.** New development that does not derive domestic water from pre-existing domestic and public water supply systems shall be required to have a documented water supply that does not adversely impact Stanislaus County water resources.

### City of Turlock General Plan

The Conservation Element in the City of Turlock's General Plan (2012) contains the following policies that are relevant to the Proposed Project:

**Policy 3.3-a.** Protect Water Quality and Supply. Continue efforts to safeguard the quality and availability of Turlock's water supply.

### City of Turlock's Westside Industrial Specific Plan

The City of Turlock's Westside Industrial Specific Plan (2017) contains the following objectives and policies that may be relevant to the Proposed Project:

**Objective 2.** Protect water quality in the area's groundwater basin.

**Policy R-P 7.** Comply with the Regional Water Control Board's regulations and standards to maintain and improve groundwater and surface water quality.

**Objective 3.** Minimize pollution of Plan Area drainage ditches and detention basins from urban runoff.

**Policy R-P 10.** The discharge of oil, gasoline, diesel fuel, or any other petroleum derivative, or any toxic chemical or hazardous waste is prohibited.

**Policy R-P 11.** Materials and equipment shall be stored so as to ensure that spills or leaks cannot enter storm drains, or the drainage ditches or detention basins.

**Policy R-P 12.** A spill prevention and cleanup plan shall be implemented.

**Policy R-P 14.** Maintain buffer areas between drainage ditches and detention basins, and urban development to protect water quality.

**Policy R-P 15.** Utilize cost-effective urban runoff controls, including BMPs, to limit urban pollutants from entering the drainage ditches and detention basins (see Section 6.3 Hydrology and Water Quality for a list of BMPS to include).

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## MINERAL RESOURCES

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### Stanislaus County General Plan

The Conservation/Open Space Element of the Stanislaus County General Plan (Stanislaus County 2016) emphasizes the conservation and management of natural resources, including mineral resources, and the preservation of open space lands. The following goals, policies, and implementation measures related to mineral resources may be applicable to the Proposed Project:

**Goal Nine.** Manage extractive mineral resources to endure an adequate supply without degradation of the environment.



**Policy Twenty-six.** Surface mining in areas classified by the State Division of Mines and Geology as having significant deposits of extractive mineral resources shall be encouraged.

**Policy Twenty-seven.** The County shall emphasize the conservation and development of lands having significant deposits of extractive mineral resources by not permitting uses that threaten the potential to extract minerals.

**Implementation Measure 1.** Requests for conversion of lands with significant deposits of extractive mineral resources (e.g., sand and gravel) to urban uses shall not be approved unless provisions are made for extraction prior to development.

**Implementation Measure 2.** Any approval of potentially incompatible land uses in and surrounding areas containing significant deposits of extractive mineral resources shall include conditions mitigating the significant land use conflicts.

### City of Turlock General Plan

The following policies related to mineral resources in the Conservation Element of Turlock’s General Plan (2012) may be applicable to the Proposed Project:

**Policy 7.6-a.** Protect Significant Resources. Cooperate with regional agencies to protect significant mineral resources in the Study Area that may be identified in the future.

**Policy 7.6-b.** Plan After Discovery. When and if significant mineral resources are discovered in the Study Area, work with regional agencies to determine a course of action to protect the resources.

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## NOISE

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### Stanislaus County Noise Ordinances

The Stanislaus County Noise Ordinance specifies that, for non-exempt activities, exterior noise levels should meet the levels specified in **Table B-2** (Stanislaus County Code 10.46.050).

**Table B-2. Stanislaus County Exterior Noise Level Standards Maximum A-weighted Sound Level**

Designated Noise Zone	7:00 a.m. – 9:59 p.m.	10:00 p.m. – 6:59 a.m.
Noise Sensitive	45 dBA	45dBA
Residential	50 dBA	45 dBA
Commercial	60 dBA	55 dBA
Industrial	75 dBA	75 dBA

dBA = a-weighted decibel.

The noise zones are defined as follows:

**Noise Sensitive.** Any public or private school, hospital, church, convalescent home, cemetery, sensitive wildlife habitat, or public library regardless of its location within any land use zoning district.

**Residential.** All parcels located within a residential land use zoning district.

**Commercial.** All parcels located within a commercial or highway frontage land use zoning district.

**Industrial.** All parcels located within an industrial land use zoning district.

The noise zone definition of any parcel not located within a residential, commercial, highway frontage, or industrial land use zoning district shall be determined by the director of Stanislaus County planning and community development department, or designee, based on the permitted uses of the land use zoning district in which the parcel is located.

The ordinance allows for instances where the ambient noise level exceeds these noise levels and sets the exterior noise level standard to the existing ambient noise level. Instances such as this include locations near busy roadways and active agricultural operations. Ambient noise levels have not been measured at the site, but agricultural activities take place periodically at locations surrounding the project location.

Construction equipment cannot exceed an average sound level of 75 a-weighted decibel (dBA) between 7:00 p.m. and 7:00 a.m. (Stanislaus County 10.46.060 E).

Various exemptions to the noise levels shown in Table B-2 above (Table 3 in document) have been identified (Stanislaus County 10.46.080). These include emergency alert signals, special events with permits, trash collection, agricultural activities, and residential maintenance activities. Public utilities are also exempt:

**J. Public Entity or Public Utility Activity.** This chapter shall not apply to construction or maintenance activities performed by or at the direction of any public entity or public utility.

Maintenance testing of the emergency generator for 1-hour periods throughout the year would fall within the scope of the public utility exemption.

### **City of Turlock General Plan**

The 2012 Turlock General Plan addresses noise in Chapter 9 with its noise element. "It (the noise element) guides the location of industrial land uses and transportation facilities since they are common sources of excessive noise levels. This element also guides the location of particularly noise-sensitive uses, such as residences, schools, churches, and hospitals, so that they may be less affected by noise." The City's guiding policies are identified below and are relevant for municipal and private projects within the city limits.

**Policy 9.4-a. Land Use Compatibility:** Ensure that new development is compatible with the noise environment, by continuing to use potential noise exposure as a criterion in land use planning.

**Policy 9.4-b. Prevent Degradation of Noise Environment:** Protect public health and welfare by eliminating existing noise problems where feasible, maintaining an acceptable indoor and outdoor acoustic environment, and preventing significant degradation of the acoustic environment.

**Policy 9.4-c. Protect Residential Areas and Sensitive Uses:** Minimize excessive noise exposure in residential areas and the vicinity of such uses as schools, hospitals, and senior care facilities.

**Policy 9.4-h. Non-Transportation Noise Sources—Required Mitigation:** Require mitigation of noise created by new proposed non-transportation noise sources so that it does not exceed the noise level standards of 60 dB community noise equivalent level (CNEL) for residential outdoor areas and 45 dBA (CNEL) for interior uses as measured immediately within the property line of lands designated for noise-sensitive uses. Appropriate mitigation measures include: dampen or actively cancel noise sources; increase setbacks for noise sources from adjacent dwellings; use soundproofing materials and double-glazed windows; screen and control noise sources, such as parking and loading facilities, outdoor activities, and mechanical equipment; use open space, building orientation and design, landscaping and running water to mask sounds; and control hours of operation, including deliveries and trash pickup.

**Policy 9.4-i. Noise Ordinance:** Continue to enforce the City Noise Control Ordinance and update as necessary. The City’s ordinance addresses a wide range of noise-generating activities, establishing community standards and providing a basis for enforcement.

**Table B-3** indicates acceptable limits of noise for various land uses for both exterior and interior environments. These limits are based on guidelines provided by the California Office of Planning and Research.

**Table B-3. City of Turlock Allowable Noise Exposure**

Land Use	Outdoor Activity Areas (dBA CNEL) <sup>1, 2</sup>	Interior Spaces (dBA CNEL) <sup>1</sup>
Residential	60	45
Motels, Hotels	60	45
Hospitals, Nursing Homes, Schools, Libraries, Museums, Churches	60	45
Playgrounds, Parks, Recreation Uses	65	50

Land Use	Outdoor Activity Areas (dBA CNEL) <sup>1, 2</sup>	Interior Spaces (dBA CNEL) <sup>1</sup>
Commercial and Office Uses	65	50
Industrial Uses	70	65

**Notes:** dBA = a-weighted decibel; CNEL = community noise equivalent level.

<sup>1</sup> For non-residential uses, where an outdoor activity area is not proposed, the standard does not apply. Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving use.

<sup>2</sup> Where it is not possible to reduce noise in outdoor activity areas to the allowable maximum, levels up to 5 dB higher may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

*Source: City of Turlock 2012.*

The General Plan also provides standards for exposure to non-transportation noise sources such as industrial facilities, automotive servicing, or equipment yards, in **Table B-4**.

**Table B-4. City of Turlock Noise Standards for Non-transportation Sources**

Noise Level Descriptor	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly Leq (dB)	55	45
Maximum Level(dB)	75	65

**Notes:** dB = decibel; Leq = equivalent noise level.

Each of the noise levels specified above shall be lowered by 5 dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises.

*Source: City of Turlock 2012.*

### Turlock Municipal Code

The Turlock Municipal Code Title 5, Chapter 5-28, Sections 5-28-101 through 5-28-116 defines noise standards for the City. The City's exterior noise limits (Mobile Construction Equipment) for residential uses (One- and Two-Family) are 75 dBA during the daytime hours (7:00 a.m. – 7:00 p.m.). The City's exterior noise limits (Stationary Construction Equipment) for residential uses (One- and Two-Family) are 70 dBA during the daytime hours (7:00 a.m. – 7:00 p.m.). The City's exterior noise limits (Levels Not to Be Exceeded More Than 30 Minutes in Any Hour) for residential uses (One- and Two-Family) are 60 dBA during the daytime hours (7:00 a.m. – 10:00 p.m.), and 50 dBA during the nighttime hours (10:00 p.m. – 7:00 a.m.).

The city's noise ordinance establishes maximum allowable sound levels for repetitively scheduled and relatively long-term operation of stationary construction equipment at 70 dBA and 60 dBA during weekdays and weekends\holidays, respectively, near residential uses. Maximum allowable sound levels for nonscheduled, intermittent, short-term operation of mobile construction equipment is 75 dBA and 70 dBA during weekdays and weekends\holidays, respectively, near residential uses.

The local noise ordinance also states that short term noise increases can be from 5-20 dB above this level (5-28-109 [b]) and that if the measured ambient level differs from the permissible level the allowable noise exposure standard shall be adjusted in 5 dB increments to reflect the ambient noise level (5-28-29[c]). Also, if the measurement location is on the boundary between two different zones the noise level limit applicable to the lower noise zone plus 5 dB shall apply. The noise ordinance also recognizes that some short-term noise activities may be loud and has provided restricted times for their operation to avoid noise disturbances, including:

- Refuse Collection vehicles are only prohibited from 6 p.m. to 5 a.m. in a residential area. (5-28-110 (i)).
- Operating mechanical powered saw, sanders, drill, lawn or garden tools or similar tools between 10 p.m. and 7 a.m. on weekdays is prohibited. (5-25-110(l)).
- Heating, ventilation, air conditioning (HVAC) and other motor machinery should be enclosed or muffled so as not to create a noise disturbance across a property line (5-28-110(l)).
- Trash enclosures and trash compacting equipment is prohibited between 9 p.m. and 7 a.m. (5-28-110(o)).
- Warning devices for protection of the public safety, such as backup alarms, are exempt (5-28-112(a)).

Also, Section 5-28-110 (h) prohibits operating or permitting the operation of any device which creates a vibration that annoys or disturbs at least two (2) or more reasonable persons of normal sensitivity who reside in separate residences (including apartments and condominiums) at or beyond the property boundary of the source. When the source is located on a public space or in the public right-of-way, the affected residence shall be located at least one hundred fifty (150') feet (forty-six (46) meters) from the source.

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## TRANSPORTATION

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### Stanislaus County General Plan

**Policy Six.** The County shall strive to reduce motor vehicle emissions and vehicle miles traveled (VMT) by encouraging the use of alternatives to single occupant vehicles.

## City of Turlock General Plan

**Policy 5.2-g – Reduce Vehicle Miles Traveled.** Through layout of land uses, improved alternate modes, and provision of more direct routes, strive to reduce total vehicle miles traveled.

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## TRIBAL CULTURAL RESOURCES

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There are no local plans, policies, or regulations applicable to this resource topic.

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## UTILITIES AND SERVICE SYSTEMS

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### Stanislaus County General Plan

The Stanislaus County General Plan (Stanislaus County 2016) guides land use and development in unincorporated Stanislaus County. The following goals and policies in the General Plan Conservation/Open Space Element related to utilities and service systems may be applicable to the Proposed Project:

**Goal Two.** Conserve water resources and protect water quality in the County.

**Policy Five.** Protect groundwater aquifers and recharge areas, particularly those critical for the replenishment of reservoirs and aquifers.

**Goal Seven.** Support efforts to minimize the disposal of solid waste through source reduction, reuse, recycle, composting, and transformation activities.

**Policy Twenty-Two.** The County will support the solid waste management hierarchy established by the California Public Resources Code, Section 40051, and actively promote the goals and objectives specified in the Countywide Integrated Waste Management Plan.

### City of Turlock General Plan

The following guiding policies in the Turlock General Plan (City of Turlock 2012) related to utilities and service systems may be applicable to the Proposed Project.

#### New Growth Areas and Infrastructure

**Guiding Policy 3.3-a.** Protect Water Quality and Supply. Continue efforts to safeguard the quality and availability of Turlock’s water supply.

**Guiding Policy 3.3-b.** Use Groundwater at a Sustainable Rate. Undertake steps to ensure the use of groundwater does not exceed the sustainable supply by verifying the estimated sustainable supply of 24,550 acre-feet per year and limiting groundwater use to the sustainable supply.

**Guiding Policy 3.3-d.** Meet Projected Needs. Promote the orderly and efficient expansion of public utilities and the storm drainage system to adequately meet

projected needs, comply with current and future regulations, and maintain public health, safety, and welfare.

**Guiding Policy 3.3-h.** Meet State Waste Reduction Goals. Reduce the generation of solid and hazardous waste and promote recycling in order to achieve the State's solid waste management goals.

### **City of Turlock's Westside Industrial Specific Plan**

The City of Turlock's Westside Industrial Specific Plan (2017) contains the following objectives and policies that may be relevant to the Proposed Project:

#### **Public Service Infrastructure**

**Guiding Policy I-P-38.** Encourage water conservation in industrial processes by making reclaimed water available for cooling and other industrial use in the Planning area.

**Guiding Policy I-P-40.** Encourage potable water conservation in site landscaping and streetscaping.

**Guiding Policy I-P-41.** Industrial uses that require water for processing or cooling shall submit a wastewater budget to Municipal Services. The wastewater budget shall detail the total wastewater demand, the quality of wastewater, and the opportunities for wastewater re-use and water conservation.

**Guiding Policy I-P-52.** The City will encourage the use of energy conserving design in landscaping and architecture to reduce building heat and cooling loads.

## REFERENCES

- City of Turlock. 2012. General Plan. Chapter 7, Conservation. Available at: <https://www.cityofturlock.org/pdf/files/generalplancomplete.pdf>. Accessed: December 9, 2020.
- City of Turlock. 2017. Westside Industrial Specific Plan. Available at: <https://www.cityofturlock.org/pdf/files/WISP.pdf>. Accessed: December 9, 2020.
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- Stanislaus County. 2016. General Plan. Adopted August 23, 2016. Available at: <http://www.stancounty.com/planning/pl/gp/current/gp-introduction.pdf>. Accessed: December 9, 2020.
- Stanislaus County. 2017. Stanislaus Regional Sustainability Toolbox. Available at: [www.stancounty.com/planning/pl/toolbox.shtm](http://www.stancounty.com/planning/pl/toolbox.shtm). Accessed August 2021.
- Stanislaus Local Agency Formation Commission. 2020. Policies and Procedures. Available at: <http://www.stanislauslafco.org/pdf/policies-procedures.pdf>. Accessed June 7, 2021.



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**APPENDIX C**

***Air Quality Pollutant Emissions, Greenhouse Gas Emissions, and Energy Use Calculations***

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This appendix includes complex tables that are not accessible using an assistive device such as a screen reader. For assistance, please contact the California Relay Service by dialing 711 or contact CDFA.



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## **Emission Summary Tables**

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<b>Summary of Maximum Annual Construction-Related Emissions</b>							
	<b>Maximum Annual Emissions (tons/year)</b>						<b>Metric Tons/year</b>
	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>	<b>CO<sub>2e</sub></b>
2022	0.3	2.7	2.6	0.0	0.6	0.3	504.0
2023	0.3	2.3	2.6	0.0	0.3	0.1	524.0
2024	0.4	0.6	0.7	0.0	0.1	0.0	140.0
<b>Maximum Annual emissions, Construction</b>	<b>0.4</b>	<b>2.7</b>	<b>2.6</b>	<b>0.0</b>	<b>0.6</b>	<b>0.3</b>	<b>524.0</b>
<b>SJVAPCD significance threshold</b>	<b>10</b>	<b>10</b>	<b>100</b>	<b>27</b>	<b>15</b>	<b>15</b>	
<b>Exceeds Threshold?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	
tons/year = tons per year; ROG = reactive organic gases; NO <sub>x</sub> = oxides of nitrogen; CO = carbon monoxide; SO <sub>2</sub> = sulfur dioxide; PM <sub>10</sub> = respirable particulate matter; PM <sub>2.5</sub> = fine particulate matter; SJVAPCD = San Joaquin Valley Air Pollution Control District.							
Source: AECOM 2021; See Appendix C for detailed modeling assumptions, outputs, and results.							

<b>Summary of CalEEMod Modeled Maximum Annual Long-Term Operational Emissions</b>						
<b>Emissions Source</b>	<b>Annual Emissions (tons/year)</b>					
	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
Area	0.24	0.00	0.00	0.00	0.00	0.00
Energy	0.03	0.30	0.08	0.00	0.02	0.02
Mobile	0.04	0.33	0.59	0.00	0.24	0.07
Stationary Sources	2.25	0.28	0.97	0.01	0.09	0.09
Waste	-	-	-	-	0.00	0.00
Water	-	-	-	-	0.00	0.00
<b>Annual Operational Emissions</b>	<b>2.56</b>	<b>0.91</b>	<b>1.65</b>	<b>0.01</b>	<b>0.35</b>	<b>0.17</b>
<b>SJVAPCD Thresholds of Significance</b>	<b>10</b>	<b>10</b>	<b>100</b>	<b>27</b>	<b>15</b>	<b>15</b>
<b>Exceeds Thresholds?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<p>Notes: This contains emissions from activities that are not permitted. It does not include units which are exempt from permitting as insignificant units. Per SJVAPCD Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI), permit exempt units do not need to be quantified.</p> <p>Operational emissions were modeled for year 2024. Total emissions may not add correctly due to rounding.</p> <p>tons/year = tons per year; ROG = reactive organic gases; NO<sub>x</sub> = oxides of nitrogen; CO = carbon monoxide; SO<sub>2</sub> = sulfur dioxide; PM<sub>10</sub> = respirable particulate matter; PM<sub>2.5</sub> = fine particulate matter; SJVAPCD = San Joaquin Valley Air Pollution Control District.</p> <p>Source: AECOM 2021; See Appendix C for detailed modeling assumptions, outputs, and results.</p>						

**Summary of Maximum Daily Long-Term Permitted Emissions Sources  
Emissions of Criteria Air Pollutants and Precursors**

Emissions Source	Annual Emissions (tons/year)					
	ROG	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Emergency Generator	0.02	0.04	0.38	0.00	0.00	0.00
Crematory - Animal Charge	0.00	1.20	0.25	0.01	2.46	2.46
<b>Total Annual Permitted Operational Emissions</b>	<b>0.02</b>	<b>1.24</b>	<b>0.64</b>	<b>0.01</b>	<b>2.47</b>	<b>2.47</b>
<b>SJVAPCD AAQA Pollutant Threshold</b>	<b>10</b>	<b>10</b>	<b>100</b>	<b>27</b>	<b>15</b>	<b>15</b>
<b>Exceeds Thresholds?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Notes: lbs/day = pounds per day; ROG = reactive organic gases; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = respirable particulate matter; PM<sub>2.5</sub> = fine particulate matter.

<sup>a</sup> Operational emissions were modeled for year 2024.

<sup>b</sup> Total emissions may not add correctly due to rounding.

Source: AECOM 2021; See Appendix C for detailed modeling assumptions, outputs, and results.

<b>Summary of Permitted and Unpermitted Maximum Annual Long-Term Operational Emissions</b>						
<b>Emissions Source</b>	<b>Annual Emissions (tons/year)</b>					
	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
Area	0.24	0.00	0.00	0.00	0.00	0.00
Energy	0.03	0.30	0.08	0.00	0.02	0.02
Mobile	0.04	0.33	0.59	0.00	0.24	0.07
Stationary Sources	2.27	1.53	1.61	0.01	2.56	2.56
Waste	-	-	-	-	0.00	0.00
Water	-	-	-	-	0.00	0.00
<b>Annual Operational Emissions</b>	<b>2.58</b>	<b>2.16</b>	<b>2.29</b>	<b>0.02</b>	<b>2.82</b>	<b>2.64</b>
<b>SJVAPCD Thresholds of Significance</b>	<b>10</b>	<b>10</b>	<b>100</b>	<b>27</b>	<b>15</b>	<b>15</b>
<b>Exceeds Thresholds?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<p>Notes: This contains emissions from activities that are not permitted. It does not include units which are exempt from permitting as insignificant units. Per SJVAPCD Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI), permit exempt units do not need to be quantified.</p> <p>Operational emissions were modeled for year 2024. Total emissions may not add correctly due to rounding.</p> <p>tons/year = tons per year; ROG = reactive organic gases; NO<sub>x</sub> = oxides of nitrogen; CO = carbon monoxide; SO<sub>2</sub> = sulfur dioxide; PM<sub>10</sub> = respirable particulate matter; PM<sub>2.5</sub> = fine particulate matter; SJVAPCD = San Joaquin Valley Air Pollution Control District.</p> <p>Source: AECOM 2021; See Appendix C for detailed modeling assumptions, outputs, and results.</p>						



<b>Summary of Annual Long-Term Operational Greenhouse Gas Emissions (CO2e in Metric Tons per Year)</b>			
<b>Emissions Source</b>	<b>Non-Permitted</b>	<b>Permitted</b>	<b>Total</b>
Area	0.004	-	0.004
Energy	690.95	-	690.95
Mobile	292.99	-	292.99
Stationary Sources	1256.27	1575	2831.12
Waste	507.39	-	507.39
Water	1.62	-	1.62
<b>Total Annual Operational Emissions</b>	<b>2749</b>	<b>1575</b>	<b>4324</b>
<b>SJVAPCD Thresholds of Significance</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>
<b>Exceeds Thresholds?</b>	<b>No</b>	<b>No</b>	<b>No</b>
Operational emissions were modeled for year 2024. Total emissions may not add correctly due to rounding.			
CO2e = carbon dioxide equivalents SJVAPCD = San Joaquin Valley Air Pollution Control District.			
Source: AECOM 2021; See Appendix C for detailed modeling assumptions, outputs, and results.			

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**Emission Calculation Supporting Details  
and TAC Emission Calculations for HRA**

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Turlock North Valley Laboratory Replacement Project  
Turlock - Operations Related Emissions

Conversions		
1 kW =	1.341 hp	(electrical)
1 MW =	1.340 hp	(mechanical)
1 kW =	3412 Btu/hr	(electrical)
1 hp =	2544 Btu/hr	(mechanical)
1 ton =	2000 pounds (lb)	
1 ton =	0.907185 tonne	
1 lb-mol =	179.5 Lbf	(ideal gas)

Description	Value	Unit	Source
<b>Fuel Specifications</b>			
Natural Gas Average Heating Value	1,020	Btu/scf (HHV)	AP-42, Section 3.1, Table 3.1.1, Footnote c and AP-42, Section 1.4, Table 1.4.1, Footnote a
Natural Gas Average Heating Value	918	Btu/scf (LHV)	AP-42, Section 3.1, Table 3.1.1, Footnote c, adjusted to LHV using general industry knowledge of fuel.
Gas (Propane/Burner/GC) F Factor	8.70	scf/MMBtu	EPA Method 19 default value.
ULSD Fuel Higher Heating Value (HHV)	136,000	Btu/gal	40 CFR 99, Subpart C, Table C-1
ULSD Fuel Higher Heating Value (LHV)			
ULSD Fuel Density	7.2	lb/gal	Conversion from HHV/13,300 Btu/lb from AP-42 3.3.1 Footnote c
ULSD Sulfur Content	0.0015	% wt	EPA standard value for ULSD
Oil Factor	6.190	scf/MMBtu	EPA Method 19 default value.
Higher Heating Value of Solid Waste	9.0	MMBtu/short ton	AP-42, Table 2.1.9, footnote a.
Municipal Waste F Factor	9.370	scf/MMBtu	EPA Method 19 default value.
<b>Assumptions</b>			
Engine Average Brake Specific Fuel Consumption	7.020	Btu/bhp-hr	AP-42, Section 3.4, Table 3.4.1, Footnote e (DIESEL) 1998
Generator Efficiency	100	%	Assumed provided engine hp are output hp values. See "Gen Eff" tab for details on conversion from bhp to hp output.
<b>Global Warming Potentials</b>			
Carbon Dioxide (CO <sub>2</sub> )	1	—	(PCC Fourth Assessment Report, 2007 (AR4), consistent with CARB and CalEEMod emissions calculation methodologies)
Methane (CH <sub>4</sub> )	25	—	(PCC Fourth Assessment Report, 2007 (AR4), consistent with CARB and CalEEMod emissions calculation methodologies)
Nitrous Oxide (N <sub>2</sub> O)	298	—	(PCC Fourth Assessment Report, 2007 (AR4), consistent with CARB and CalEEMod emissions calculation methodologies)

Description of Equipment or Activity	Rating or Capacity	Fuel Type (Combustion Only)	Unit Load % (Combustion Only)	Engine Tier (Diesel Engines Only)	Number of Units	Annual Operating Hours	Daily Operating Hours	Source	Notes
Emergency Generator	671 hp	ULSD	73	Tier 4	1	200	24	500 kW diesel engine - provided in Project Description.	Assumed Tier 4 engine. 200 hour non-emergency use limit for EG - SVAPCD Rule 2201, Section 4.6.2. 73% load is CalEEMod default load factor.
Domestic heaters	0.1 MMBtu/hr (HHV)	Natural Gas	100	N/A	2	8,760	24	Provided in Project Description. Assume constant operations 24/7.	Exempt according to SVAPCD Rule 2020, 6.1.1.1.1 (5) MMBtu/hr or less unit firing NG with 1.0 g/100 scf sulfur and <1% hydrocarbons heavier than butane).
Laboratory heaters	0.5 MMBtu/hr (HHV)	Natural Gas	100	N/A	2	8,760	24	Provided in Project Description. Assume constant operations 24/7.	Exempt according to SVAPCD Rule 2020, 6.1.1.1.1 (5) MMBtu/hr or less unit firing NG with 1.0 g/100 scf sulfur and <1% hydrocarbons heavier than butane).
Boilers	0.75 MMBtu/hr (HHV)	Natural Gas	100	N/A	3	8,760	24	Provided in Project Description. Assume constant operations 24/7.	Exempt according to SVAPCD Rule 2020, 6.1.1.1.1 (5) MMBtu/hr or less unit firing NG with 1.0 g/100 scf sulfur and <1% hydrocarbons heavier than butane).
Crematory - Primary Burners	1 MMBtu/hr (HHV)	Natural Gas	100	N/A	4	3,792	16	Current permit assumptions and operational limits.	
Crematory - Secondary Burner	2.25 MMBtu/hr (HHV)	Natural Gas	100	N/A	1	3,792	16	Current permit assumptions and operational limits.	
Crematory - Animal Charge	1250 lb/yr	N/A	N/A	N/A	1	592,500	lb/yr	Hourly charge based on cremator spec sheet. Annual charge is estimated to be the hourly charge, 2 charges per day, 237 days per year.	

**Turlock North Valley Laboratory Replacement Project**  
**Turlock - Operations Related Emissions**

<b>Emission Unit Description</b>	<b>Emergency Generator</b>
Emission Unit Category	Engine   Diesel   >600 hp
Number of Units	1
Engine Tier	Tier 4
Engine Size Category	600 ≤ hp < 750
<b>Rated Output</b>	500 kW
	671 hp
Brake-Specific Fuel Consumption	7,000 Btu/bhp-hr
Heat Input Rating	4.7 MMBtu/hr
Annual Hours of Operation	200 hr/yr
Daily Hours of Operation	24 hr/day
Load Factor	73 %
<b>Fuel Properties</b>	ULSD
Higher Heating Value (HHV)	138,000 Btu/gal
Density of Liquid Fuel	7.2 lb/gal
Sulfur Content	0.0015 % wt

Species	Emission Factor	Emission Factor Unit	Emission Rates			
			(lb/hr-unit)	(ton/yr-unit)	(lb/hr)	(ton/yr)
<b>Criteria Pollutants, ROG, &amp; TSP <sup>(a)</sup></b>						
NO <sub>x</sub>	0.30	g/hp-hr	0.44	0.04	0.44	0.04
CO	2.60	g/hp-hr	3.84	0.38	3.84	0.38
ROG	0.14	g/hp-hr	0.21	0.02	0.21	0.02
TSP	0.02	g/hp-hr	0.02	0.00	0.02	0.00
PM <sub>10</sub>	0.02	g/hp-hr	0.02	0.00	0.02	0.00
PM <sub>2.5</sub>	0.02	g/hp-hr	0.02	0.00	0.02	0.00
SO <sub>2</sub>	1.21E-05	g/hp-hr	0.00	0.00	0.00	0.00
<b>Air Toxics/HAPs <sup>(b)</sup></b>						
1,1,2,2-Tetrachloroethane		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,1,1-Trichloroethane		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,1,2-Trichloroethane		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,3-Butadiene		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,3-Dichloropropene		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2,2,4-Trimethylpentane (iso-octane)		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acetaldehyde	2.52E-05	lb/MMBtu	1.18E-04	1.18E-05	1.18E-04	1.18E-05
Acrolein	7.88E-06	lb/MMBtu	3.70E-05	3.70E-06	3.70E-05	3.70E-06
Benzene	7.76E-04	lb/MMBtu	3.64E-03	3.64E-04	3.64E-03	3.64E-04
Biphenyl		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Carbon Tetrachloride		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chlorobenzene		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chloroform		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dichlorobenzene		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dioxins/furans (CDD/CDF) (TEQ)		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethylbenzene		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethylene Dibromide		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethylene Dichloride		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Formaldehyde	7.89E-05	lb/MMBtu	3.70E-04	3.70E-05	3.70E-04	3.70E-05
Hexane		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hydrogen Chloride		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hydrogen Fluoride		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hydrogen Sulfide		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methanol		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methylene Chloride		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Phenol		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Propylene Oxide		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Styrene		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tetrachloroethylene		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tetrachloroethane		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toluene	2.81E-04	lb/MMBtu	1.32E-03	1.32E-04	1.32E-03	1.32E-04
Trichloroethylene		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Vinyl Chloride		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Vinylidene Chloride		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xylenes (m,p,o)	1.93E-04	lb/MMBtu	9.06E-04	9.06E-05	9.06E-04	9.06E-05

56	2-Methylnaphthalene		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
57	3-Methylchloranthrene		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
58	7,12-Dimethylbenz(a)anthracene		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
59	Acenaphthene	4.68E-06	lb/MMBtu	2.20E-05	2.20E-06	2.20E-05	2.20E-06
60	Acenaphthylene	9.23E-06	lb/MMBtu	4.33E-05	4.33E-06	4.33E-05	4.33E-06
61	Anthracene	1.23E-06	lb/MMBtu	5.77E-06	5.77E-07	5.77E-06	5.77E-07
62	Benz(a)anthracene	6.22E-07	lb/MMBtu	2.92E-06	2.92E-07	2.92E-06	2.92E-07
63	Benzo(a)pyrene	2.57E-07	lb/MMBtu	1.21E-06	1.21E-07	1.21E-06	1.21E-07
64	Benzo(e)pyrene		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
65	Benzo(b)fluoranthene	1.11E-06	lb/MMBtu	5.21E-06	5.21E-07	5.21E-06	5.21E-07
66	Benzo(g,h,i)perylene	5.56E-07	lb/MMBtu	2.61E-06	2.61E-07	2.61E-06	2.61E-07
67	Benzo(k)fluoranthene	2.18E-07	lb/MMBtu	1.02E-06	1.02E-07	1.02E-06	1.02E-07
68	Chrysene	1.53E-06	lb/MMBtu	7.18E-06	7.18E-07	7.18E-06	7.18E-07
69	Dibenzo(a,h)anthracene	3.46E-07	lb/MMBtu	1.62E-06	1.62E-07	1.62E-06	1.62E-07
70	Fluoranthene	4.03E-06	lb/MMBtu	1.89E-05	1.89E-06	1.89E-05	1.89E-06
71	Fluorene	1.28E-05	lb/MMBtu	6.01E-05	6.01E-06	6.01E-05	6.01E-06
72	Indeno(1,2,3-c,d)pyrene	4.14E-07	lb/MMBtu	1.94E-06	1.94E-07	1.94E-06	1.94E-07
73	Naphthalene	1.30E-04	lb/MMBtu	6.10E-04	6.10E-05	6.10E-04	6.10E-05
74	Perylene		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
75	Phenanathrene	4.08E-05	lb/MMBtu	1.91E-04	1.91E-05	1.91E-04	1.91E-05
76	Pyrene	3.71E-06	lb/MMBtu	1.74E-05	1.74E-06	1.74E-05	1.74E-06
78	Arsenic		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
79	Beryllium		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
80	Cadmium		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
81	Chromium		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
82	Chromium VI		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
83	Cobalt		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
84	Copper		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
85	Lead	6.01E-05	lb/MMBtu	2.82E-04	2.82E-05	2.82E-04	2.82E-05
86	Manganese		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
87	Mercury		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
88	Nickel		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
89	Selenium		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
90	Zinc		lb/MMBtu	0.00E+00	0.00E+00	0.00E+00	0.00E+00
91	HAPs (Total)		----	7.67E-03	7.67E-04	7.67E-03	7.67E-04
92	HAPs (Max Individual)		Benzene	3.64E-03	3.64E-04	3.64E-03	3.64E-04
<b>Greenhouse Gases</b> <sup>(c), (d)</sup>							
15	CO <sub>2</sub>	7.40E+01	kg/MMBtu	7.65E+02	7.65E+01	7.65E+02	7.65E+01
16	CH <sub>4</sub>	3.00E-03	kg/MMBtu	3.10E-02	3.10E-03	3.10E-02	3.10E-03
17	N <sub>2</sub> O	6.00E-04	kg/MMBtu	6.21E-03	6.21E-04	6.21E-03	6.21E-04
	Total CO <sub>2</sub> e		----	7.68E+02	7.68E+01	7.68E+02	7.68E+01

**Notes:**

(a) SO<sub>2</sub> Emission factor (EF) is from AP-42, Large Stationary Diesel Engines, Table 3.4-1. SO<sub>2</sub> EF (lb/hp-hr) = (Fuel Sulfur wt % \* 0.00809). All other criteria pollutant EFs from EPA nonroad compression-ignition engine emission standards for specific engine tier and size.

(b) AP-42, Section 3.4, Tables 3.4-3 and 3.4-4 (October 1996)

(c) 40 CFR 98, Subpart C, Table C-1 and Table C-2 Default Emission Factors for Various Types of Fuel, Petroleum products - liquid, Distillate Fuel Oil No. 2.

(d) Calculation of carbon dioxide equivalents based on Global Warming Potentials in IPCC Fourth Assessment Report, 2007 (AR4), consistent with CARB and CalEEMod emissions calculation methodologies.

**Turlock North Valley Laboratory Replacement Project**  
**Turlock - Operations Related Emissions**

<b>Emission Unit Description</b>	<b>Crematory - Animal Charge</b>	
<b>Emission Unit Category</b>	Crematory   Animal	
<b>Number of Units</b>	1	
<b>Animal Charge, Hourly</b>	1,250 lb/hr charged	2 cycles per day
<b>Animal Charge, Annual</b>	592,500 lb/yr charged	
<b>Primary Burners Rating</b>	1.00 MMBtu/hr (HHV)	
<b>Number of Primary Burners</b>	4	
<b>Secondary Burner Rating</b>	2.25 MMBtu/hr (HHV)	
<b>Number of Secondary Burners</b>	1	
<b>Total Burner Heat Input Rating</b>	6.3 MMBtu/hr (HHV)	
<b>Annual Hours of Operation</b>	3,792 hr/yr	
<b>Daily Hours of Operation</b>	16 hr/day	
<b>Load Factor</b>	100 %	

<b>Fuel Properties</b>	Natural Gas
<b>Higher Heating Value (HHV)</b>	1,020 Btu/scf (HHV)

Species	Emission Factor	Emission Factor Unit	Emission Rates			
			(lb/hr-unit)	(ton/yr-unit)	(lb/hr)	(ton/yr)
<b>Criteria Pollutants, ROG, &amp; TSP <sup>(a)</sup></b>						
NO <sub>x</sub>	103.10	lb/MMscf	6.32E-01	1.20E+00	6.32E-01	1.20E+00
CO	21.65	lb/MMscf	1.33E-01	2.52E-01	1.33E-01	2.52E-01
ROG	7.47E-09	lb/hr	7.47E-09	1.42E-08	7.47E-09	1.42E-08
TSP	1.30	lb/hr	1.30E+00	2.46E+00	1.30E+00	2.46E+00
PM <sub>10</sub>	1.30	lb/hr	1.30E+00	2.46E+00	1.30E+00	2.46E+00
PM <sub>2.5</sub>	1.30	lb/hr	1.30E+00	2.46E+00	1.30E+00	2.46E+00
SO <sub>2</sub>	0.60	lb/MMscf	3.68E-03	6.97E-03	3.68E-03	6.97E-03
<b>Air Toxics/HAPs <sup>(b)</sup></b>						
1,1,2,2-Tetrachloroethane		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,1,1-Trichloroethane		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,1,2-Trichloroethane		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,3-Butadiene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,3-Dichloropropene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2,2,4-Trimethylpentane (iso-octane)		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acetaldehyde	1.50E-03	lb/ton charged	9.38E-04	2.22E-04	9.38E-04	2.22E-04
Acrolein		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzene	7.20E-04	lb/ton charged	4.50E-04	1.07E-04	4.50E-04	1.07E-04
Biphenyl		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Carbon Tetrachloride		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chlorobenzene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chloroform		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dichlorobenzene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dioxins/furans (CDD/CDF) (TEQ)		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethylbenzene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethylene Dibromide		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethylene Dichloride		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Formaldehyde	4.00E-04	lb/ton charged	2.50E-04	5.93E-05	2.50E-04	5.93E-05
Hexane		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hydrogen Chloride	8.60E-01	lb/ton charged	5.38E-01	1.27E-01	5.38E-01	1.27E-01
Hydrogen Fluoride	7.80E-03	lb/ton charged	4.88E-03	1.16E-03	4.88E-03	1.16E-03
Hydrogen Sulfide		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methanol		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methylene Chloride		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Phenol		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Propylene Oxide		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Styrene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tetrachloroethylene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tetrachloroethane		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toluene	9.90E-03	lb/ton charged	6.19E-03	1.47E-03	6.19E-03	1.47E-03
Trichloroethylene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Vinyl Chloride		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Vinylidene Chloride		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xylenes (m,p,o)	2.80E-03	lb/ton charged	1.75E-03	4.15E-04	1.75E-03	4.15E-04
PAHs-w/o	5.20E-05	lb/ton charged	3.25E-05	7.70E-06	3.25E-05	7.70E-06



56	2-Methylnaphthalene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
57	3-Methylchloranthrene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
58	7,12-Dimethylbenz(a)anthracene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
59	Acenaphthene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
60	Acenaphthylene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
61	Anthracene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
62	Benz(a)anthracene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
63	Benzo(a)pyrene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
64	Benzo(e)pyrene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
65	Benzo(b)fluoranthene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
66	Benzo(g,h,i)perylene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
67	Benzo(k)fluoranthene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
68	Chrysene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
69	Dibenzo(a,h)anthracene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
70	Fluoranthene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
71	Fluorene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
72	Indeno(1,2,3-c,d)pyrene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
73	Naphthalene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
74	Perylene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
75	Phenanthrene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
76	Pyrene		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
78	Arsenic	5.80E-04	lb/ton charged	3.63E-04	8.59E-05	3.63E-04	8.59E-05
79	Beryllium	2.00E-05	lb/ton charged	1.25E-05	2.96E-06	1.25E-05	2.96E-06
80	Cadmium	1.60E-04	lb/ton charged	1.00E-04	2.37E-05	1.00E-04	2.37E-05
81	Chromium	3.20E-04	lb/ton charged	2.00E-04	4.74E-05	2.00E-04	4.74E-05
82	Chromium VI	1.90E-04	lb/ton charged	1.19E-04	2.81E-05	1.19E-04	2.81E-05
83	Cobalt		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
84	Copper	4.00E-04	lb/ton charged	2.50E-04	5.93E-05	2.50E-04	5.93E-05
85	Lead	9.80E-04	lb/ton charged	6.13E-04	1.45E-04	6.13E-04	1.45E-04
86	Manganese		lb/ton charged	0.00E+00	0.00E+00	0.00E+00	0.00E+00
87	Mercury	4.80E-02	lb/ton charged	3.00E-02	7.11E-03	3.00E-02	7.11E-03
88	Nickel	5.70E-04	lb/ton charged	3.56E-04	8.44E-05	3.56E-04	8.44E-05
89	Selenium	6.50E-04	lb/ton charged	4.06E-04	9.63E-05	4.06E-04	9.63E-05
90	Zinc	5.20E-04	lb/ton charged	3.25E-04	7.70E-05	3.25E-04	7.70E-05
91	HAPs (Total)		----	5.85E-01	1.11E+00	5.85E-01	1.11E+00
92	HAPs (Max Individual)		Hydrogen Chloride	5.38E-01	1.27E-01	5.38E-01	1.27E-01
<b>Greenhouse Gases</b> <sup>(c), (d), (e)</sup>							
15	CO <sub>2</sub>	5.31E+01	kg/MMBtu	7.31E+02	1.39E+03	7.31E+02	1.39E+03
	Biogenic CO <sub>2</sub>	9.17E-01	lb/lb animal charge	1.15E+03	2.72E+02	1.15E+03	2.72E+02
16	CH <sub>4</sub>	1.00E-03	kg/MMBtu	1.38E-02	2.61E-02	1.38E-02	2.61E-02
17	N <sub>2</sub> O	1.00E-04	kg/MMBtu	1.38E-03	2.61E-03	1.38E-03	2.61E-03
	Total CO <sub>2</sub> e		----	1.88E+03	1.66E+03	1.88E+03	1.66E+03

**Notes:**

(a) SDAPCD guidance document CO2 - "Crematories, Natural Gas Fired, Animal Remains, Controlled Air". NOx and CO factors from AP-42, Section 1.4, Tables 1.4-1 and 1.4-3 (October 1996) for natural gas-fired boilers. SO2 factor uses average SDG&E natural gas sulfur content (0.6 lbs SOx/million ft3). PM and ROG factors are based on more stringent permit limits for this unit (S-8885-1-1). Assumed that PM2.5 = PM10 = PM.

(b) SJVAPCD Guidance. SDAPCD's 1993 profile "Crematory and Incinerator Operations", test data from 1990 UCSD Medical Center AB2588 Source Testing.

(c) 40 CFR 98, Subpart C, Table C-1 and Table C-2 Default Emission Factors for Various Types of Fuel, Natural Gas.

(d) Calculation of carbon dioxide equivalents based on Global Warming Potentials in IPCC Fourth Assessment Report, 2007 (AR4), consistent with CARB and CalEEMod emissions calculation methodologies.

(e) To estimate the biogenic carbon deriving from the animal tissue it was assumed that the animal was 25% carbon and all carbon was converted to carbon dioxide.

**Turlock North Valley Laboratory Replacement Project**  
**Turlock - Operations Related Emissions**

<i>Emission Unit Description</i>	<b>Cooling Tower</b>
<i>Emission Unit Category</i>	N/A
<i>Number of Towers</i>	1
<i>Number of Cells per Tower</i>	3
<i>Peak Hourly Water Circulation Rate</i>	500 Gallons/hr
<i>Peak Daily Water Circulation Rate</i>	12,000 Gallons/day
<i>Annual Water Circulation Rate</i>	1,861,500 Gallons/year
<i>Hours of Operation Per Day</i>	24 Hours

Species	Emission Factor	Emission Factor Unit	Emission Rates			
			(lb/hr-unit)	(ton/yr-unit)	(lb/hr)	(ton/yr)
TSP	1.643	lb/MMgallon	8.22E-04	1.53E-03	8.22E-04	1.53E-03
PM <sub>10</sub>	70%	of Total PM	5.75E-04	1.07E-03	5.75E-04	1.07E-03
PM <sub>2.5</sub>	42%	of Total PM	3.45E-04	6.42E-04	3.45E-04	6.42E-04
Nickel	0.2%	of Total PM	1.64E-06	3.06E-06	1.64E-06	3.06E-06

**Notes:**

Cooling towers that have a circulation rate of less than 10,000 gallons per minute, and that are not used for cooling of process water, water from barometric jets, or water from barometric condensers are exempt from permitting (San Joaquin Valley Air Pollution Control District Policy Rule 2020, Section 6.2 [<https://www.valleyair.org/rules/currentrules/R2020Rule.pdf>]). However, this unit does need to be included in the health risk assessment and is thus quantified here.

- (a) Hourly and daily water circulation rates based on peak daily usage during the summer. Annual circulation rate is based on average circulation rate of 5,100 gallons per day.
- (b) Default PM emission factor from South Coast Air Quality Management District (SCAQMD) for cooling towers used strictly for HVAC purposes.
- (c) Particle size distribution information is from Appendix A "Updated CEIDARS Table with PM2.5 Fractions".
- (d) Nickel emission factor from SCAQMD guidance.

**Turlock North Valley Laboratory Replacement Project**  
**Turlock - Operations Related Emissions**

*Emission Unit Description* Domestic heaters  
*Emission Unit Category* Boiler | Gas | <2 MMBtu/hr  
*Number of Units* 2  
*Control Device Description* None

*Maximum Heat Input (LHV)* 0.1 MMBtu/hr  
*Fuel Consumption* 9.80E-05 MMscf/hr

*Annual Hours of Operation* 8,760 hr/yr  
*Daily Hours of Operation* 24 hr/day  
*Load Factor* 100 %

*Fuel Properties* Natural Gas  
*Higher Heating Value (HHV)* 1,020 Btu/scf (HHV)

Species	Emission Factor	Emission Factor Unit	Emission Rates			
			(lb/hr-unit)	(ton/yr-unit)	(lb/hr)	(ton/yr)
<b>Criteria Pollutants, ROG, &amp; TSP <sup>(a)</sup></b>						
NO <sub>x</sub>	24	lb/MMscf	0.00	0.01	0.00	0.02
CO	84.0	lb/MMscf	0.01	0.04	0.02	0.07
ROG	5.5	lb/MMscf	0.00	0.00	0.00	0.00
TSP	1.9	lb/MMscf	0.00	0.00	0.00	0.00
PM <sub>10</sub>	7.6	lb/MMscf	0.00	0.00	0.00	0.01
PM <sub>2.5</sub>	7.6	lb/MMscf	0.00	0.00	0.00	0.01
SO <sub>2</sub>	0.6	lb/MMscf	0.00	0.00	0.00	0.00
<b>Air Toxics/HAPs <sup>(b)</sup></b>						
1,1,2,2-Tetrachloroethane		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,1,1-Trichloroethane		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,1,2-Trichloroethane		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,3-Butadiene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,3-Dichloropropene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2,2,4-Trimethylpentane (iso-octane)		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acetaldehyde	4.30E-03	lb/MMscf	4.22E-07	1.85E-06	8.43E-07	3.69E-06
Acrolein		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzene	8.00E-03	lb/MMscf	7.84E-07	3.44E-06	1.57E-06	6.87E-06
Biphenyl		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Carbon Tetrachloride		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chlorobenzene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chloroform		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dichlorobenzene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dioxins/furans (CDD/CDF) (TEQ)		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethylbenzene	9.50E-03	lb/MMscf	9.31E-07	4.08E-06	1.86E-06	8.16E-06
Ethylene Dibromide		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethylene Dichloride		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Formaldehyde	1.70E-02	lb/MMscf	1.67E-06	7.30E-06	3.33E-06	1.46E-05
Hexane	6.30E-03	lb/MMscf	6.18E-07	2.71E-06	1.24E-06	5.41E-06
Hydrogen Chloride		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hydrogen Fluoride		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hydrogen Sulfide		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methanol		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methylene Chloride		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Phenol		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Propylene Oxide		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Styrene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tetrachloroethylene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tetrachloroethane		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toluene	3.66E-02	lb/MMscf	3.59E-06	1.57E-05	7.18E-06	3.14E-05
Trichloroethylene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Vinyl Chloride		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Vinylidene Chloride		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xylenes (m,p,o)	2.72E-02	lb/MMscf	2.67E-06	1.17E-05	5.33E-06	2.34E-05
PAHs-w/o	1.00E-04	lb/MMscf	9.80E-09	4.29E-08	1.96E-08	8.59E-08
2-Methylnaphthalene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3-Methylchloranthrene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7,12-Dimethylbenz(a)anthracene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00

59	Acenaphthene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
60	Acenaphthylene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
61	Anthracene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
62	Benzo(a)anthracene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
63	Benzo(a)pyrene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
64	Benzo(e)pyrene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
65	Benzo(b)fluoranthene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
66	Benzo(g,h,i)perylene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
67	Benzo(k)fluoranthene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
68	Chrysene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
69	Dibenzo(a,h)anthracene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
70	Fluoranthene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
71	Fluorene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
72	Indeno(1,2,3-c,d)pyrene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
73	Naphthalene	3.00E-04	lb/MMscf	2.94E-08	1.29E-07	5.88E-08	2.58E-07
74	Perylene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
75	Phenanathrene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
76	Pyrene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
78	Arsenic		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
79	Beryllium		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
80	Cadmium		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
81	Chromium		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
82	Chromium VI		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
83	Cobalt		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
84	Copper		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
85	Lead		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
86	Manganese		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
87	Mercury		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
88	Nickel		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
89	Selenium		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
90	Zinc		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
91	HAPs (Total)		----	1.07E-05	4.69E-05	2.14E-05	9.39E-05
92	HAPs (Max Individual)		Toluene	3.59E-06	1.57E-05	7.18E-06	3.14E-05
<b>Greenhouse Gases</b> <sup>(c),(d)</sup>							
15	CO <sub>2</sub>	5.31E+01	kg/MMBtu	1.17E+01	5.12E+01	2.34E+01	1.02E+02
16	CH <sub>4</sub>	1.00E-03	kg/MMBtu	2.20E-04	9.66E-04	4.41E-04	1.93E-03
17	N <sub>2</sub> O	1.00E-04	kg/MMBtu	2.20E-05	9.66E-05	4.41E-05	1.93E-04
	Total CO <sub>2</sub> e		----	1.17E+01	5.13E+01	2.34E+01	1.03E+02

**Notes:**

This unit is permit exempt according to SJVAPCD Rule 2020, 6.1.1.1 (5 MMBtu/hr or less unit firing NG with 1.0 gr/100 scf sulfur and <5% hydrocarbons heavier than butane). Emissions are calculated for inclusion in the health risk assessment.

(a) NOx factors from SJVAPCD RULE 4308 Boilers, Steam Generators, and Process Heaters - 0.075 MMBtu/hr to Less Than 2.0 MMBtu/hr. Other pollutants from AP-42, Section 1.4, Tables 1.4-1 and 1.4-2 (July 1998) for small, uncontrolled natural gas-fired boilers. TSP = PM (filterable).

(b) SJVAPCD Guidance. "Natural Gas Fired External Combustion Equipment" table in the May 2001 update of VCAPCD AB 2588 Combustion Emission Factors. PAHs emission factor adjusted from table values to subtract Naphthalene portion.

(c) 40 CFR 98, Subpart C, Table C-1 and Table C-2 Default Emission Factors for Various Types of Fuel, Natural Gas.

(d) Calculation of carbon dioxide equivalents based on Global Warming Potentials in IPCC Fourth Assessment Report, 2007 (AR4), consistent with CARB and CalEEMod emissions calculation methodologies.

**Turlock North Valley Laboratory Replacement Project**  
**Turlock - Operations Related Emissions**

**Emission Unit Description** Laboratory heaters  
**Emission Unit Category** Boiler | Gas | <2 MMBtu/hr  
**Number of Units** 2  
**Control Device Description** None

**Maximum Heat Input (LHV)** 0.5 MMBtu/hr  
**Fuel Consumption** 4.90E-04 MMscf/hr

**Annual Hours of Operation** 8,760 hr/yr  
**Daily Hours of Operation** 24 hr/day  
**Load Factor** 100 %

**Fuel Properties** Natural Gas  
**Higher Heating Value (HHV)** 1,020 Btu/scf (HHV)

Species	Emission Factor	Emission Factor Unit	Emission Rates			
			(lb/hr-unit)	(ton/yr-unit)	(lb/hr)	(ton/yr)
<b>Criteria Pollutants, ROG, &amp; TSP <sup>(a)</sup></b>						
NO <sub>x</sub>	24	lb/MMscf	0.01	0.05	0.02	0.11
CO	84.0	lb/MMscf	0.04	0.18	0.08	0.36
ROG	5.5	lb/MMscf	0.00	0.01	0.01	0.02
TSP	1.9	lb/MMscf	0.00	0.00	0.00	0.01
PM <sub>10</sub>	7.6	lb/MMscf	0.00	0.02	0.01	0.03
PM <sub>2.5</sub>	7.6	lb/MMscf	0.00	0.02	0.01	0.03
SO <sub>2</sub>	0.6	lb/MMscf	0.00	0.00	0.00	0.00
<b>Air Toxics/HAPs <sup>(b)</sup></b>						
1,1,2,2-Tetrachloroethane		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,1,1-Trichloroethane		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,1,2-Trichloroethane		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,3-Butadiene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,3-Dichloropropene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2,2,4-Trimethylpentane (iso-octane)		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acetaldehyde	4.30E-03	lb/MMscf	2.11E-06	9.23E-06	4.22E-06	1.85E-05
Acrolein		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzene	8.00E-03	lb/MMscf	3.92E-06	1.72E-05	7.84E-06	3.44E-05
Biphenyl		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Carbon Tetrachloride		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chlorobenzene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chloroform		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dichlorobenzene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dioxins/furans (CDD/CDF) (TEQ)		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethylbenzene	9.50E-03	lb/MMscf	4.66E-06	2.04E-05	9.31E-06	4.08E-05
Ethylene Dibromide		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethylene Dichloride		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Formaldehyde	1.70E-02	lb/MMscf	8.33E-06	3.65E-05	1.67E-05	7.30E-05
Hexane	6.30E-03	lb/MMscf	3.09E-06	1.35E-05	6.18E-06	2.71E-05
Hydrogen Chloride		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hydrogen Fluoride		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hydrogen Sulfide		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methanol		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methylene Chloride		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Phenol		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Propylene Oxide		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Styrene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tetrachloroethylene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tetrachloroethane		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toluene	3.66E-02	lb/MMscf	1.79E-05	7.86E-05	3.59E-05	1.57E-04
Trichloroethylene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Vinyl Chloride		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Vinylidene Chloride		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xylenes (m,p,o)	2.72E-02	lb/MMscf	1.33E-05	5.84E-05	2.67E-05	1.17E-04
PAHs-w/o	1.00E-04	lb/MMscf	4.90E-08	2.15E-07	9.80E-08	4.29E-07
2-Methylnaphthalene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3-Methylchloranthrene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7,12-Dimethylbenz(a)anthracene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00

59	Acenaphthene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
60	Acenaphthylene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
61	Anthracene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
62	Benzo(a)anthracene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
63	Benzo(a)pyrene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
64	Benzo(e)pyrene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
65	Benzo(b)fluoranthene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
66	Benzo(g,h,i)perylene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
67	Benzo(k)fluoranthene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
68	Chrysene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
69	Dibenzo(a,h)anthracene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
70	Fluoranthene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
71	Fluorene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
72	Indeno(1,2,3-c,d)pyrene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
73	Naphthalene	3.00E-04	lb/MMscf	1.47E-07	6.44E-07	2.94E-07	1.29E-06
74	Perylene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
75	Phenanthrene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
76	Pyrene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
78	Arsenic		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
79	Beryllium		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
80	Cadmium		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
81	Chromium		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
82	Chromium VI		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
83	Cobalt		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
84	Copper		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
85	Lead		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
86	Manganese		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
87	Mercury		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
88	Nickel		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
89	Selenium		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
90	Zinc		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
91	HAPs (Total)		----	5.36E-05	2.35E-04	1.07E-04	4.69E-04
92	HAPs (Max Individual)		Toluene	1.79E-05	7.86E-05	3.59E-05	1.57E-04
<b>Greenhouse Gases</b> <sup>(c), (d)</sup>							
15	CO <sub>2</sub>	5.31E+01	kg/MMBtu	5.85E+01	2.56E+02	1.17E+02	5.12E+02
16	CH <sub>4</sub>	1.00E-03	kg/MMBtu	1.10E-03	4.83E-03	2.20E-03	9.66E-03
17	N <sub>2</sub> O	1.00E-04	kg/MMBtu	1.10E-04	4.83E-04	2.20E-04	9.66E-04
	Total CO <sub>2</sub> e	----	----	5.85E+01	2.56E+02	1.17E+02	5.13E+02

**Notes:**

This unit is permit exempt according to SJVAPCD Rule 2020, 6.1.1.1 (5 MMBtu/hr or less unit firing NG with 1.0 gr/100 scf sulfur and <5% hydrocarbons heavier than butane). Emissions are calculated for inclusion in the health risk assessment.

(a) NOx factors from SJVAPCD RULE 4308 Boilers, Steam Generators, and Process Heaters - 0.075 MMBtu/hr to Less Than 2.0 MMBtu/hr. Other pollutants from AP-42, Section 1.4, Tables 1.4-1 and 1.4-2 (July 1998) for small, uncontrolled natural gas-fired boilers. TSP = PM (filterable).

(b) SJVAPCD Guidance. "Natural Gas Fired External Combustion Equipment" table in the May 2001 update of VCAPCD AB 2588 Combustion Emission Factors. PAHs emission factor adjusted from table values to subtract Naphthalene portion.

(c) 40 CFR 98, Subpart C, Table C-1 and Table C-2 Default Emission Factors for Various Types of Fuel, Natural Gas.

(d) Calculation of carbon dioxide equivalents based on Global Warming Potentials in IPCC Fourth Assessment Report, 2007 (AR4), consistent with CARB and CalEEMod emissions calculation methodologies.

**Turlock North Valley Laboratory Replacement Project**  
**Turlock - Operations Related Emissions**

*Emission Unit Description*                      **Boilers**  
*Emission Unit Category*                    Boiler | Gas | <2 MMBtu/hr  
*Number of Units*                                3  
*Control Device Description*                None

*Maximum Heat Input (LHV)*                      0.5 MMBtu/hr  
*Fuel Consumption*                                4.90E-04 MMscf/hr

*Annual Hours of Operation*                      8,760 hr/yr  
*Daily Hours of Operation*                        24 hr/day  
*Load Factor*                                        100 %

*Fuel Properties*                                    Natural Gas  
*Higher Heating Value (HHV)*                    1,020 Btu/scf (HHV)

Species	Emission Factor	Emission Factor Unit	Emission Rates			
			(lb/hr-unit)	(ton/yr-unit)	(lb/hr)	(ton/yr)
<b>Criteria Pollutants, ROG, &amp; TSP <sup>(a)</sup></b>						
NO <sub>x</sub>	24	lb/MMscf	0.01	0.05	0.04	0.16
CO	84.0	lb/MMscf	0.04	0.18	0.12	0.54
ROG	5.5	lb/MMscf	0.00	0.01	0.01	0.04
TSP	1.9	lb/MMscf	0.00	0.00	0.00	0.01
PM <sub>10</sub>	7.6	lb/MMscf	0.00	0.02	0.01	0.05
PM <sub>2.5</sub>	7.6	lb/MMscf	0.00	0.02	0.01	0.05
SO <sub>2</sub>	0.6	lb/MMscf	0.00	0.00	0.00	0.00
<b>Air Toxics/HAPs <sup>(b)</sup></b>						
1,1,2,2-Tetrachloroethane		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,1,1-Trichloroethane		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,1,2-Trichloroethane		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,3-Butadiene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,3-Dichloropropene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2,2,4-Trimethylpentane (iso-octane)		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acetaldehyde	4.30E-03	lb/MMscf	2.11E-06	9.23E-06	6.32E-06	2.77E-05
Acrolein		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzene	8.00E-03	lb/MMscf	3.92E-06	1.72E-05	1.18E-05	5.15E-05
Biphenyl		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Carbon Tetrachloride		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chlorobenzene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chloroform		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dichlorobenzene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dioxins/furans (CDD/CDF) (TEQ)		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethylbenzene	9.50E-03	lb/MMscf	4.66E-06	2.04E-05	1.40E-05	6.12E-05
Ethylene Dibromide		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethylene Dichloride		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Formaldehyde	1.70E-02	lb/MMscf	8.33E-06	3.65E-05	2.50E-05	1.10E-04
Hexane	6.30E-03	lb/MMscf	3.09E-06	1.35E-05	9.26E-06	4.06E-05
Hydrogen Chloride		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hydrogen Fluoride		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hydrogen Sulfide		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methanol		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methylene Chloride		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Phenol		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Propylene Oxide		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Styrene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tetrachloroethylene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tetrachloroethane		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toluene	3.66E-02	lb/MMscf	1.79E-05	7.86E-05	5.38E-05	2.36E-04
Trichloroethylene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Vinyl Chloride		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Vinylidene Chloride		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xylenes (m,p,o)	2.72E-02	lb/MMscf	1.33E-05	5.84E-05	4.00E-05	1.75E-04
PAHs-w/o	1.00E-04	lb/MMscf	4.90E-08	2.15E-07	1.47E-07	6.44E-07
2-Methylnaphthalene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3-Methylchloranthrene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7,12-Dimethylbenz(a)anthracene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00

59	Acenaphthene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
60	Acenaphthylene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
61	Anthracene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
62	Benzo(a)anthracene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
63	Benzo(a)pyrene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
64	Benzo(e)pyrene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
65	Benzo(b)fluoranthene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
66	Benzo(g,h,i)perylene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
67	Benzo(k)fluoranthene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
68	Chrysene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
69	Dibenzo(a,h)anthracene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
70	Fluoranthene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
71	Fluorene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
72	Indeno(1,2,3-c,d)pyrene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
73	Naphthalene	3.00E-04	lb/MMscf	1.47E-07	6.44E-07	4.41E-07	1.93E-06
74	Perylene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
75	Phenanathrene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
76	Pyrene		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
78	Arsenic		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
79	Beryllium		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
80	Cadmium		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
81	Chromium		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
82	Chromium VI		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
83	Cobalt		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
84	Copper		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
85	Lead		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
86	Manganese		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
87	Mercury		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
88	Nickel		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
89	Selenium		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
90	Zinc		lb/MMscf	0.00E+00	0.00E+00	0.00E+00	0.00E+00
91	HAPs (Total)		----	5.36E-05	2.35E-04	1.61E-04	7.04E-04
92	HAPs (Max Individual)		Toluene	1.79E-05	7.86E-05	5.38E-05	2.36E-04
<b>Greenhouse Gases</b> <sup>(c),(d)</sup>							
15	CO <sub>2</sub>	5.31E+01	kg/MMBtu	5.85E+01	2.56E+02	1.75E+02	7.69E+02
16	CH <sub>4</sub>	1.00E-03	kg/MMBtu	1.10E-03	4.83E-03	3.31E-03	1.45E-02
17	N <sub>2</sub> O	1.00E-04	kg/MMBtu	1.10E-04	4.83E-04	3.31E-04	1.45E-03
	Total CO <sub>2</sub> e	----	----	5.85E+01	2.56E+02	1.76E+02	7.69E+02

**Notes:**

This unit is permit exempt according to SJVAPCD Rule 2020, 6.1.1.1 (5 MMBtu/hr or less unit firing NG with 1.0 gr/100 scf sulfur and <5% hydrocarbons heavier than butane). Emissions are calculated for inclusion in the health risk assessment.

(a) NOx factors from SJVAPCD RULE 4308 Boilers, Steam Generators, and Process Heaters - 0.075 MMBtu/hr to Less Than 2.0 MMBtu/hr. Other pollutants from AP-42, Section 1.4, Tables 1.4-1 and 1.4-2 (July 1998) for small, uncontrolled natural gas-fired boilers. TSP = PM (filterable).

(b) SJVAPCD Guidance. "Natural Gas Fired External Combustion Equipment" table in the May 2001 update of VCAPCD AB 2588 Combustion Emission Factors. PAHs emission factor adjusted from table values to subtract Naphthalene portion.

(c) 40 CFR 98, Subpart C, Table C-1 and Table C-2 Default Emission Factors for Various Types of Fuel, Natural Gas.

(d) Calculation of carbon dioxide equivalents based on Global Warming Potentials in IPCC Fourth Assessment Report, 2007 (AR4), consistent with CARB and CalEEMod emissions calculation methodologies.



Turlock North Valley Laboratory Replacement Project  
 Turlock - Operations Related Emissions

Tank	ROG Emissions			Benzene		Formaldehyde		Toluene		Xylenes		Notes
	lb/hr	lb/day	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	
100% ethanol Tank	0.08	2.0	0.37	--	--	--	--	--	--	--	--	Ethanol not in OEHHA/ARB table, do not include in the HRA.
95% Ethanol Tank	0.08	2.0	0.37	--	--	--	--	--	--	--	--	Ethanol not in OEHHA/ARB table, do not include in the HRA.
Transcend Clear Agent Tank	0.08	2.0	0.37	--	--	--	--	--	--	--	--	No ingredient in this solution present at ≥ 0.1% is identified as a known or anticipated carcinogen. Appears to be no reason to include in the HRA.
55-gal Waste Barrel	0.08	2.0	0.37	--	--	--	--	--	--	--	--	No other information provided.
55-gal Waste Barrel	0.08	2.0	0.37	--	--	--	--	--	--	--	--	No other information provided.
55-gal 10% Buffered Formalin Waste	0.08	2.0	0.37	--	--	3.33E-03	1.46E-02	--	--	--	--	10% buffered formalin contains approximately 4% formaldehyde.
Diesel Storage Tank	1.20E-04	2.88E-03	5.26E-04	1.06E-05	4.63E-05	--	--	5.77E-05	2.53E-04	5.05E-05	2.21E-04	Diesel speciation profile is from SJVAPCD calculations document.

Tanks are exempt from permitting as insignificant units with emissions below the low emitting unit threshold of 2 pounds per day or are exempt as units storing organic material with a capacity of 250 gallons or less where the actual storage temperature does not exceed 150°F (San Joaquin Valley Air Pollution Control District Policy Rule 2020 [<https://www.valleyair.org/rules/currentrules/R2020Rule.pdf>]). However, these tanks do need to be included in the health risk assessment and are thus quantified here.

Due to a lack of physical tank characteristic information needed to accurately estimate emissions from these tanks, ROG emissions from storage tanks and vessels were conservatively assumed to be 2 pounds per day per tank for all tanks other than the diesel storage tank. Diesel storage tank characteristics were determined using capacity and dimension information in the emergency generator spec sheet. Annual throughput for the diesel tank was assumed to be 4,800 gallons, based on approximately 24 gallon/hr fuel consumption (per the generator spec sheet) for 200 hours.

**TankSummaries for Every month between Jan and Dec 2024**

Site: Turlock,

Equations for this site: After 2019 AP-42 revisions H/D ratio: Default 0.5

Tank ID	Tank Diameter (ft)	Tank Type	Row label	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24
DieselTank	12.257335	Horizontal Tank	Product	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
			RVP												
			Throughput (gal)	406.557375	380.3278668	406.557375	393.442623	406.557375	393.442623	406.557375	406.557375	393.442623	406.557375	393.442623	406.557375
			Bulk Liquid Temp	47.595313	52.654235	57.573895	62.048208	70.003955	76.181248	81.107192	79.567485	75.351275	65.818535	54.747425	47.534855
			Avg. Liquid Surface	48.140375	53.508266	58.915162	63.774937	72.105298	78.564161	83.491303	81.704966	77.10089	67.064346	55.51683	48.060338
			Avg. TVP (psia)	0.004343773	0.005218518	0.006253724	0.007334864	0.009575421	0.011707104	0.01360329	0.012886791	0.011190704	0.008157216	0.005583868	0.00433178
			Includes a landing	N	N	N	N	N	N	N	N	N	N	N	N
			Initial fill?	N	N	N	N	N	N	N	N	N	N	N	N
			Includes a tank clean	N	N	N	N	N	N	N	N	N	N	N	N
			Number of Days	31	29	31	30	31	30	31	31	30	31	30	31
			Estimated standing	0.0200645	0.029497865	0.049513616	0.065769596	0.099980037	0.12768656	0.15654139	0.14215246	0.11083034	0.071417854	0.036652527	0.02062657
			Estimated working	0.005614922	0.006241432	0.007906082	0.008885287	0.011792065	0.013779385	0.016395341	0.015588622	0.013220033	0.010154795	0.006882707	0.005600476
			Routine Emissions	0.025679422	0.035739297	0.057419699	0.074654883	0.1117721	0.14146595	0.17293673	0.15774109	0.12405037	0.08157265	0.043535234	0.026227046
			Non Routine Emissions	0	0	0	0	0	0	0	0	0	0	0	0
			Total estimated emissions	0.025679422	0.035739297	0.057419699	0.074654883	0.1117721	0.14146595	0.17293673	0.15774109	0.12405037	0.08157265	0.043535234	0.026227046

**Turlock North Valley Laboratory Replacement Project**  
**Turlock - Operations Related Emissions**

Emission Unit Description Laboratory Operations  
 Emission Unit Category N/A  
 Turlock Lab Building Size 47,517 sf  
 Turlock Lab Proposed Building Size 41,000 sf

**Usage**

Pollutant Name	CAS#	Turlock Usage in Pounds Per Year (lb/yr)					Anticipated Turlock Usage in Pounds Per Year (lb/yr)				
		Bac-T	Biotech	Histology	Necropsy	Immunology	Bac-T	Biotech	Histology	Necropsy	Immunology
Acetonitrile	75058	2.75E-02					2.37E-02				
Ammonium sulfate	7783202			7.00E-02					6.04E-02		
Aniline	62533			5.80E-01					5.00E-01		
Chromium, hexavalent (and compounds) - Chromium Trioxide	18540299			1.00E-01					8.63E-02		
Ethyl benzene	100414			8.00E-02	6.41E-04				6.90E-02	5.53E-04	
Ethylene glycol	107211			1.65E+01					1.42E+01		
Formaldehyde	50000			1.70E+01	4.23E+01	4.10E-03			1.47E+01	3.65E+01	3.54E-03
Hydrochloric acid	7647010	6.70E-02		1.59E+00			5.78E-02		1.37E+00		
Hydroquinone	123319			1.40E-01					1.21E-01		
Isopropyl alcohol	67630		4.20E+00	2.36E+00				3.62E+00	2.04E+00		
Methanol	67561	3.96E-01		1.08E+01		8.73E-01	3.42E-01		9.28E+00		7.53E-01
Phenol	108952	2.20E-02		1.40E-01			1.90E-02		1.21E-01		
2-Phenylphenol [POM]	90437				3.30E+01					2.85E+01	
Phosphoric acid	7664382			3.75E+00	1.40E+01				3.24E+00	1.21E+01	
Picric acid	88891			2.00E-02					1.73E-02		
Silver compounds	7440224			1.00E-01					8.63E-02		
Sodium hydroxide	1310732	4.40E-05		4.10E-01	5.01E+00		3.80E-05		3.54E-01	4.32E+00	
Sulfuric acid	7664939			1.20E-01	6.72E+00	4.83E-02			1.04E-01	5.80E+00	4.17E-02
Toluene	108883			1.35E+00					1.16E+00		
1,2,4-Trimethylbenzene	95636				6.41E-03					5.53E-03	
p-Xylene	106423			3.33E+00					2.87E+00		
Zinc	7440666	2.20E-02					1.90E-02				

**Emissions**

Pollutant Name	CAS#	Loss Factor	Bac-T		Biotech		Histology		Necropsy		Immunology		Total Lab Emissions	
			tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr
Acetonitrile	75058	5%	5.94E-07	7.02E-07									5.94E-07	7.02E-07
Ammonium sulfate	7783202	1%					3.02E-07	3.57E-07					3.02E-07	3.57E-07
Aniline	62533	5%					1.25E-05	1.48E-05					1.25E-05	1.48E-05
Chromium, hexavalent (and compounds) - Chromium Trioxide	18540299	0.1%					4.31E-08	5.10E-08					4.31E-08	5.10E-08
Ethyl benzene	100414	5%					1.73E-06	2.04E-06	1.38E-08	1.63E-08			1.74E-06	2.06E-06
Ethylene glycol	107211	5%					3.55E-04	4.20E-04					3.55E-04	4.20E-04
Formaldehyde	50000	5%					3.66E-04	4.33E-04	9.13E-04	1.08E-03	8.84E-08	1.05E-07	1.28E-03	1.51E-03
Hydrochloric acid	7647010	5%	1.45E-06	1.71E-06			3.43E-05	4.06E-05					3.57E-05	4.23E-05
Hydroquinone	123319	5%					3.02E-06	3.57E-06					3.02E-06	3.57E-06
Isopropyl alcohol	67630	10%			1.81E-04	2.14E-04	1.02E-04	1.20E-04					2.83E-04	3.35E-04
Methanol	67561	5%	8.55E-06	1.01E-05			2.32E-04	2.75E-04			1.88E-05	2.23E-05	2.59E-04	3.07E-04
Phenol	108952	5%	4.75E-07	5.61E-07			3.02E-06	3.57E-06					3.49E-06	4.13E-06
2-Phenylphenol [POM]	90437	5%							7.13E-04	8.43E-04			7.13E-04	8.43E-04
Phosphoric acid	7664382	5%					8.09E-05	9.57E-05	3.02E-04	3.58E-04			3.83E-04	4.53E-04
Picric acid (ONLY COMPOUND ON APPENDIX A-II LIST)	88891	5%					4.31E-07	5.10E-07					4.31E-07	5.10E-07
Silver compounds	7440224	1%					4.31E-07	5.10E-07					4.31E-07	5.10E-07
Sodium hydroxide	1310732	0.1%	1.90E-11	2.24E-11			1.77E-07	2.09E-07	2.16E-06	2.55E-06			2.34E-06	2.76E-06
Sulfuric acid	7664939	5%					2.59E-06	3.06E-06	1.45E-04	1.72E-04	1.04E-06	1.23E-06	1.49E-04	1.76E-04
Toluene	108883	5%					2.91E-05	3.44E-05					2.91E-05	3.44E-05
1,2,4-Trimethylbenzene	95636	5%							1.38E-07	1.63E-07			1.38E-07	1.63E-07
p-Xylene	106423	5%					7.18E-05	8.50E-05					7.18E-05	8.50E-05
Zinc	7440666	1%	9.49E-08	1.12E-07									9.49E-08	1.12E-07

**Annual Emissions**

$E_{LS} = EF_{LS} \times PR$

where,

- $E_{LS}$  = listed substance emissions in lb/yr.
- $EF_{LS}$  = listed substance atmospheric loss factor (Table 4)
- $PR$  = annual chemical use in lb/yr.

**Maximum Hourly Emissions**

$E_{LM} = (5.19/8760) \times EF_{LS} \times PR$

where,

- $E_{LM}$  = listed substance emissions in lb/yr.
- $EF_{LS}$  = listed substance atmospheric loss factor (Table 4)
- $PR$  = annual chemical use in lb/yr.
- 5.19 = constant: maximum hourly emissions/average hourly emissions
- 8760 = lbs/yr.

**Table 4. Evaporative Loss Factors**

Activity	Loss Factor	Chemicals
Solids Handling	0.1%	Chromium trioxide, sodium hydroxide
Solids Handling	1.0%	Ammonium sulfate, silver compounds, zinc
General Solvent Operations	5.0%	Acetonitrile, aniline, ethyl benzene, ethylene glycol, formaldehyde (as formalin solution), hydrochloric acid, hydroquinone, methanol, phenol, 2-phenylphenol, phosphoric acid, picric acid, sulfuric acid, toluene, 1,2,4-trimethylbenzene, and xylenes.
Isopropanol Use (Research Solvent)	10.0%	Isopropanol

**Turlock North Valley Laboratory Replacement Project**  
**Turlock - Operations Related Emissions**

**Natural Gas Use-Pollutant Emissions**

Total Natural Gas Usage      6110 MMBtu/year

	Emission Factor	
	(lb/MMBtu)	tpy
NOx	9.80E-02	3.00E-01
CO	8.24E-02	2.52E-01
ROG	1.08E-02	3.29E-02
PM	7.45E-03	2.28E-02
PM10	7.45E-03	2.28E-02
PM2.5	7.45E-03	2.28E-02
SO2	5.88E-04	1.80E-03
Pb	4.90E-07	1.50E-06

Source: Table 8.2 Natural Gas Emission Factors of Appendix  
D\_2020-04-0 Default Data Tables for CalEEMod.

**Electrical Use- Indirect GHG Emissions**

<b>Assumptions and Variables used for Electrical Calculations</b>	
Total Electrical Usage	1558 MWh/year
CO2 Intensity Factor	420.83 lb/MWh
CH4 Intensity Factor	0.033 lb/MWh
N <sub>2</sub> O Intensity Factor	0.004 lb/MWh

<b>Pollutant</b>	<b>Emissions (TPY)</b>
CO <sub>2</sub>	327.83
CH <sub>4</sub>	2.57E-02
N <sub>2</sub> O	3.12E-03
CO <sub>2</sub> e	329.40

Source: Intensity factors are CalEEMod defaults for Turlock Irrigation District, per CalEEMod User Guide Appendix D\_2020-4-0.

**Natural Gas Use- Indirect GHG Emissions**

<b>Assumptions and Variables used for Electrical Calculations</b>	
Total Natural Gas Usage	6110 MMBtu/year
CO2 Emission Factor	117.65 lb/MMBtu
CH4 Emission Factor	0.0022549 lb/MMBtu
N <sub>2</sub> O Emission Factor	0.002 lb/MMBtu

<b>Pollutant</b>	<b>Emissions (TPY)</b>
CO <sub>2</sub>	359.41
CH <sub>4</sub>	0.0069
N <sub>2</sub> O	0.0066
CO <sub>2</sub> e	361.55

Source: Table 8.2 Natural Gas Emission Factors of CalEEMod User Guide Appendix D\_2020-4-0.

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## Energy Use Calculations

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**Table 14.2 - Existing and Proposed Daily Office Employee VMT Estimate**

Office	VMT to Existing Facility	VMT to Proposed Facility	Net Increase
Animal Health Branch <sup>1</sup>	354	395	41
Milk Dairy Food Safety <sup>2</sup>	198	388	190
Turlock Lab <sup>3</sup>	389	415	26
Total	941	1,198	257
New Employee VMT <sup>4</sup>		527	527
<b>Total</b>		<b>1,725</b>	<b>784</b>

Notes:

VMT estimates are based on employee information provided by CDFA. Calculations only include

<sup>1</sup> Includes VMT estimates for seven employees that commute to the office daily.

<sup>2</sup> Includes VMT estimates for two employees that commute to the office daily.

<sup>3</sup> Includes VMT estimates for 16 employees that commute to the office daily.

<sup>4</sup> Includes VMT estimates for 11 new employees that will commute to the office daily. Estimated

Source: Fehr & Peers, 2021

	12	15	18	25	20	22	29	10	31	35	24	33	27
	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHDT	OBUS	UBUS	MCY	SBUS	MH
Fleet Mix	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768
Gasoline VMT	33,105,373,649	3,371,807,815	11,149,003,499	-	-	-	-	1,140,459	-	-	-	-	-
Diesel VMT	370,483,637	1,131,392	84,040,633	-	-	-	-	1,335,657,942	-	-	-	-	-
Gasoline Fuel Consumption	1,065,299.17	126,104.20	454,690.05	-	-	-	-	281.33	-	-	-	-	-
Diesel Fuel Consumption	7,799.41	47.70	2,409.95	-	-	-	-	212,287.83	-	-	-	-	-
Gasoline Fuel Economy	31.08	26.74	24.52					4.05					
Diesel Fuel Economy	47.50	23.72	34.87					6.29					
Gasoline %	98.89%	99.97%	99.25%					0.09%					
Diesel %	1.11%	0.03%	0.75%					99.91%					
Gasoline Annual Project Miles	537	37	181					0					
Diesel Annual Project Miles	6	0	1					24					
Project Gasoline Consumption	17	1	7					0					
Project Diesel Consumption	0	0	0					4					
													<b>Total</b>
													26
													4

Notes:

1. The fleet mix was the default for the area from CalEEMod.
2. The VMT is the total VMT in miles from EMFAC and the Fuel Consumption is the total Fuel Consumption from EMFAC in 1000 gallons.
3. Fuel Economy is the Total VMT divided Fuel Consumption and 100 unit conversion and is miles per gallon.
4. The total Existing VMT per year is: 941 miles.

Source: EMFAC2017 (v1.0.3) Emissions Inventory

Region Type: Air District

Region: Bay Area AQMD

Calendar Year: 2021

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/year for VMT, trips/year for Trips, tons/year for Emissions, 1000 gallons/year for Fuel Consumption

Region	Calendar	Vehicle C:	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel Consumption
Bay Area	2021	HHDT	Aggregate	Aggregate	Gasoline	30.4314	1140459.364	199100.6507	281.3324542
Bay Area	2021	HHDT	Aggregate	Aggregate	Diesel	35561.6	1335657942	116430598.7	212287.8338
Bay Area	2021	LDA	Aggregate	Aggregate	Gasoline	2631966	33105373649	4288422622	1065299.171
Bay Area	2021	LDA	Aggregate	Aggregate	Diesel	29081	370483637	47266798.9	7799.412445
Bay Area	2021	LDT1	Aggregate	Aggregate	Gasoline	285346	3371807815	455853698.9	126104.1964
Bay Area	2021	LDT1	Aggregate	Aggregate	Diesel	195.092	1131391.839	225051.1448	47.70317741
Bay Area	2021	LDT2	Aggregate	Aggregate	Gasoline	924639	11149003499	1497950919	454690.0514
Bay Area	2021	LDT2	Aggregate	Aggregate	Diesel	6102.5	84040632.96	10378083.8	2409.951163
Bay Area	2021	MHDT	Aggregate	Aggregate	Gasoline	6329.19	110152404.5	41409445.66	22939.45071
Bay Area	2021	MHDT	Aggregate	Aggregate	Diesel	45753.2	852232482.8	142734476.2	91174.16974

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## **Existing Facility Usage and GHG Emissions**

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**Existing Facility Electricity, Natural Gas and Water Usage**

Month	CAHFS Turlock Lab Electrical Usage (kWH)			CAHFS Turlock Natural Gas Usage (Therms)		
	2017	2018	2019	2017	2018	2019
Jan	8,199	8,340	7,901	1,132	766	1,082
Feb	7,475	7,970	7,907	794	770	960
Mar	6,846	7,500	6,895	479	520	717
Apr	7,883	9,486	9,185	405	343	767
May	10,559	9,243	8,552	600	292	488
Jun	13,565	12,706	12,547	379	421	790
Jul	14,898	15,326	13,210	345	582	571
Aug	15,706	15,362	15,352	415	384	596
Sep	14,748	12,877	13,345	423	294	601
Oct	9,210	9,949	8,586	589	533	614
Nov	8,011	7,645	7,848	805	848	737
Dec	8,423	7,769	7,210	1,014	969	1,095
<b>Total</b>	<b>125,523</b>	<b>124,173</b>	<b>118,538</b>	<b>7,380</b>	<b>6,722</b>	<b>9,018</b>

3 Year Average

122,745

7,707

CAHFS Turlock Water Usage (Gallons)			
Month	2017	2018	2019
Jan	15,540	35,870	7,220
Feb	9,270	25,770	6,920
Mar	13,400	26,780	18,270
Apr	26,960	43,930	34,330
May	60,200	49,580	50,990
Jun	71,320	51,060	82,350
Jul	93,070	68,820	114,950
Aug	94,190	62,100	113,140
Sep	69,000	53,200	63,420
Oct	47,560	41,610	57,350
Nov	37,580	33,190	25,920
Dec	29,600	8,280	12,420
<b>Total</b>	<b>567,690</b>	<b>500,190</b>	<b>587,280</b>

551,720

**Existing GHG Emission Sources**

<b>Emission Source</b>	<b>Activity</b>	<b>Activity Units</b>	<b>GHG Emissions (metric tonnes CO2e)</b>
Employee Commute	223,017	miles	103
Electricity Use	122,745	kWhr	23
Natural Gas Use	7,707	therms	41
Water Use	551,720	gallons	132
Waste	422.4	tons	212
<b>Total</b>			<b>511</b>

1. Electricity, natural gas and water use based on the average use of the Existing Turlock Facility from 2017-2019.
2. GHG emissions were calculated in CalEEMod version 2016.3.2 using default factors for carbon intensity.



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**CalEEMod Output File for Proposed Project**

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Turlock North Valley Laboratory Replacement Project - Stanislaus County, Annual

**Turlock North Valley Laboratory Replacement Project**  
**Stanislaus County, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Research & Development	48.86	1000sqft	1.12	48,859.00	0
Other Asphalt Surfaces	58.26	1000sqft	1.34	58,260.00	0
Other Non-Asphalt Surfaces	1.70	Acre	1.70	74,052.00	0
Parking Lot	82.00	Space	0.74	32,800.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Rural	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	46
<b>Climate Zone</b>	3			<b>Operational Year</b>	2024
<b>Utility Company</b>	Turlock Irrigation District				
<b>CO2 Intensity (lb/MWhr)</b>	420.8334576261 47	<b>CH4 Intensity (lb/MWhr)</b>	0.033	<b>N2O Intensity (lb/MWhr)</b>	0.004

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

Turlock North Valley Laboratory Replacement Project - Stanislaus County, Annual

Project Characteristics - Utility intensity factors are CalEEMod defaults for Turlock Irrigation District, per CalEEMod User Guide Appendix D\_2020-4-0.

Land Use -

Construction Phase - No existing building demolition. Paving and AC phases assumed to overlap with building construction activities. Total construction duration of 30 months; construction phase durations scaled from CalEEMod defaults accordingly.

Off-road Equipment - Default construction equipment for all other phases of construction.

Off-road Equipment - CalEEMod default construction equipment, plus air compressor added to power jackhammer for site preparation activities.

Trips and VMT - 4 trips per day for water trucks during ground disturbance. 250 one-way trips added to AC phase for material import for landscaped areas, unrelated to AC but in same time period.

Grading - Site anticipated to be balanced site; all fill needs met with onsite excavated materials and no import/export.

Vehicle Trips - Updated trip data to reflect traffic study for proposed project. Used 30 miles for C-NW trips to consider distance to nearest biomedical waste disposal facility.

Energy Use - Energy inputs provided per anticipated site requirements; related emissions calculated outside of CalEEMod.

Water And Wastewater - Indoor water use scaled based on existing water use data from Turlock facility, which has outdoor water use accounted for.

Solid Waste - Solid waste includes additional tons of medical waste added to CalEEMod defaults for solid waste (Based on Tulare Lab, scaled for square footage).

Construction Off-road Equipment Mitigation - Applied mitigation includes watering exposed area twice daily and reducing vehicle speed on unpaved roadways to 15 mph.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	5.00	22.00
tblConstructionPhase	NumDays	8.00	43.00
tblConstructionPhase	NumDays	230.00	497.00
tblConstructionPhase	NumDays	18.00	43.00
tblConstructionPhase	NumDays	18.00	43.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	LightingElect	2.70	0.00
tblEnergyUse	NT24E	4.16	0.00
tblEnergyUse	NT24NG	3.84	0.00
tblEnergyUse	T24E	1.96	0.00

## Turlock North Valley Laboratory Replacement Project - Stanislaus County, Annual

tblEnergyUse	T24NG	17.03	0.00
tblLandUse	LandUseSquareFeet	48,860.00	48,859.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.033
tblProjectCharacteristics	CO2IntensityFactor	790	420.833457626147
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	3.71	1,008.93
tblTripsAndVMT	HaulingTripNumber	0.00	250.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblVehicleTrips	CC_TL	6.60	24.00
tblVehicleTrips	CC_TTP	48.00	18.00
tblVehicleTrips	CNW_TL	6.60	30.00
tblVehicleTrips	CNW_TTP	19.00	8.00
tblVehicleTrips	CW_TL	14.70	24.00
tblVehicleTrips	CW_TTP	33.00	74.00
tblVehicleTrips	DV_TP	15.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	82.00	100.00
tblVehicleTrips	ST_TR	1.90	0.00
tblVehicleTrips	SU_TR	1.11	0.00
tblVehicleTrips	WD_TR	8.11	2.01
tblWater	IndoorWaterUseRate	24,024,166.26	675,597.00

## 2.0 Emissions Summary

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Turlock North Valley Laboratory Replacement Project - Stanislaus County, Annual

**2.1 Overall Construction**

**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.3028	2.7475	2.5673	5.6600e-003	0.4705	0.1197	0.5902	0.2169	0.1119	0.3288	0.0000	501.8902	501.8902	0.0943	0.0000	504.2463
2023	0.2773	2.2770	2.5716	5.9000e-003	0.1663	0.0925	0.2588	0.0448	0.0870	0.1318	0.0000	522.9604	522.9604	0.0814	0.0000	524.9960
2024	0.4351	0.5667	0.7308	1.5800e-003	0.0383	0.0228	0.0612	0.0103	0.0214	0.0317	0.0000	139.4783	139.4783	0.0247	0.0000	140.0949
<b>Maximum</b>	<b>0.4351</b>	<b>2.7475</b>	<b>2.5716</b>	<b>5.9000e-003</b>	<b>0.4705</b>	<b>0.1197</b>	<b>0.5902</b>	<b>0.2169</b>	<b>0.1119</b>	<b>0.3288</b>	<b>0.0000</b>	<b>522.9604</b>	<b>522.9604</b>	<b>0.0943</b>	<b>0.0000</b>	<b>524.9960</b>

**Mitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.3028	2.7475	2.5673	5.6600e-003	0.2837	0.1197	0.4034	0.1170	0.1119	0.2289	0.0000	501.8898	501.8898	0.0943	0.0000	504.2460
2023	0.2773	2.2770	2.5716	5.9000e-003	0.1663	0.0925	0.2588	0.0448	0.0870	0.1318	0.0000	522.9600	522.9600	0.0814	0.0000	524.9957
2024	0.4351	0.5667	0.7308	1.5800e-003	0.0383	0.0228	0.0612	0.0103	0.0214	0.0317	0.0000	139.4782	139.4782	0.0247	0.0000	140.0948
<b>Maximum</b>	<b>0.4351</b>	<b>2.7475</b>	<b>2.5716</b>	<b>5.9000e-003</b>	<b>0.2837</b>	<b>0.1197</b>	<b>0.4034</b>	<b>0.1170</b>	<b>0.1119</b>	<b>0.2289</b>	<b>0.0000</b>	<b>522.9600</b>	<b>522.9600</b>	<b>0.0943</b>	<b>0.0000</b>	<b>524.9957</b>

Turlock North Valley Laboratory Replacement Project - Stanislaus County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	27.66	0.00	20.52	36.73	0.00	20.29	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-3-2022	4-2-2022	0.9181	0.9181
2	4-3-2022	7-2-2022	0.7058	0.7058
3	7-3-2022	10-2-2022	0.7136	0.7136
4	10-3-2022	1-2-2023	0.7145	0.7145
5	1-3-2023	4-2-2023	0.6296	0.6296
6	4-3-2023	7-2-2023	0.6347	0.6347
7	7-3-2023	10-2-2023	0.6417	0.6417
8	10-3-2023	1-2-2024	0.6959	0.6959
9	1-3-2024	4-2-2024	0.9556	0.9556
		Highest	0.9556	0.9556

Turlock North Valley Laboratory Replacement Project - Stanislaus County, Annual

**2.2 Overall Operational**

**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2391	2.0000e-005	1.7500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.4100e-003	3.4100e-003	1.0000e-005	0.0000	3.6300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0373	0.3303	0.5917	3.1600e-003	0.2376	2.1500e-003	0.2397	0.0639	2.0100e-003	0.0659	0.0000	292.7537	292.7537	9.2500e-003	0.0000	292.9851
Waste						0.0000	0.0000		0.0000	0.0000	204.8037	0.0000	204.8037	12.1036	0.0000	507.3924
Water						0.0000	0.0000		0.0000	0.0000	0.2143	0.6978	0.9122	0.0221	5.3000e-004	1.6208
<b>Total</b>	<b>0.2764</b>	<b>0.3303</b>	<b>0.5934</b>	<b>3.1600e-003</b>	<b>0.2376</b>	<b>2.1600e-003</b>	<b>0.2397</b>	<b>0.0639</b>	<b>2.0200e-003</b>	<b>0.0659</b>	<b>205.0180</b>	<b>293.4550</b>	<b>498.4730</b>	<b>12.1349</b>	<b>5.3000e-004</b>	<b>802.0019</b>



Turlock North Valley Laboratory Replacement Project - Stanislaus County, Annual

**2.2 Overall Operational**

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2391	2.0000e-005	1.7500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.4100e-003	3.4100e-003	1.0000e-005	0.0000	3.6300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0373	0.3303	0.5917	3.1600e-003	0.2376	2.1500e-003	0.2397	0.0639	2.0100e-003	0.0659	0.0000	292.7537	292.7537	9.2500e-003	0.0000	292.9851
Waste						0.0000	0.0000		0.0000	0.0000	204.8037	0.0000	204.8037	12.1036	0.0000	507.3924
Water						0.0000	0.0000		0.0000	0.0000	0.2143	0.6978	0.9122	0.0221	5.3000e-004	1.6208
<b>Total</b>	<b>0.2764</b>	<b>0.3303</b>	<b>0.5934</b>	<b>3.1600e-003</b>	<b>0.2376</b>	<b>2.1600e-003</b>	<b>0.2397</b>	<b>0.0639</b>	<b>2.0200e-003</b>	<b>0.0659</b>	<b>205.0180</b>	<b>293.4550</b>	<b>498.4730</b>	<b>12.1349</b>	<b>5.3000e-004</b>	<b>802.0019</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**3.0 Construction Detail**

**Construction Phase**

Turlock North Valley Laboratory Replacement Project - Stanislaus County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/3/2022	2/1/2022	5	22	
2	Grading	Grading	2/2/2022	4/1/2022	5	43	
3	Building Construction	Building Construction	4/2/2022	2/27/2024	5	497	
4	Paving	Paving	12/29/2023	2/27/2024	5	43	
5	Architectural Coating	Architectural Coating	12/29/2023	2/27/2024	5	43	

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 21.5**

**Acres of Paving: 3.78**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 73,289; Non-Residential Outdoor: 24,430; Striped Parking Area: 9,907 (Architectural Coating – sqft)**

**OffRoad Equipment**

## Turlock North Valley Laboratory Replacement Project - Stanislaus County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Air Compressors	1	8.00	78	0.48
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

**Trips and VMT**

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Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	8	20.00	4.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	4.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	85.00	35.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	17.00	0.00	250.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

**3.2 Site Preparation - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1987	0.0000	0.1987	0.1092	0.0000	0.1092	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0379	0.3846	0.2433	4.6000e-004		0.0189	0.0189		0.0175	0.0175	0.0000	40.5281	40.5281	0.0121	0.0000	40.8316
<b>Total</b>	<b>0.0379</b>	<b>0.3846</b>	<b>0.2433</b>	<b>4.6000e-004</b>	<b>0.1987</b>	<b>0.0189</b>	<b>0.2177</b>	<b>0.1092</b>	<b>0.0175</b>	<b>0.1268</b>	<b>0.0000</b>	<b>40.5281</b>	<b>40.5281</b>	<b>0.0121</b>	<b>0.0000</b>	<b>40.8316</b>

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**3.2 Site Preparation - 2022**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2000e-004	4.4800e-003	7.1000e-004	1.0000e-005	2.6000e-004	1.0000e-005	2.7000e-004	8.0000e-005	1.0000e-005	9.0000e-005	0.0000	1.0691	1.0691	9.0000e-005	0.0000	1.0714
Worker	1.1800e-003	7.9000e-004	8.5500e-003	3.0000e-005	2.7300e-003	2.0000e-005	2.7500e-003	7.3000e-004	2.0000e-005	7.4000e-004	0.0000	2.3256	2.3256	6.0000e-005	0.0000	2.3271
<b>Total</b>	<b>1.3000e-003</b>	<b>5.2700e-003</b>	<b>9.2600e-003</b>	<b>4.0000e-005</b>	<b>2.9900e-003</b>	<b>3.0000e-005</b>	<b>3.0200e-003</b>	<b>8.1000e-004</b>	<b>3.0000e-005</b>	<b>8.3000e-004</b>	<b>0.0000</b>	<b>3.3946</b>	<b>3.3946</b>	<b>1.5000e-004</b>	<b>0.0000</b>	<b>3.3985</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0894	0.0000	0.0894	0.0492	0.0000	0.0492	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0379	0.3846	0.2433	4.6000e-004		0.0189	0.0189		0.0175	0.0175	0.0000	40.5281	40.5281	0.0121	0.0000	40.8316
<b>Total</b>	<b>0.0379</b>	<b>0.3846</b>	<b>0.2433</b>	<b>4.6000e-004</b>	<b>0.0894</b>	<b>0.0189</b>	<b>0.1084</b>	<b>0.0492</b>	<b>0.0175</b>	<b>0.0667</b>	<b>0.0000</b>	<b>40.5281</b>	<b>40.5281</b>	<b>0.0121</b>	<b>0.0000</b>	<b>40.8316</b>

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**3.2 Site Preparation - 2022**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2000e-004	4.4800e-003	7.1000e-004	1.0000e-005	2.6000e-004	1.0000e-005	2.7000e-004	8.0000e-005	1.0000e-005	9.0000e-005	0.0000	1.0691	1.0691	9.0000e-005	0.0000	1.0714
Worker	1.1800e-003	7.9000e-004	8.5500e-003	3.0000e-005	2.7300e-003	2.0000e-005	2.7500e-003	7.3000e-004	2.0000e-005	7.4000e-004	0.0000	2.3256	2.3256	6.0000e-005	0.0000	2.3271
<b>Total</b>	<b>1.3000e-003</b>	<b>5.2700e-003</b>	<b>9.2600e-003</b>	<b>4.0000e-005</b>	<b>2.9900e-003</b>	<b>3.0000e-005</b>	<b>3.0200e-003</b>	<b>8.1000e-004</b>	<b>3.0000e-005</b>	<b>8.3000e-004</b>	<b>0.0000</b>	<b>3.3946</b>	<b>3.3946</b>	<b>1.5000e-004</b>	<b>0.0000</b>	<b>3.3985</b>

**3.3 Grading - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1409	0.0000	0.1409	0.0724	0.0000	0.0724	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0419	0.4484	0.3284	6.4000e-004		0.0202	0.0202		0.0186	0.0186	0.0000	56.0178	56.0178	0.0181	0.0000	56.4707
<b>Total</b>	<b>0.0419</b>	<b>0.4484</b>	<b>0.3284</b>	<b>6.4000e-004</b>	<b>0.1409</b>	<b>0.0202</b>	<b>0.1611</b>	<b>0.0724</b>	<b>0.0186</b>	<b>0.0910</b>	<b>0.0000</b>	<b>56.0178</b>	<b>56.0178</b>	<b>0.0181</b>	<b>0.0000</b>	<b>56.4707</b>

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**3.3 Grading - 2022**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3000e-004	8.7500e-003	1.3900e-003	2.0000e-005	5.1000e-004	2.0000e-005	5.4000e-004	1.5000e-004	2.0000e-005	1.7000e-004	0.0000	2.0896	2.0896	1.8000e-004	0.0000	2.0941
Worker	1.7200e-003	1.1600e-003	0.0125	4.0000e-005	4.0100e-003	3.0000e-005	4.0300e-003	1.0600e-003	3.0000e-005	1.0900e-003	0.0000	3.4091	3.4091	9.0000e-005	0.0000	3.4113
<b>Total</b>	<b>1.9500e-003</b>	<b>9.9100e-003</b>	<b>0.0139</b>	<b>6.0000e-005</b>	<b>4.5200e-003</b>	<b>5.0000e-005</b>	<b>4.5700e-003</b>	<b>1.2100e-003</b>	<b>5.0000e-005</b>	<b>1.2600e-003</b>	<b>0.0000</b>	<b>5.4986</b>	<b>5.4986</b>	<b>2.7000e-004</b>	<b>0.0000</b>	<b>5.5054</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0634	0.0000	0.0634	0.0326	0.0000	0.0326	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0419	0.4484	0.3284	6.4000e-004		0.0202	0.0202		0.0186	0.0186	0.0000	56.0177	56.0177	0.0181	0.0000	56.4706
<b>Total</b>	<b>0.0419</b>	<b>0.4484</b>	<b>0.3284</b>	<b>6.4000e-004</b>	<b>0.0634</b>	<b>0.0202</b>	<b>0.0836</b>	<b>0.0326</b>	<b>0.0186</b>	<b>0.0512</b>	<b>0.0000</b>	<b>56.0177</b>	<b>56.0177</b>	<b>0.0181</b>	<b>0.0000</b>	<b>56.4706</b>

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**3.3 Grading - 2022**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3000e-004	8.7500e-003	1.3900e-003	2.0000e-005	5.1000e-004	2.0000e-005	5.4000e-004	1.5000e-004	2.0000e-005	1.7000e-004	0.0000	2.0896	2.0896	1.8000e-004	0.0000	2.0941
Worker	1.7200e-003	1.1600e-003	0.0125	4.0000e-005	4.0100e-003	3.0000e-005	4.0300e-003	1.0600e-003	3.0000e-005	1.0900e-003	0.0000	3.4091	3.4091	9.0000e-005	0.0000	3.4113
<b>Total</b>	<b>1.9500e-003</b>	<b>9.9100e-003</b>	<b>0.0139</b>	<b>6.0000e-005</b>	<b>4.5200e-003</b>	<b>5.0000e-005</b>	<b>4.5700e-003</b>	<b>1.2100e-003</b>	<b>5.0000e-005</b>	<b>1.2600e-003</b>	<b>0.0000</b>	<b>5.4986</b>	<b>5.4986</b>	<b>2.7000e-004</b>	<b>0.0000</b>	<b>5.5054</b>

**3.4 Building Construction - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1664	1.5225	1.5954	2.6300e-003		0.0789	0.0789		0.0742	0.0742	0.0000	225.9321	225.9321	0.0541	0.0000	227.2853
<b>Total</b>	<b>0.1664</b>	<b>1.5225</b>	<b>1.5954</b>	<b>2.6300e-003</b>		<b>0.0789</b>	<b>0.0789</b>		<b>0.0742</b>	<b>0.0742</b>	<b>0.0000</b>	<b>225.9321</b>	<b>225.9321</b>	<b>0.0541</b>	<b>0.0000</b>	<b>227.2853</b>



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**3.4 Building Construction - 2022**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.1500e-003	0.3471	0.0550	8.7000e-004	0.0204	8.1000e-004	0.0212	5.9000e-003	7.8000e-004	6.6700e-003	0.0000	82.9137	82.9137	7.1600e-003	0.0000	83.0927
Worker	0.0443	0.0298	0.3221	9.7000e-004	0.1030	7.1000e-004	0.1037	0.0274	6.6000e-004	0.0280	0.0000	87.6053	87.6053	2.2800e-003	0.0000	87.6623
<b>Total</b>	<b>0.0534</b>	<b>0.3768</b>	<b>0.3770</b>	<b>1.8400e-003</b>	<b>0.1234</b>	<b>1.5200e-003</b>	<b>0.1249</b>	<b>0.0333</b>	<b>1.4400e-003</b>	<b>0.0347</b>	<b>0.0000</b>	<b>170.5190</b>	<b>170.5190</b>	<b>9.4400e-003</b>	<b>0.0000</b>	<b>170.7550</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1664	1.5225	1.5954	2.6300e-003		0.0789	0.0789		0.0742	0.0742	0.0000	225.9318	225.9318	0.0541	0.0000	227.2850
<b>Total</b>	<b>0.1664</b>	<b>1.5225</b>	<b>1.5954</b>	<b>2.6300e-003</b>		<b>0.0789</b>	<b>0.0789</b>		<b>0.0742</b>	<b>0.0742</b>	<b>0.0000</b>	<b>225.9318</b>	<b>225.9318</b>	<b>0.0541</b>	<b>0.0000</b>	<b>227.2850</b>

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**3.4 Building Construction - 2022**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.1500e-003	0.3471	0.0550	8.7000e-004	0.0204	8.1000e-004	0.0212	5.9000e-003	7.8000e-004	6.6700e-003	0.0000	82.9137	82.9137	7.1600e-003	0.0000	83.0927
Worker	0.0443	0.0298	0.3221	9.7000e-004	0.1030	7.1000e-004	0.1037	0.0274	6.6000e-004	0.0280	0.0000	87.6053	87.6053	2.2800e-003	0.0000	87.6623
<b>Total</b>	<b>0.0534</b>	<b>0.3768</b>	<b>0.3770</b>	<b>1.8400e-003</b>	<b>0.1234</b>	<b>1.5200e-003</b>	<b>0.1249</b>	<b>0.0333</b>	<b>1.4400e-003</b>	<b>0.0347</b>	<b>0.0000</b>	<b>170.5190</b>	<b>170.5190</b>	<b>9.4400e-003</b>	<b>0.0000</b>	<b>170.7550</b>

**3.4 Building Construction - 2023**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3462	301.3462	0.0717	0.0000	303.1383
<b>Total</b>	<b>0.2045</b>	<b>1.8700</b>	<b>2.1117</b>	<b>3.5000e-003</b>		<b>0.0910</b>	<b>0.0910</b>		<b>0.0856</b>	<b>0.0856</b>	<b>0.0000</b>	<b>301.3462</b>	<b>301.3462</b>	<b>0.0717</b>	<b>0.0000</b>	<b>303.1383</b>

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**3.4 Building Construction - 2023**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.4700e-003	0.3658	0.0600	1.1300e-003	0.0272	3.4000e-004	0.0276	7.8600e-003	3.3000e-004	8.1900e-003	0.0000	107.8350	107.8350	6.7500e-003	0.0000	108.0037
Worker	0.0549	0.0355	0.3921	1.2400e-003	0.1373	9.3000e-004	0.1382	0.0365	8.5000e-004	0.0373	0.0000	112.4363	112.4363	2.7200e-003	0.0000	112.5042
<b>Total</b>	<b>0.0634</b>	<b>0.4014</b>	<b>0.4521</b>	<b>2.3700e-003</b>	<b>0.1645</b>	<b>1.2700e-003</b>	<b>0.1658</b>	<b>0.0443</b>	<b>1.1800e-003</b>	<b>0.0455</b>	<b>0.0000</b>	<b>220.2713</b>	<b>220.2713</b>	<b>9.4700e-003</b>	<b>0.0000</b>	<b>220.5079</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3458	301.3458	0.0717	0.0000	303.1380
<b>Total</b>	<b>0.2045</b>	<b>1.8700</b>	<b>2.1117</b>	<b>3.5000e-003</b>		<b>0.0910</b>	<b>0.0910</b>		<b>0.0856</b>	<b>0.0856</b>	<b>0.0000</b>	<b>301.3458</b>	<b>301.3458</b>	<b>0.0717</b>	<b>0.0000</b>	<b>303.1380</b>

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**3.4 Building Construction - 2023**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.4700e-003	0.3658	0.0600	1.1300e-003	0.0272	3.4000e-004	0.0276	7.8600e-003	3.3000e-004	8.1900e-003	0.0000	107.8350	107.8350	6.7500e-003	0.0000	108.0037
Worker	0.0549	0.0355	0.3921	1.2400e-003	0.1373	9.3000e-004	0.1382	0.0365	8.5000e-004	0.0373	0.0000	112.4363	112.4363	2.7200e-003	0.0000	112.5042
<b>Total</b>	<b>0.0634</b>	<b>0.4014</b>	<b>0.4521</b>	<b>2.3700e-003</b>	<b>0.1645</b>	<b>1.2700e-003</b>	<b>0.1658</b>	<b>0.0443</b>	<b>1.1800e-003</b>	<b>0.0455</b>	<b>0.0000</b>	<b>220.2713</b>	<b>220.2713</b>	<b>9.4700e-003</b>	<b>0.0000</b>	<b>220.5079</b>

**3.4 Building Construction - 2024**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0309	0.2823	0.3395	5.7000e-004		0.0129	0.0129		0.0121	0.0121	0.0000	48.6883	48.6883	0.0115	0.0000	48.9762
<b>Total</b>	<b>0.0309</b>	<b>0.2823</b>	<b>0.3395</b>	<b>5.7000e-004</b>		<b>0.0129</b>	<b>0.0129</b>		<b>0.0121</b>	<b>0.0121</b>	<b>0.0000</b>	<b>48.6883</b>	<b>48.6883</b>	<b>0.0115</b>	<b>0.0000</b>	<b>48.9762</b>

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**3.4 Building Construction - 2024**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3300e-003	0.0586	9.1700e-003	1.8000e-004	4.4000e-003	5.0000e-005	4.4500e-003	1.2700e-003	5.0000e-005	1.3200e-003	0.0000	17.2873	17.2873	1.1000e-003	0.0000	17.3147
Worker	8.2800e-003	5.1600e-003	0.0584	1.9000e-004	0.0222	1.5000e-004	0.0223	5.8900e-003	1.3000e-004	6.0300e-003	0.0000	17.4651	17.4651	3.9000e-004	0.0000	17.4749
<b>Total</b>	<b>9.6100e-003</b>	<b>0.0638</b>	<b>0.0676</b>	<b>3.7000e-004</b>	<b>0.0266</b>	<b>2.0000e-004</b>	<b>0.0268</b>	<b>7.1600e-003</b>	<b>1.8000e-004</b>	<b>7.3500e-003</b>	<b>0.0000</b>	<b>34.7524</b>	<b>34.7524</b>	<b>1.4900e-003</b>	<b>0.0000</b>	<b>34.7896</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0309	0.2823	0.3395	5.7000e-004		0.0129	0.0129		0.0121	0.0121	0.0000	48.6883	48.6883	0.0115	0.0000	48.9761
<b>Total</b>	<b>0.0309</b>	<b>0.2823</b>	<b>0.3395</b>	<b>5.7000e-004</b>		<b>0.0129</b>	<b>0.0129</b>		<b>0.0121</b>	<b>0.0121</b>	<b>0.0000</b>	<b>48.6883</b>	<b>48.6883</b>	<b>0.0115</b>	<b>0.0000</b>	<b>48.9761</b>

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**3.4 Building Construction - 2024**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3300e-003	0.0586	9.1700e-003	1.8000e-004	4.4000e-003	5.0000e-005	4.4500e-003	1.2700e-003	5.0000e-005	1.3200e-003	0.0000	17.2873	17.2873	1.1000e-003	0.0000	17.3147
Worker	8.2800e-003	5.1600e-003	0.0584	1.9000e-004	0.0222	1.5000e-004	0.0223	5.8900e-003	1.3000e-004	6.0300e-003	0.0000	17.4651	17.4651	3.9000e-004	0.0000	17.4749
<b>Total</b>	<b>9.6100e-003</b>	<b>0.0638</b>	<b>0.0676</b>	<b>3.7000e-004</b>	<b>0.0266</b>	<b>2.0000e-004</b>	<b>0.0268</b>	<b>7.1600e-003</b>	<b>1.8000e-004</b>	<b>7.3500e-003</b>	<b>0.0000</b>	<b>34.7524</b>	<b>34.7524</b>	<b>1.4900e-003</b>	<b>0.0000</b>	<b>34.7896</b>

**3.5 Paving - 2023**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.6000e-004	4.4000e-003	6.1000e-003	1.0000e-005		2.2000e-004	2.2000e-004		2.0000e-004	2.0000e-004	0.0000	0.8189	0.8189	2.6000e-004	0.0000	0.8254
Paving	6.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>5.2000e-004</b>	<b>4.4000e-003</b>	<b>6.1000e-003</b>	<b>1.0000e-005</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>		<b>2.0000e-004</b>	<b>2.0000e-004</b>	<b>0.0000</b>	<b>0.8189</b>	<b>0.8189</b>	<b>2.6000e-004</b>	<b>0.0000</b>	<b>0.8254</b>

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**3.5 Paving - 2023**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	3.0000e-005	3.5000e-004	0.0000	1.2000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1018	0.1018	0.0000	0.0000	0.1018
<b>Total</b>	<b>5.0000e-005</b>	<b>3.0000e-005</b>	<b>3.5000e-004</b>	<b>0.0000</b>	<b>1.2000e-004</b>	<b>0.0000</b>	<b>1.3000e-004</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.1018</b>	<b>0.1018</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1018</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.6000e-004	4.4000e-003	6.1000e-003	1.0000e-005		2.2000e-004	2.2000e-004		2.0000e-004	2.0000e-004	0.0000	0.8189	0.8189	2.6000e-004	0.0000	0.8254
Paving	6.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>5.2000e-004</b>	<b>4.4000e-003</b>	<b>6.1000e-003</b>	<b>1.0000e-005</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>		<b>2.0000e-004</b>	<b>2.0000e-004</b>	<b>0.0000</b>	<b>0.8189</b>	<b>0.8189</b>	<b>2.6000e-004</b>	<b>0.0000</b>	<b>0.8254</b>

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**3.5 Paving - 2023**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	3.0000e-005	3.5000e-004	0.0000	1.2000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1018	0.1018	0.0000	0.0000	0.1018
<b>Total</b>	<b>5.0000e-005</b>	<b>3.0000e-005</b>	<b>3.5000e-004</b>	<b>0.0000</b>	<b>1.2000e-004</b>	<b>0.0000</b>	<b>1.3000e-004</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.1018</b>	<b>0.1018</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1018</b>

**3.5 Paving - 2024**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0185	0.1737	0.2566	4.0000e-004		8.3700e-003	8.3700e-003		7.7400e-003	7.7400e-003	0.0000	34.3987	34.3987	0.0108	0.0000	34.6689
Paving	2.6600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0212</b>	<b>0.1737</b>	<b>0.2566</b>	<b>4.0000e-004</b>		<b>8.3700e-003</b>	<b>8.3700e-003</b>		<b>7.7400e-003</b>	<b>7.7400e-003</b>	<b>0.0000</b>	<b>34.3987</b>	<b>34.3987</b>	<b>0.0108</b>	<b>0.0000</b>	<b>34.6689</b>



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**3.5 Paving - 2024**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9500e-003	1.2100e-003	0.0138	5.0000e-005	5.2200e-003	3.0000e-005	5.2500e-003	1.3900e-003	3.0000e-005	1.4200e-003	0.0000	4.1094	4.1094	9.0000e-005	0.0000	4.1118
<b>Total</b>	<b>1.9500e-003</b>	<b>1.2100e-003</b>	<b>0.0138</b>	<b>5.0000e-005</b>	<b>5.2200e-003</b>	<b>3.0000e-005</b>	<b>5.2500e-003</b>	<b>1.3900e-003</b>	<b>3.0000e-005</b>	<b>1.4200e-003</b>	<b>0.0000</b>	<b>4.1094</b>	<b>4.1094</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>4.1118</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0185	0.1737	0.2566	4.0000e-004		8.3700e-003	8.3700e-003		7.7400e-003	7.7400e-003	0.0000	34.3986	34.3986	0.0108	0.0000	34.6688
Paving	2.6600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0212</b>	<b>0.1737</b>	<b>0.2566</b>	<b>4.0000e-004</b>		<b>8.3700e-003</b>	<b>8.3700e-003</b>		<b>7.7400e-003</b>	<b>7.7400e-003</b>	<b>0.0000</b>	<b>34.3986</b>	<b>34.3986</b>	<b>0.0108</b>	<b>0.0000</b>	<b>34.6688</b>

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**3.5 Paving - 2024**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9500e-003	1.2100e-003	0.0138	5.0000e-005	5.2200e-003	3.0000e-005	5.2500e-003	1.3900e-003	3.0000e-005	1.4200e-003	0.0000	4.1094	4.1094	9.0000e-005	0.0000	4.1118
<b>Total</b>	<b>1.9500e-003</b>	<b>1.2100e-003</b>	<b>0.0138</b>	<b>5.0000e-005</b>	<b>5.2200e-003</b>	<b>3.0000e-005</b>	<b>5.2500e-003</b>	<b>1.3900e-003</b>	<b>3.0000e-005</b>	<b>1.4200e-003</b>	<b>0.0000</b>	<b>4.1094</b>	<b>4.1094</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>4.1118</b>

**3.6 Architectural Coating - 2023**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	8.7000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0000e-004	6.5000e-004	9.1000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.1277	0.1277	1.0000e-005	0.0000	0.1279
<b>Total</b>	<b>8.8000e-003</b>	<b>6.5000e-004</b>	<b>9.1000e-004</b>	<b>0.0000</b>		<b>4.0000e-005</b>	<b>4.0000e-005</b>		<b>4.0000e-005</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.1277</b>	<b>0.1277</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.1279</b>

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**3.6 Architectural Coating - 2023**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	4.6000e-004	9.0000e-005	0.0000	1.6100e-003	0.0000	1.6100e-003	4.0000e-004	0.0000	4.0000e-004	0.0000	0.2081	0.2081	1.0000e-005	0.0000	0.2083
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	3.0000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0865	0.0865	0.0000	0.0000	0.0865
<b>Total</b>	<b>5.0000e-005</b>	<b>4.9000e-004</b>	<b>3.9000e-004</b>	<b>0.0000</b>	<b>1.7200e-003</b>	<b>0.0000</b>	<b>1.7200e-003</b>	<b>4.3000e-004</b>	<b>0.0000</b>	<b>4.3000e-004</b>	<b>0.0000</b>	<b>0.2945</b>	<b>0.2945</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.2948</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	8.7000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0000e-004	6.5000e-004	9.1000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.1277	0.1277	1.0000e-005	0.0000	0.1279
<b>Total</b>	<b>8.8000e-003</b>	<b>6.5000e-004</b>	<b>9.1000e-004</b>	<b>0.0000</b>		<b>4.0000e-005</b>	<b>4.0000e-005</b>		<b>4.0000e-005</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.1277</b>	<b>0.1277</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.1279</b>

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**3.6 Architectural Coating - 2023**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	4.6000e-004	9.0000e-005	0.0000	1.6100e-003	0.0000	1.6100e-003	4.0000e-004	0.0000	4.0000e-004	0.0000	0.2081	0.2081	1.0000e-005	0.0000	0.2083
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	3.0000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0865	0.0865	0.0000	0.0000	0.0865
<b>Total</b>	<b>5.0000e-005</b>	<b>4.9000e-004</b>	<b>3.9000e-004</b>	<b>0.0000</b>	<b>1.7200e-003</b>	<b>0.0000</b>	<b>1.7200e-003</b>	<b>4.3000e-004</b>	<b>0.0000</b>	<b>4.3000e-004</b>	<b>0.0000</b>	<b>0.2945</b>	<b>0.2945</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.2948</b>

**3.6 Architectural Coating - 2024**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3654					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.8000e-003	0.0256	0.0380	6.0000e-005		1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003	0.0000	5.3618	5.3618	3.0000e-004	0.0000	5.3694
<b>Total</b>	<b>0.3692</b>	<b>0.0256</b>	<b>0.0380</b>	<b>6.0000e-005</b>		<b>1.2800e-003</b>	<b>1.2800e-003</b>		<b>1.2800e-003</b>	<b>1.2800e-003</b>	<b>0.0000</b>	<b>5.3618</b>	<b>5.3618</b>	<b>3.0000e-004</b>	<b>0.0000</b>	<b>5.3694</b>

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**3.6 Architectural Coating - 2024**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.8000e-004	0.0190	3.6500e-003	9.0000e-005	2.1200e-003	3.0000e-005	2.1500e-003	5.8000e-004	3.0000e-005	6.1000e-004	0.0000	8.6747	8.6747	3.8000e-004	0.0000	8.6842
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6600e-003	1.0300e-003	0.0117	4.0000e-005	4.4400e-003	3.0000e-005	4.4600e-003	1.1800e-003	3.0000e-005	1.2100e-003	0.0000	3.4930	3.4930	8.0000e-005	0.0000	3.4950
<b>Total</b>	<b>2.2400e-003</b>	<b>0.0201</b>	<b>0.0153</b>	<b>1.3000e-004</b>	<b>6.5600e-003</b>	<b>6.0000e-005</b>	<b>6.6100e-003</b>	<b>1.7600e-003</b>	<b>6.0000e-005</b>	<b>1.8200e-003</b>	<b>0.0000</b>	<b>12.1677</b>	<b>12.1677</b>	<b>4.6000e-004</b>	<b>0.0000</b>	<b>12.1791</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3654					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.8000e-003	0.0256	0.0380	6.0000e-005		1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003	0.0000	5.3618	5.3618	3.0000e-004	0.0000	5.3694
<b>Total</b>	<b>0.3692</b>	<b>0.0256</b>	<b>0.0380</b>	<b>6.0000e-005</b>		<b>1.2800e-003</b>	<b>1.2800e-003</b>		<b>1.2800e-003</b>	<b>1.2800e-003</b>	<b>0.0000</b>	<b>5.3618</b>	<b>5.3618</b>	<b>3.0000e-004</b>	<b>0.0000</b>	<b>5.3694</b>

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**3.6 Architectural Coating - 2024**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.8000e-004	0.0190	3.6500e-003	9.0000e-005	2.1200e-003	3.0000e-005	2.1500e-003	5.8000e-004	3.0000e-005	6.1000e-004	0.0000	8.6747	8.6747	3.8000e-004	0.0000	8.6842
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6600e-003	1.0300e-003	0.0117	4.0000e-005	4.4400e-003	3.0000e-005	4.4600e-003	1.1800e-003	3.0000e-005	1.2100e-003	0.0000	3.4930	3.4930	8.0000e-005	0.0000	3.4950
<b>Total</b>	<b>2.2400e-003</b>	<b>0.0201</b>	<b>0.0153</b>	<b>1.3000e-004</b>	<b>6.5600e-003</b>	<b>6.0000e-005</b>	<b>6.6100e-003</b>	<b>1.7600e-003</b>	<b>6.0000e-005</b>	<b>1.8200e-003</b>	<b>0.0000</b>	<b>12.1677</b>	<b>12.1677</b>	<b>4.6000e-004</b>	<b>0.0000</b>	<b>12.1791</b>

**4.0 Operational Detail - Mobile**

**4.1 Mitigation Measures Mobile**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0373	0.3303	0.5917	3.1600e-003	0.2376	2.1500e-003	0.2397	0.0639	2.0100e-003	0.0659	0.0000	292.7537	292.7537	9.2500e-003	0.0000	292.9851
Unmitigated	0.0373	0.3303	0.5917	3.1600e-003	0.2376	2.1500e-003	0.2397	0.0639	2.0100e-003	0.0659	0.0000	292.7537	292.7537	9.2500e-003	0.0000	292.9851

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Research & Development	98.21	0.00	0.00	625,078	625,078
Total	98.21	0.00	0.00	625,078	625,078

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Parking Lot	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Research & Development	24.00	24.00	30.00	74.00	18.00	8.00	100	0	0

4.4 Fleet Mix









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**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Research & Development	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

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**5.3 Energy by Land Use - Electricity****Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Research & Development	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**6.0 Area Detail****6.1 Mitigation Measures Area**

Turlock North Valley Laboratory Replacement Project - Stanislaus County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2391	2.0000e-005	1.7500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.4100e-003	3.4100e-003	1.0000e-005	0.0000	3.6300e-003
Unmitigated	0.2391	2.0000e-005	1.7500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.4100e-003	3.4100e-003	1.0000e-005	0.0000	3.6300e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0374					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2015					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6000e-004	2.0000e-005	1.7500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.4100e-003	3.4100e-003	1.0000e-005	0.0000	3.6300e-003
<b>Total</b>	<b>0.2391</b>	<b>2.0000e-005</b>	<b>1.7500e-003</b>	<b>0.0000</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>3.4100e-003</b>	<b>3.4100e-003</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>3.6300e-003</b>

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**6.2 Area by SubCategory**

**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0374					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2015					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6000e-004	2.0000e-005	1.7500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.4100e-003	3.4100e-003	1.0000e-005	0.0000	3.6300e-003
<b>Total</b>	<b>0.2391</b>	<b>2.0000e-005</b>	<b>1.7500e-003</b>	<b>0.0000</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>3.4100e-003</b>	<b>3.4100e-003</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>3.6300e-003</b>

**7.0 Water Detail**

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**7.1 Mitigation Measures Water**

Turlock North Valley Laboratory Replacement Project - Stanislaus County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.9122	0.0221	5.3000e-004	1.6208
Unmitigated	0.9122	0.0221	5.3000e-004	1.6208

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Research & Development	0.675597 / 0	0.9122	0.0221	5.3000e-004	1.6208
<b>Total</b>		<b>0.9122</b>	<b>0.0221</b>	<b>5.3000e-004</b>	<b>1.6208</b>

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**7.2 Water by Land Use****Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Research & Development	0.675597 / 0	0.9122	0.0221	5.3000e-004	1.6208
<b>Total</b>		<b>0.9122</b>	<b>0.0221</b>	<b>5.3000e-004</b>	<b>1.6208</b>

**8.0 Waste Detail****8.1 Mitigation Measures Waste**



Turlock North Valley Laboratory Replacement Project - Stanislaus County, Annual

**Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	204.8037	12.1036	0.0000	507.3924
Unmitigated	204.8037	12.1036	0.0000	507.3924

**8.2 Waste by Land Use**

**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Research & Development	1008.93	204.8037	12.1036	0.0000	507.3924
<b>Total</b>		<b>204.8037</b>	<b>12.1036</b>	<b>0.0000</b>	<b>507.3924</b>

Turlock North Valley Laboratory Replacement Project - Stanislaus County, Annual

**8.2 Waste by Land Use**

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Research & Development	1008.93	204.8037	12.1036	0.0000	507.3924
<b>Total</b>		<b>204.8037</b>	<b>12.1036</b>	<b>0.0000</b>	<b>507.3924</b>

**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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**10.0 Stationary Equipment**

**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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**Boilers**

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Turlock North Valley Laboratory Replacement Project - Stanislaus County, Annual

Equipment Type	Number
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## 11.0 Vegetation

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**CalEEMod Output File for Existing Facility**

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Existing Tulare Facility - Stanislaus County, Annual

**Existing Tulare Facility  
Stanislaus County, Annual**

**1.0 Project Characteristics**

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**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Research & Development	5.28	1000sqft	0.12	5,280.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	46
<b>Climate Zone</b>	3			<b>Operational Year</b>	2023
<b>Utility Company</b>	Turlock Irrigation District				
<b>CO2 Intensity (lb/MW hr)</b>	420.83	<b>CH4 Intensity (lb/MW hr)</b>	0.033	<b>N2O Intensity (lb/MW hr)</b>	0.004

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

Project Characteristics - Updated TID carbon intensity factors

Land Use -

Construction Phase - no construction

Off-road Equipment - no construction

Trips and VMT - no construction

Vehicle Trips - Match VMT estimate

Energy Use - existing energy use

Water And Wastewater - existing water use

Solid Waste - rate based on caleemod app d tables and square footage.

## Existing Tulare Facility - Stanislaus County, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	0.00
tblConstructionPhase	PhaseEndDate	7/12/2021	6/28/2021
tblEnergyUse	LightingElect	2.70	0.00
tblEnergyUse	NT24E	4.16	23.25
tblEnergyUse	NT24NG	3.84	0.00
tblEnergyUse	T24E	1.96	0.00
tblEnergyUse	T24NG	17.03	145.97
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.033
tblProjectCharacteristics	CO2IntensityFactor	790	420.83
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblSolidWaste	SolidWasteGenerationRate	0.40	422.40
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	VendorTripLength	7.30	0.00
tblTripsAndVMT	WorkerTripLength	10.80	0.00
tblVehicleTrips	CC_TL	7.30	162.00
tblVehicleTrips	CC_TTP	48.00	100.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TTP	33.00	0.00
tblVehicleTrips	DV_TP	15.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	82.00	100.00



## Existing Tulare Facility - Stanislaus County, Annual

tblVehicleTrips	ST_TR	1.90	0.00
tblVehicleTrips	SU_TR	1.11	0.00
tblVehicleTrips	WD_TR	8.11	1.00
tblWater	IndoorWaterUseRate	2,596,144.04	551,720.00

## 2.0 Emissions Summary

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Existing Tulare Facility - Stanislaus County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

**2.2 Overall Operational**

**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0243	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004
Energy	4.1600e-003	0.0378	0.0317	2.3000e-004		2.8700e-003	2.8700e-003		2.8700e-003	2.8700e-003	0.0000	64.5575	64.5575	2.6300e-003	9.8000e-004	64.9142
Mobile	0.0102	0.0902	0.2100	1.1100e-003	0.0845	7.7000e-004	0.0853	0.0227	7.3000e-004	0.0235	0.0000	102.8918	102.8918	2.4500e-003	0.0000	102.9531
Waste						0.0000	0.0000		0.0000	0.0000	85.7434	0.0000	85.7434	5.0673	0.0000	212.4256
Water						0.0000	0.0000		0.0000	0.0000	0.1750	0.5699	0.7449	0.0180	4.3000e-004	1.3236
<b>Total</b>	<b>0.0386</b>	<b>0.1280</b>	<b>0.2418</b>	<b>1.3400e-003</b>	<b>0.0845</b>	<b>3.6400e-003</b>	<b>0.0882</b>	<b>0.0227</b>	<b>3.6000e-003</b>	<b>0.0263</b>	<b>85.9184</b>	<b>168.0193</b>	<b>253.9377</b>	<b>5.0904</b>	<b>1.4100e-003</b>	<b>381.6166</b>

Existing Tulare Facility - Stanislaus County, Annual

**2.2 Overall Operational**

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0243	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004
Energy	4.1600e-003	0.0378	0.0317	2.3000e-004		2.8700e-003	2.8700e-003		2.8700e-003	2.8700e-003	0.0000	64.5575	64.5575	2.6300e-003	9.8000e-004	64.9142
Mobile	0.0102	0.0902	0.2100	1.1100e-003	0.0845	7.7000e-004	0.0853	0.0227	7.3000e-004	0.0235	0.0000	102.8918	102.8918	2.4500e-003	0.0000	102.9531
Waste						0.0000	0.0000		0.0000	0.0000	85.7434	0.0000	85.7434	5.0673	0.0000	212.4256
Water						0.0000	0.0000		0.0000	0.0000	0.1750	0.5699	0.7449	0.0180	4.3000e-004	1.3236
<b>Total</b>	<b>0.0386</b>	<b>0.1280</b>	<b>0.2418</b>	<b>1.3400e-003</b>	<b>0.0845</b>	<b>3.6400e-003</b>	<b>0.0882</b>	<b>0.0227</b>	<b>3.6000e-003</b>	<b>0.0263</b>	<b>85.9184</b>	<b>168.0193</b>	<b>253.9377</b>	<b>5.0904</b>	<b>1.4100e-003</b>	<b>381.6166</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/29/2021	6/28/2021	5	0	

**Acres of Grading (Site Preparation Phase): 0**

Existing Tulare Facility - Stanislaus County, Annual

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

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

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	0	6.00	97	0.37

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	0.00	0.00	0.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**



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**3.2 Demolition - 2021**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated Construction Off-Site**

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

**4.0 Operational Detail - Mobile**

---

Existing Tulare Facility - Stanislaus County, Annual

**4.1 Mitigation Measures Mobile**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0102	0.0902	0.2100	1.1100e-003	0.0845	7.7000e-004	0.0853	0.0227	7.3000e-004	0.0235	0.0000	102.8918	102.8918	2.4500e-003	0.0000	102.9531
Unmitigated	0.0102	0.0902	0.2100	1.1100e-003	0.0845	7.7000e-004	0.0853	0.0227	7.3000e-004	0.0235	0.0000	102.8918	102.8918	2.4500e-003	0.0000	102.9531

**4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Research & Development	5.28	0.00	0.00	222,394	222,394
Total	5.28	0.00	0.00	222,394	222,394

**4.3 Trip Type Information**

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Research & Development	0.00	162.00	0.00	0.00	100.00	0.00	100	0	0

**4.4 Fleet Mix**

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Research & Development	0.523108	0.032399	0.174639	0.117529	0.020918	0.005040	0.027575	0.089674	0.001843	0.001079	0.004521	0.000833	0.000841



Existing Tulare Facility - Stanislaus County, Annual

**5.0 Energy Detail**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	23.4301	23.4301	1.8400e-003	2.2000e-004	23.5424
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	23.4301	23.4301	1.8400e-003	2.2000e-004	23.5424
NaturalGas Mitigated	4.1600e-003	0.0378	0.0317	2.3000e-004		2.8700e-003	2.8700e-003		2.8700e-003	2.8700e-003	0.0000	41.1275	41.1275	7.9000e-004	7.5000e-004	41.3719
NaturalGas Unmitigated	4.1600e-003	0.0378	0.0317	2.3000e-004		2.8700e-003	2.8700e-003		2.8700e-003	2.8700e-003	0.0000	41.1275	41.1275	7.9000e-004	7.5000e-004	41.3719

Existing Tulare Facility - Stanislaus County, Annual

**5.2 Energy by Land Use - NaturalGas**

**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Research & Development	770700	4.1600e-003	0.0378	0.0317	2.3000e-004		2.8700e-003	2.8700e-003		2.8700e-003	2.8700e-003	0.0000	41.1275	41.1275	7.9000e-004	7.5000e-004	41.3719
<b>Total</b>		<b>4.1600e-003</b>	<b>0.0378</b>	<b>0.0317</b>	<b>2.3000e-004</b>		<b>2.8700e-003</b>	<b>2.8700e-003</b>		<b>2.8700e-003</b>	<b>2.8700e-003</b>	<b>0.0000</b>	<b>41.1275</b>	<b>41.1275</b>	<b>7.9000e-004</b>	<b>7.5000e-004</b>	<b>41.3719</b>

**Mitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Research & Development	770700	4.1600e-003	0.0378	0.0317	2.3000e-004		2.8700e-003	2.8700e-003		2.8700e-003	2.8700e-003	0.0000	41.1275	41.1275	7.9000e-004	7.5000e-004	41.3719
<b>Total</b>		<b>4.1600e-003</b>	<b>0.0378</b>	<b>0.0317</b>	<b>2.3000e-004</b>		<b>2.8700e-003</b>	<b>2.8700e-003</b>		<b>2.8700e-003</b>	<b>2.8700e-003</b>	<b>0.0000</b>	<b>41.1275</b>	<b>41.1275</b>	<b>7.9000e-004</b>	<b>7.5000e-004</b>	<b>41.3719</b>

Existing Tulare Facility - Stanislaus County, Annual

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Research & Development	122744	23.4301	1.8400e-003	2.2000e-004	23.5424
<b>Total</b>		<b>23.4301</b>	<b>1.8400e-003</b>	<b>2.2000e-004</b>	<b>23.5424</b>

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Research & Development	122744	23.4301	1.8400e-003	2.2000e-004	23.5424
<b>Total</b>		<b>23.4301</b>	<b>1.8400e-003</b>	<b>2.2000e-004</b>	<b>23.5424</b>

**6.0 Area Detail**

**6.1 Mitigation Measures Area**

Existing Tulare Facility - Stanislaus County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0243	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004
Unmitigated	0.0243	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.6700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0206					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004
<b>Total</b>	<b>0.0243</b>	<b>0.0000</b>	<b>5.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>9.0000e-005</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.0000e-004</b>

Existing Tulare Facility - Stanislaus County, Annual

**6.2 Area by SubCategory**

**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.6700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0206					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004
<b>Total</b>	<b>0.0243</b>	<b>0.0000</b>	<b>5.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>9.0000e-005</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.0000e-004</b>

**7.0 Water Detail**

---

**7.1 Mitigation Measures Water**

Existing Tulare Facility - Stanislaus County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.7449	0.0180	4.3000e-004	1.3236
Unmitigated	0.7449	0.0180	4.3000e-004	1.3236

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Research & Development	0.55172 / 0	0.7449	0.0180	4.3000e-004	1.3236
<b>Total</b>		<b>0.7449</b>	<b>0.0180</b>	<b>4.3000e-004</b>	<b>1.3236</b>

Existing Tulare Facility - Stanislaus County, Annual

**7.2 Water by Land Use**

**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Research & Development	0.55172 / 0	0.7449	0.0180	4.3000e-004	1.3236
<b>Total</b>		<b>0.7449</b>	<b>0.0180</b>	<b>4.3000e-004</b>	<b>1.3236</b>

**8.0 Waste Detail**

---

**8.1 Mitigation Measures Waste**

**Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	85.7434	5.0673	0.0000	212.4256
Unmitigated	85.7434	5.0673	0.0000	212.4256

Existing Tulare Facility - Stanislaus County, Annual

**8.2 Waste by Land Use**

**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Research & Development	422.4	85.7434	5.0673	0.0000	212.4256
<b>Total</b>		<b>85.7434</b>	<b>5.0673</b>	<b>0.0000</b>	<b>212.4256</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Research & Development	422.4	85.7434	5.0673	0.0000	212.4256
<b>Total</b>		<b>85.7434</b>	<b>5.0673</b>	<b>0.0000</b>	<b>212.4256</b>

**9.0 Operational Offroad**

---

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------



Existing Tulare Facility - Stanislaus County, Annual

**10.0 Stationary Equipment**

---

**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

**Boilers**

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

**User Defined Equipment**

Equipment Type	Number
----------------	--------

**11.0 Vegetation**

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**APPENDIX D**  
***Human Health Risk Assessment  
and Supporting Documentation***

---



CDFA Turlock Lab  
Replacement Project

**Health Risk Assessment  
Technical Report**

July 26, 2021

# Health Risk Assessment Technical Report

## Quality information

Prepared by	Checked by	Verified by	Approved by
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## Revision History

Revision	Revision date	Details	Authorized	Name	Position

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# Health Risk Assessment Technical Report

Prepared for:

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## 1. Introduction

AECOM has prepared this health risk assessment (HRA) technical report for Horizon Water and Environment and the California Department of Food and Agriculture (CDFA) for the proposed Turlock Lab Replacement Project (proposed project). The proposed project is located at 830 Dianne Drive, which is at the intersection of West Canal Drive and Dianne Drive in Turlock, Stanislaus County, California. The project consists of the construction and operation of a California Animal Health and Food Safety (CAHFS) replacement necropsy, laboratory, and office facility, new CDFA offices, and associated improvements. This location is situated directly west of State Route (Hwy) 99. The site is comprised of an approximate 7-acre portion of a 27-acre parcel. The proposed project site would be located in the parcel's westernmost area, farthest from Hwy 99. Access to the site is available through Dianne Drive, a two-lane road that runs along the western boundary of the parcel. **Figure 1-1** presents the project site.

This HRA describes the proposed project, the modeling methodologies used to perform the health risk assessment, and the results of the analyses. Analyses performed were based on the most up-to-date information available regarding specific details of the proposed project. This HRA addresses the following sections:

- **Section 1.0, "Introduction,"** describes the proposed project, existing sources of toxic air contaminants (TACs) in the area, and the purpose and approach of this HRA Report.
- **Section 2.0, "Emissions Estimates,"** describes the methods used to estimate the emissions of TACs generated by the proposed project operations.
- **Section 3.0, "Air Dispersion Modeling,"** describes the methods used to model pollutant dispersion and estimate contributions of proposed project sources to pollutant concentrations.
- **Section 4.0, "Health Risk Analysis,"** provides an overview of the methodology for estimating potential health risks to existing sensitive receptors.
- **Section 5.0, "Uncertainties,"** discusses the uncertainties and limitations associated with the health risk analysis.
- **Section 6.0, "References,"** lists the sources cited in this HRA Report.

### 1.1 Proposed Project Understanding

The proposed project involves the construction and operation of a CAHFS replacement necropsy, laboratory, and office facility, new CDFA offices, and associated improvements. **Figure 1-1** depicts the project site boundaries.

## Health Risk Assessment Technical Report

The proposed project would include the following components that would emit TACs:

- Necropsy, Laboratory, and Office Building that includes laboratory rooms for various laboratory activities including but not limited to diagnostics, pathology, histology, bacteriology services; necropsy suite; cremator; and several water heaters and boilers.
- Cooling tower with three cells;
- Hazardous waste/chemical storage building;
- Emergency diesel generator and diesel fuel sub-skid tank; and
- Delivery and worker vehicle traffic to and from the facility.

**Figure 1-2** shows the location of the proposed project components. Emissions included in the dispersion modeling are detailed in Section 2.0.

**Figure 1-1  
Project Boundaries**

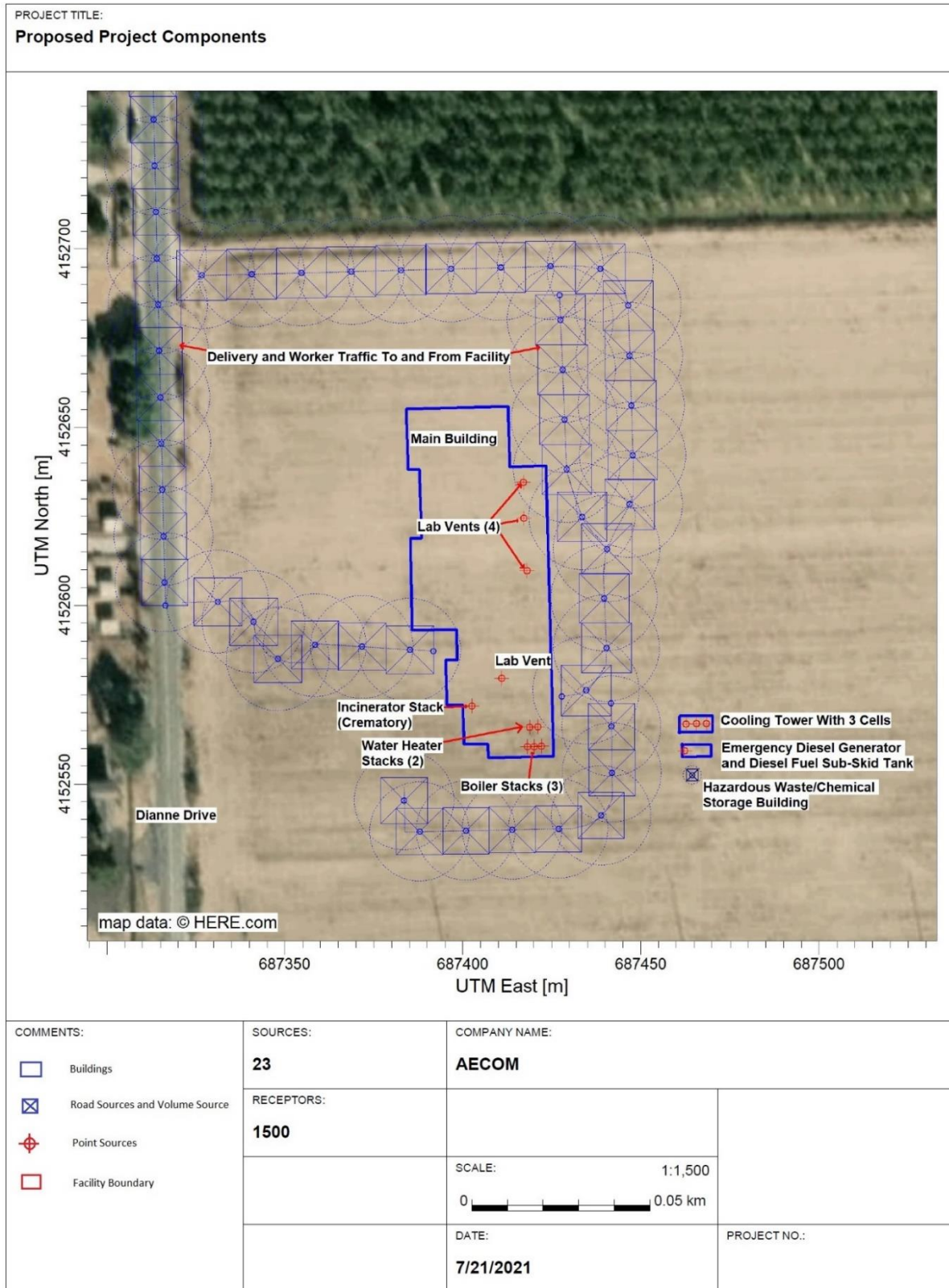


COMMENTS:  Property Boundary	SOURCES: <b>23</b>	COMPANY NAME: <b>AECOM</b>	
	RECEPTORS: <b>1500</b>		
		SCALE: 1:4,988 	
		DATE: <b>7/21/2021</b>	PROJECT NO.:

AERMOD View - Lakes Environmental Software

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**Figure 1-2**  
**Map of Project Components**



## 1.2 Toxic Air Contaminants

The proposed project site is in the City of Turlock, which is part of the San Joaquin Valley Air Basin (SJVAB). Air quality in the SJVAB is regulated at the regional level by the San Joaquin Valley Air Pollution Control District (SJVAPCD) and at the state and federal levels by the California Air Resources Board (CARB) and the Environmental Protection Agency (EPA), respectively. SJVAPCD attains and maintains air quality conditions in the SJVAB through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues.

The following provides a brief overview of the toxic air contaminants that could be emitted as a result of proposed project.

EPA regulates hazardous air pollutants, also known as toxic air contaminants (TACs). TACs may be emitted by stationary, area, or mobile sources. Common stationary sources of TAC emissions include gasoline stations, dry cleaners, and emergency diesel generators, which are subject to the requirements of local air district permits. The other, often more substantial, sources of TAC emissions are motor vehicles on freeways, on high-volume roadways, or in other areas with high numbers of diesel vehicles, such as distribution centers. Off-road mobile sources are also major contributors of TAC emissions and include construction equipment, ships, and trains.

TACs collectively refer to a diverse group of air pollutants that are capable of causing chronic (i.e., long-duration) and acute (i.e., severe but short-term) adverse effects on human health, including carcinogenic effects. Human health effects of TACs include birth defects, neurological damage, cancer, and mortality. There are hundreds of different types of TACs with varying degrees of toxicity. The health risks of individual TACs vary greatly; at a given level of exposure, one TAC may pose a hazard that is many times greater than another.

TACs can be separated into carcinogens and noncarcinogens based on the nature of the effects associated with exposure to the pollutant. For regulatory purposes, carcinogens are assumed to have no safe threshold below which health impacts would not occur. Any exposure to a carcinogen poses some risk of contracting cancer. Noncarcinogens differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

Air pollution does not affect every individual in the population in the same way, and some groups are more sensitive than others to adverse health effects. Land uses such as residences, schools, daycare centers, hospitals, and nursing and convalescent homes are considered most sensitive to poor air quality because the population groups associated with these uses are more susceptible to respiratory distress or, for residential receptors, their exposure time is greater than that for other land uses.

Therefore, these groups are referred to as sensitive receptors. SJVAPCD defines sensitive receptors as children, adults, and seniors occupying or residing in residential dwellings, schools, daycare centers, hospitals, and senior-care facilities.

The largest source of TACs within 1,000 feet of the proposed project site are Hwy 99 and the gasoline station at Joe M. Gomes & Sons, Inc. at 725 North Tully Road. The gasoline station is not within 1,000 feet of the proposed project sources analyzed in this HRA.

### 1.3 Purpose and Approach

The purpose of this HRA is to assess potential impacts caused by TACs during operation of the proposed project. The analysis was conducted consistent with guidance and methodologies from local, regional, State, and federal agencies, including SJVAPCD (2018), the California Air Resources Board (CARB), the Office of Environmental Health Hazard Assessment (OEHHA) (2015), and the U.S. Environmental Protection Agency (EPA 2017). Additionally, the purpose of this HRA Report is to assess the results and determine whether modeling refinements are necessary.

### 1.4 Analysis Thresholds

Consistent with California Environmental Quality Act (CEQA) requirements, the analysis evaluated *Health risk and hazard impacts of operational emissions* from the proposed project on the off-site sensitive receptors. The off-site receptors would be the same as those shown in **Figure 3-4**.

According to SJVAPCD Project Ambient Air Quality Analysis Applicability under CEQA policy document (SJVAPCD 2018b), if source emissions do not exceed 100 pounds per day screening level for any criteria pollutants then dispersion modeling is not required.

Health risk metrics were compared with applicable thresholds of significance to determine potential impacts. The proposed project is subject to CEQA; therefore, local guidelines and recommended thresholds of significance provide thorough standards relevant to air quality and apply in the proposed project's region of influence. The SJVAPCD has developed recommended project-level health risk thresholds which are recommended for use to evaluate the proposed project's TAC impacts. The following evaluation compares the proposed project's health risks to SJVAPCD CEQA thresholds of significance.

Health Risk Assessment Technical Report

The current thresholds of significance are provided below in **Table 1-1**.

**Table 1-1**  
**Health Risk Analysis Thresholds**

Threshold Type	Risk
Cancer risk	20 in-a-million
Chronic Non-Cancer Risk (Annual and 8-hour)	1.0
Acute Non-Cancer Risk	1.0

Notes: HRA = health risk assessment



## 2. Emissions Estimates

This HRA evaluates the health risks due to emissions of diesel PM (assumed to be equivalent to PM<sub>2.5</sub> exhaust) and total organic gases (TOGs) from traffic as well as TACs from the crematory, laboratory vents, cooling tower, boilers, water heaters, and chemical storage area. This section identifies the methodologies used to estimate these pollutant emissions that would result from the proposed project. The emission estimates are used to conduct the modeling discussed in Section 4.

The proposed project operational emissions were quantified according to guidance and methods from SJVAPCD, CARB, and EPA. The process for determining the parameters and assumptions used to model these emissions, along with the modeling methods, are described below. Appendix B *Air Quality Pollutant Emissions, Greenhouse Gas Emissions, and Energy Use Calculations* of the Turlock North Valley Laboratory Replacement Project Draft Environmental Impact Report contains the detailed emissions output and a summary of the emissions used in the health risk analysis.

### 2.1 Operational Emission Sources

Operational activities include operation of the animal crematory, an emergency generator, a three-cell cooling tower, various water heaters and boilers, vented emissions from laboratory operations, and miscellaneous storage tanks. In addition, the project would also result in approximately 98 vehicle trips per day associated with employee commutes, walk-ins, and deliveries. Emission sources and emission estimation methodology are described below.

#### 2.1.1 Stationary Combustion Sources

Combustion emission sources include two natural-gas fired domestic heaters with a heat rating of 0.1 Million British thermal units (MMBtu) per hour (MMBtu/hr) per heater, two natural-gas fired laboratory heaters with a heat rating of 0.5 MMBtu per hour per heater, three natural-gas fired boilers with a heat rating of 0.75 MMBtu per hour per boiler, and a 500-kilowatt-rated diesel-fired emergency generator.

Emissions from operation of the proposed heaters and boilers are required to meet the standards detailed in SJVAPCD Rule 4308 for Boilers, Steam Generators and Process Heaters of 0.075 MMBtu/hr to less than 2.0 MMBtu/hr. The boilers and heaters would have burners capable of achieving 20 parts per million (ppm) NO<sub>x</sub> by volume dry at 3 percent oxygen (0.024 lb/MMBtu). TACs generated during operation of the boilers and heaters were estimated using emission factors from the SJVAPCD's Emission Factors website and based on Ventura County Air Pollution Control District (VCAPCD) AB 2588 Combustion Emission Factors (SJVAPCD 2021a). Operation of the boilers and heaters

was assumed to have no restrictions (i.e., they would operate 24 hours per day, 8,760 hours per year).

Diesel emergency generator emissions were estimated using EPA nonroad compression-ignition engine emission standards for Tier 4 engines, and sulfur content for ultra-low sulfur diesel (ULSD). Diesel generator TACs were estimated using emission factors from EPA AP-42 Section 3.4 for Large Stationary Diesel Engines (EPA 1996). The generator is limited to 200 hours per year of non-emergency use per SJVAPCD Rule 2201, Section 4.6.2, with no restrictions on daily usage (i.e., up to 24 hours per day). The emergency generator was assumed to operate at approximately 73% load, per default load factors in the California Emissions Estimator Model (CalEEMod).

Emissions associated with the animal crematory originate from four 1.0 MMBtu/hr primary and one 2.25 MMBtu/hr secondary natural gas-fired burners and up to 1,250 pounds of carcasses per charge. Criteria air pollutant and reactive organic gas (ROG) emissions were estimated using San Diego Air Pollution Control District (SDAPCD) guidance document CO<sub>2</sub> - "Crematories, Natural Gas Fired, Animal Remains, Controlled Air" or based on current permit limits, whichever was more stringent. Speciated TAC emissions were estimated using emission factors that were obtained from the SJVAPCD's Emission Factors website and based on SDAPCD's 1993 profile "Crematory and Incinerator Operations" test data from 1990 UCSD Medical Center AB2588 Source Testing. The animal crematory is limited by permit conditions to 16 hours per day and 237 days per year of operation.

### 2.1.2 Mobile Sources

Operation of the proposed project would involve approximately 98 daily trips associated with employee commutes, walk-ins, and delivery trips. Trip distances associated with the employee commute trips were derived from the Transportation Study prepared for the proposed project. Mobile-source emissions related to these vehicle trips and the associated fugitive dust (brake wear, tire wear, and re-entrained roadway dust) from vehicle trips were estimated using CalEEMod, with the default trip rates and distances adjusted to reflect the above-noted project-specific data inputs. Note that, for the purposes of modeling emissions in CalEEMod to reflect the VMT estimates provided by the Transportation Study for the proposed project, the 'Trip Purpose' inputs in CalEEMod were revised to account for 100 percent of trips as primary trips, thereby not resulting in a discounted VMT by the CalEEMod model for diverted or pass-by trips. In addition, the VMT outputs from CalEEMod are slightly higher than those provided in the Transportation Study for the proposed project, because the Transportation Study VMT analysis accounted for daily worker commute trips, but not the intermittent walk-ins or delivery vehicle trips. The mobile source emissions were then speciated to estimate the TACs. **Table 2-1** provides the EMFAC Gasoline TOG Speciation used to model TACs from non-diesel vehicles.

**Table 2-1**  
**EMFAC Gasoline TOG Speciation**

<b>Toxic Compounds</b>	<b>EMFAC Gasoline TOG Speciation (% of TOG)</b>
Acetaldehyde	0.28%
Benzene	2.47%
1,3-Butadiene	0.55%
Ethylbenzene	1.05%
Formaldehyde	1.58%
Hexane	1.60%
Methanol	0.12%
Methyl ethyl ketone	0.02%
Naphthalene	0.05%
Propylene	3.06%
Styrene	0.12%
Toluene	5.76%
Xylenes	4.80%

Source: EMFAC2017 Model (2018)

Notes: EMFAC = Emission FACtors;

TOG = total organic gases

### 2.1.3 Other Operational Equipment Sources

Other equipment sources of operational emissions would include the cooling tower, fugitive vented emissions related to chemicals used for laboratory operations, and storage tanks/vessels.

Estimated emissions from the cooling tower are based on the default particulate matter emission factor from South Coast Air Quality Management District (SCAQMD 2014) for cooling towers used strictly for HVAC purposes. The particle size distribution profile used to estimate PM<sub>10</sub> and PM<sub>2.5</sub> emissions is from CARB Appendix A *"Updated CEIDARS Table with PM2.5 Fractions"* (SCAQMD 2006). The nickel emission factor is from SCAQMD guidance.

Fugitive emissions from the venting of laboratory chemicals were estimated using chemical usage data from a similar laboratory, scaled by laboratory building size, and known evaporative loss factors.

Storage tanks and vessels associated with operations would store miscellaneous materials including ethanol, formalin, diesel, etc. Each tank or vessel would be below the low emitting unit threshold of 2 pounds per day (SJVAPCD Policy Rule 2020). Due to a lack of physical tank characteristic information needed to accurately estimate

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emissions from these tanks, ROG emissions from storage tanks and vessels were conservatively assumed to be 2 pounds per day per tank for all tanks other than the diesel storage tank. Diesel storage tank characteristics were determined using capacity and dimension information in the emergency generator spec sheet. Annual throughput for the diesel tank was assumed to be 4,800 gallons, based on approximately 24 gallon/hr fuel consumption (per the generator spec sheet) for 200 hours. ROG for the diesel storage tank was estimated using TankESP, which estimates storage tank emissions using inputs and equations from AP-42 Section 7.1. TACs from the diesel storage tank were speciated from ROG emissions using SJVAPCD guidance, which refers to the 1993 District memo "Diesel Storage Weight Fractions" test data from source tests of 75 crude oil storage tanks in the southern region (SJVAPCD 2021b). TACs from other storage tanks were estimated using the liquid speciation profile of the contents within the storage tanks.

### 3. Air Dispersion Modeling

Consistent with SJVAPCD guidance, the air toxics analysis evaluated excess cancer risk (discussed in Section 4.0) imposed by the proposed project on the surrounding community under full operational conditions. Operational source emissions did not exceed 100 pounds per day screening level for any criteria pollutants. Therefore, modeling of criteria pollutants is not required, per SJVAPCD Project Ambient Air Quality Analysis Applicability under CEQA policy document (SJVAPCD 2018b).

The American Meteorological Society/EPA Regulatory Model (AERMOD) dispersion model (Version 21112)(EPA 2021) was used to estimate pollutant concentrations at specific distances from emission sources using 5 years (2013-2017) of hourly meteorological data consisting of surface observations from the Modesto Airport, CA and upper air data from Oakland International Airport, CA (**Figure 3-1**). The Modesto Airport is approximately 15 km to the north-northwest of the proposed project site. Terrain between the airport and proposed project is relatively flat. Elevated terrain features are to the west and east of both the airport and the proposed project site, indicating the predominant wind flow should be oriented northwest to southeast. The 5-year (2013-2017) wind rose is shown in **Figure 3-2**, which captures the expected predominant flow based on surrounding terrain from the Modesto Airport. Based on the proximity to the proposed project and flow pattern, the Modesto Airport would be the most representative meteorological dataset to use for the dispersion modeling. The SJVAPCD provides AERMOD-ready meteorological files for the Modesto Airport (2013-2017) on their website (SJVAPCD 2021c). These files were used in the dispersion modeling of the proposed project.

#### 3.1 Rural/Urban Dispersion Environment

One factor affecting input parameters to dispersion models is the assessment of the mode application and the meteorological site's land use as either rural or urban. EPA guidance (EPA 2017) suggests that application of a model's dispersion environment as either rural or urban should be based upon the land use characteristics within 3 km of the project site(s) (EPA Appendix W to 40 CFR Part 51). Factors that affect the rural/urban choice include the extent of vegetated surface area, the water surface area, types of industry and commerce, density of residential areas, and building types and heights within this area.

According to Section 7.2.1.1 of EPA's Appendix W, either a land use (Auer method) or a population density procedure should be used in determining if the model should be applied as if there is an urban vs. rural dispersion environment. For this application, the Auer method is used. This land-use approach classifies an area according to 12 land-use types. In this scheme, areas of industrial, commercial, and compact residential land use are designated urban. According to EPA modeling guidelines, if more than 50 percent of an area within a 3-km radius of a site is classified as rural, the AERMOD's

urban source options would not be used. Based on visual inspection of aerial imagery, land cover within 3 km of the proposed project site is more than 50 percent rural land type. Therefore, the proposed project is considered rural and AERMOD was run in default model without any consideration of any urban source options for all sources modeled.

### 3.2 Building Downwash

The latest version of the EPA Building Profile Input Program (BPIP-PRIME) was run to determine dominant structures for building downwash in AERMOD for the point sources (**Figure 3-3**). Direction-specific building heights and widths of the dominant downwash structure(s) were included in the AERMOD model data input file directly from BPIP-PRIME results.

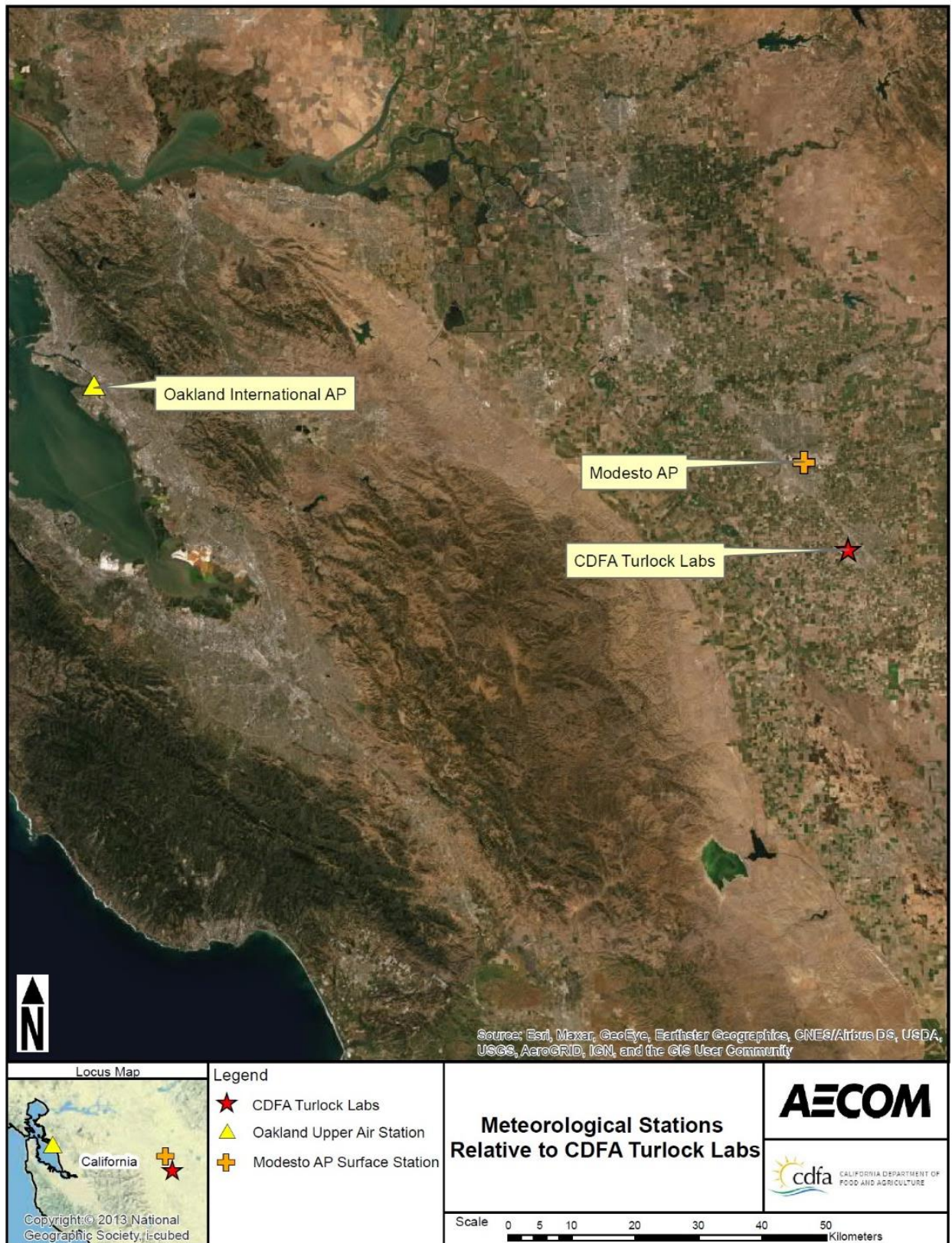
### 3.3 Receptor Locations

A comprehensive Cartesian receptor grid was developed for use in the AERMOD modeling. The grid was centered at the approximate center of the CDFA property and extends out 2 kilometers from that location. The receptors were spaced at the following intervals in accordance with the recommendations in Section 7.2.2 of the SJVAPCD modeling guidelines:

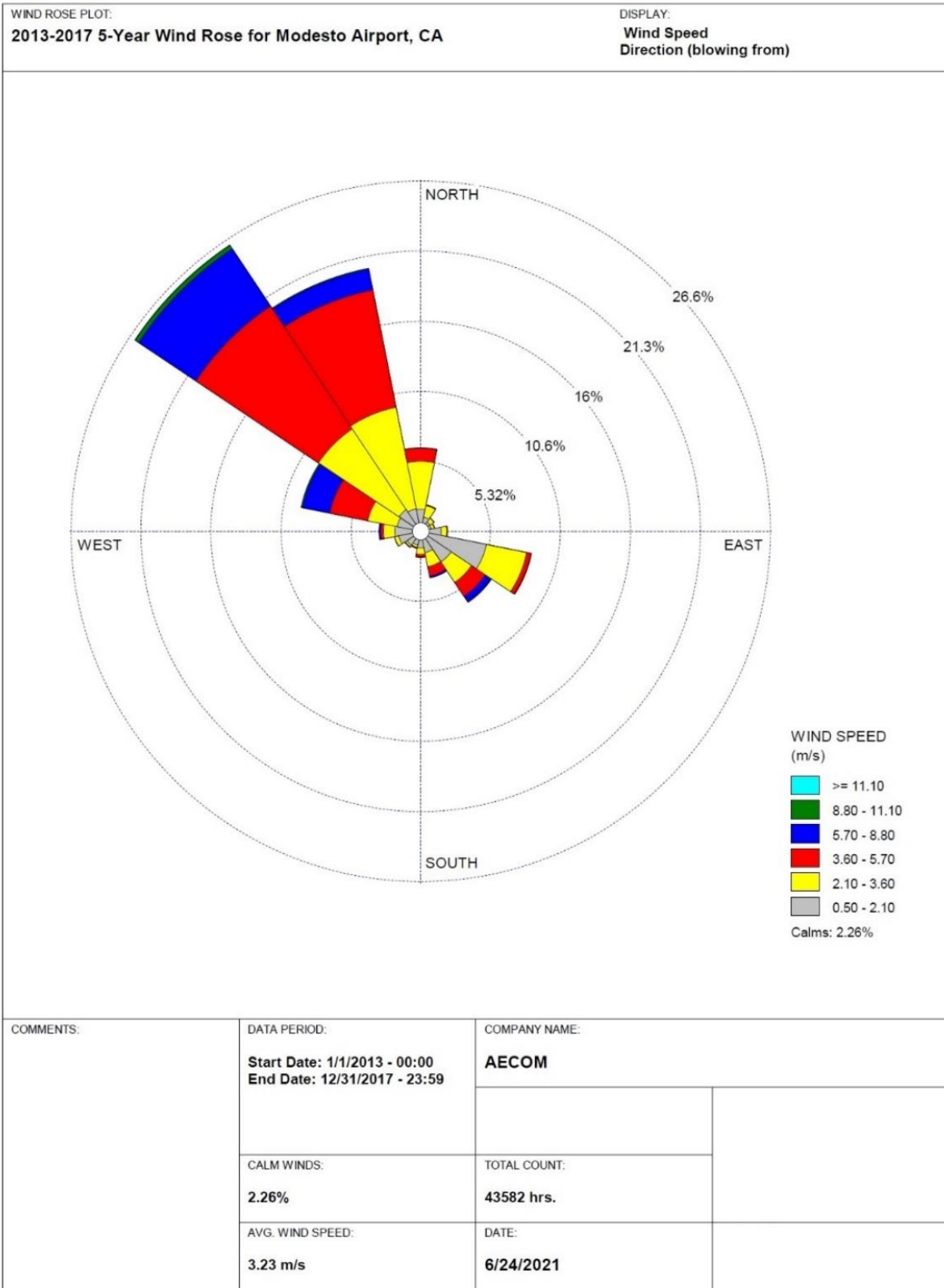
- 25-m increment along the facility boundary;
- 25-m increment from facility boundary out to 100 meters;
- 50-m increment from 100 to 250 meters;
- 100-m increment from 250 to 500 meters;
- 250-m increment from 500 meters and 1 kilometer; and
- 500-m increment from 1 kilometer to 2 kilometers.

All receptor coordinates were in North American Datum 83 (NAD83), UTM Zone 10. A total of 1,486 receptors were used in the analysis. The receptor grid used in the analysis is shown in **Figure 3-4** and includes 14 additional receptors at sensitive sites such as schools, adult and child day care facilities, and parks within 2 kilometers of the proposed project facility. The sites of the sensitive receptors are listed in **Table 3-1**, below.

**Figure 3-1**  
**Locations of the Meteorological Stations Used in the Modeling**

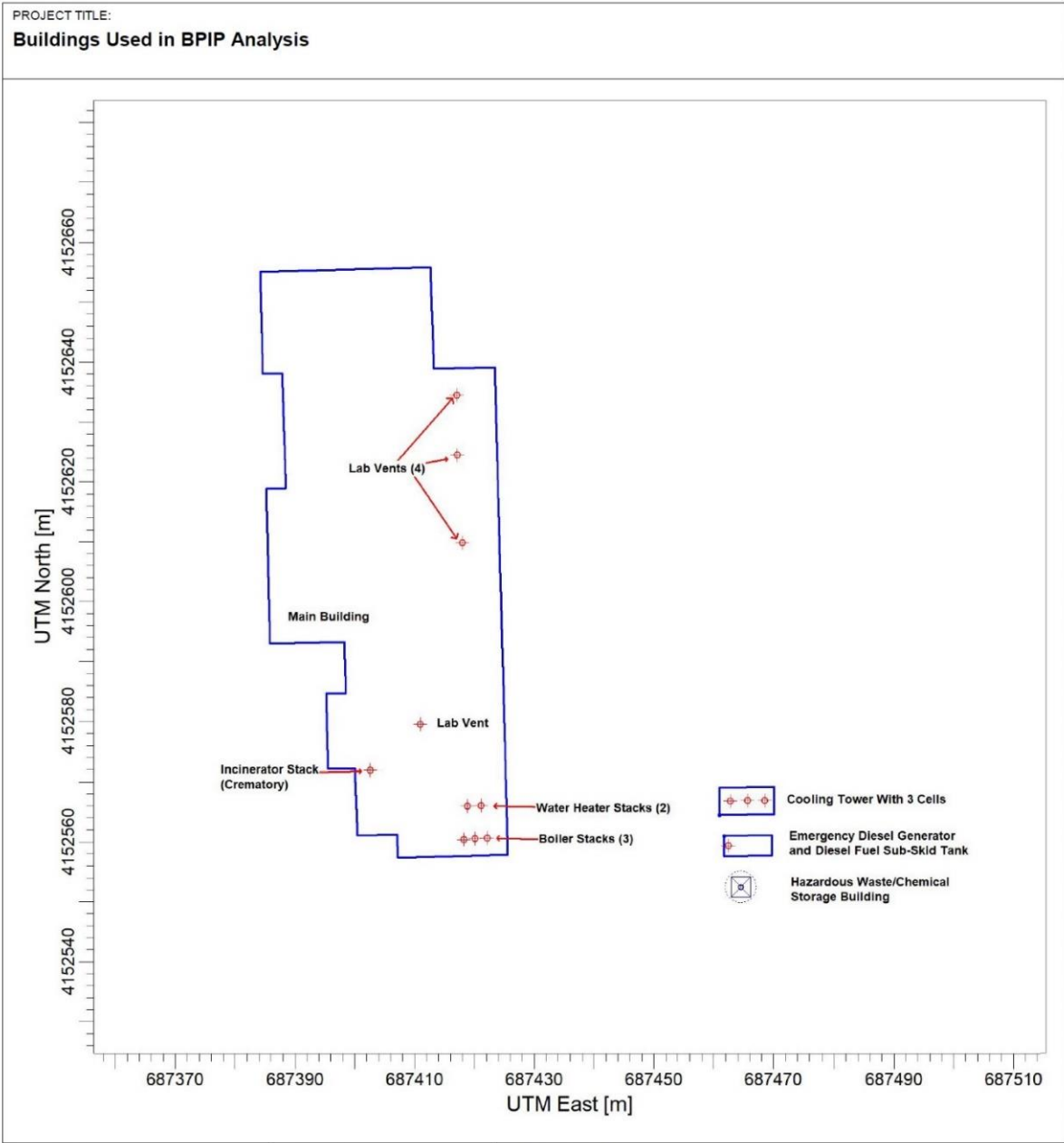


**Figure 3-2**  
**Modesto Airport, CA Wind Rose (2013-2017)**





**Figure 3-3**  
**Buildings Modeled**

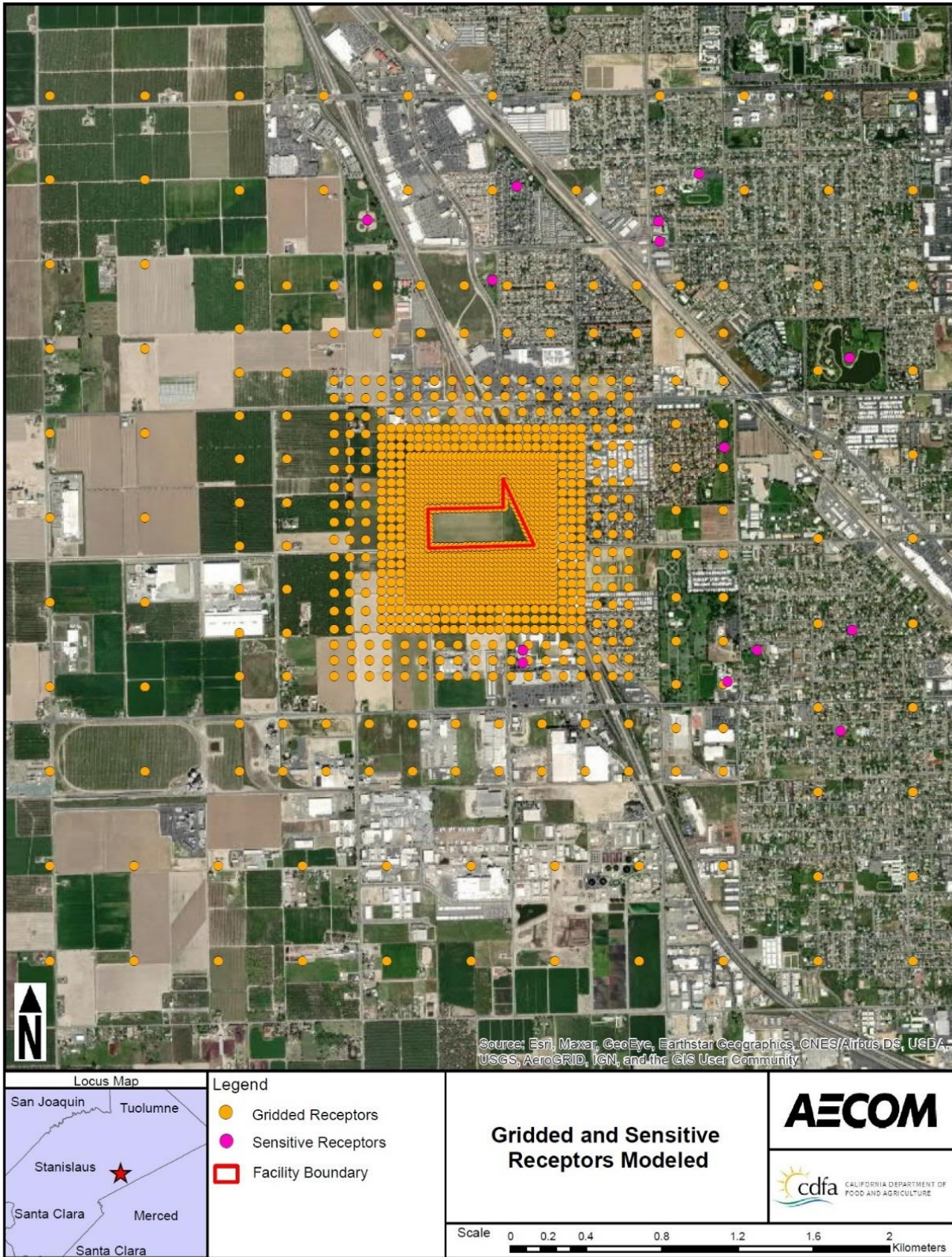


<p>COMMENTS:</p> <p> Buildings</p> <p> Volume Source</p> <p> Point Sources</p>	<p>SOURCES:</p> <p><b>23</b></p>	<p>COMPANY NAME:</p> <p><b>AECOM</b></p>	
	<p>RECEPTORS:</p> <p><b>1500</b></p>		
		<p>SCALE: 1:1,000</p> <p></p>	
		<p>DATE:</p> <p><b>7/21/2021</b></p>	<p>PROJECT NO.:</p>

AERMOD View - Lakes Environmental Software

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**Figure 3-4**  
**Receptors Modeled**



Terrain elevations for the model receptors were obtained from readily available digital terrain elevations developed by the U.S. Geological Survey using its National Elevation Dataset (NED). The NED data provide terrain elevations with 1-meter vertical resolution and 10-meter (1/3 arc-second) horizontal resolution based on a Universal Transverse Mercator (UTM) coordinate system. For each receptor location, the terrain elevation is set to the elevation for the closest National Elevation Dataset grid point. The USGS specifies coordinates in NAD83, UTM Zone 10. EPA's AERMAP terrain processor (version 18081) was used to process the NED data and assign elevations to the receptor locations and sources.

**Table 3-1**  
**Sensitive Receptor Locations**

<b>Name</b>	<b>Address</b>
Atch Pedretti Park	2918 W Tuolumne Rd
Centennial Park	Pinto Way
Osborn Elementary School	201 N Soderquist Rd
John B. Allard School	350 North Kilroy Rd
Summerfaire Park	North Soderquist Road and Fulkerth Road
Soderquist Ballfield	North Soderquist Road and Flower Street
Donnelly Park	Donnelly Park Drive and West Hawkeye Ave
Walter M Brown Elementary	1400 Georgetown Ave
Kids Community Campus LLC	2490 N Walnut Rd
Pruitt Family Daycare	2325 Gala Ct #8421
Columbia Park	Farr St and Columbia Ave
Turlock Nursery School	415 Grant Ave
Central California Child Development Services - Turlock Child Development Center	400 N Kilroy Rd
Stable Living (Adult Day Care)	2380 N Walnut Rd

Notes: All sensitive receptor locations are in the City of Turlock, California.

### 3.4 Operational Sources

Operational emission sources evaluated as part of this HRA include: (1) future onsite stationary sources and (2) on-road vehicles traveling to and from the proposed project site. Operational sources were sited based on drawings provided by Horizon and Flad Architects. Base elevations for all sources were derived from NED data. **Table 3-2** and **Table 3-3** provide the coordinates and release parameters of point and volume sources,

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respectively, that were modeled. Stationary operational sources that were modeled are identified below and all were modeled as point sources (see Figure 3-3), except the chemical storage area which was modeled as a volume source:

- Crematory –It is proposed to be in the southwest portion of the main building and would typically operate during normal work hours from 8 A.M. and 6 P.M. Monday through Friday, but may operate longer hours or on weekends if needed.
- Boilers – Three boiler stacks would be in the boiler room of the main building and would operate simultaneously 24-hours a day, 7 days a week.
- Water Heaters – Two water heater stacks would be in the boiler room of the main building and would operate simultaneously 24-hours a day, 7 days a week.
- Diesel Generator – One diesel generator would be to the right of the southeast corner of the main building and would be able to operate 24-hours a day, 7 days a week.
- Cooling Tower – One cooling tower with three cells would be to the right of the southeast corner of the main building and would operate 24-hours a day, 7 days a week.
- Laboratory Air Vents – Five laboratories in the northern part of the main building would have air vents on the roof for the emissions of general chemicals. The laboratories would operate from 8 A.M. to 6 P.M. Monday through Friday. They would not operate on the weekend.
- Sub-skid Diesel Generator Tank – One tank would be sited with the diesel generator. Fumes would be emitted 24-hours a day, 7 days a week.
- Chemical Storage Area – The chemical storage area would be to the right of the southeast corner of the main building. Fumes would be emitted 24-hours a day, 7 days a week.

In addition to these stationary point and volume sources, onsite and offsite on-road traffic was also modeled. Onsite traffic included delivery trucks (delivering animals and supplies and removing waste) and employees' personal vehicles. Offsite traffic included traffic traveling to and from the facility via Dianne Drive (west side of the facility) and going to and coming from Hwy 99 via Fulkerth Road to the north of the facility. The on-road traffic (both onsite and offsite) were modeled as adjacent volume sources along the traffic routes described above. General release heights (2.0 m) and initial sigma-z (2.3 m) values were used. Initial sigma-y values varied by road size. **Table 3-4** presents road source parameters that were used to model this source. Traffic was modeled from 8 A.M. to 6 P.M. Monday through Friday with no traffic on weekends.

**Figure 3-5** shows the point sources, volume source, and road sources modeled overlaid on an aerial image background map.

**Table 3-2  
Proposed Stack Parameters**

<b>Point Source</b>	<b>Model ID</b>	<b>Building Height (m)</b>	<b>Stack Height (m)</b>	<b>Exhaust Temperature (K)</b>	<b>Exhaust Velocity (m/s)</b>	<b>Stack Diameter (m)</b>
Crematory	CRMTRY	7.620	9.144	633.317	20.927	0.649
Boilers (3)	BOILER1-3	7.620	8.230	644.261	22.638	0.305
Water Heaters (2)	WTRHTR1-2	7.620	8.230	366.483	4.502	0.152
Diesel Generator	EMGEN	3.353	3.658	735.928	44.609	0.204
Cooling Tower (3 Cells)	CT1-3	4.267	4.572	313.150	4.572	2.800
Laboratory Air Vents (5)	LABVENT1-5	7.620	8.230	Ambient	8.819	0.610
Subskid Diesel Generator Tank	DIESTANK	NA	0.914	Ambient	0.001	0.001

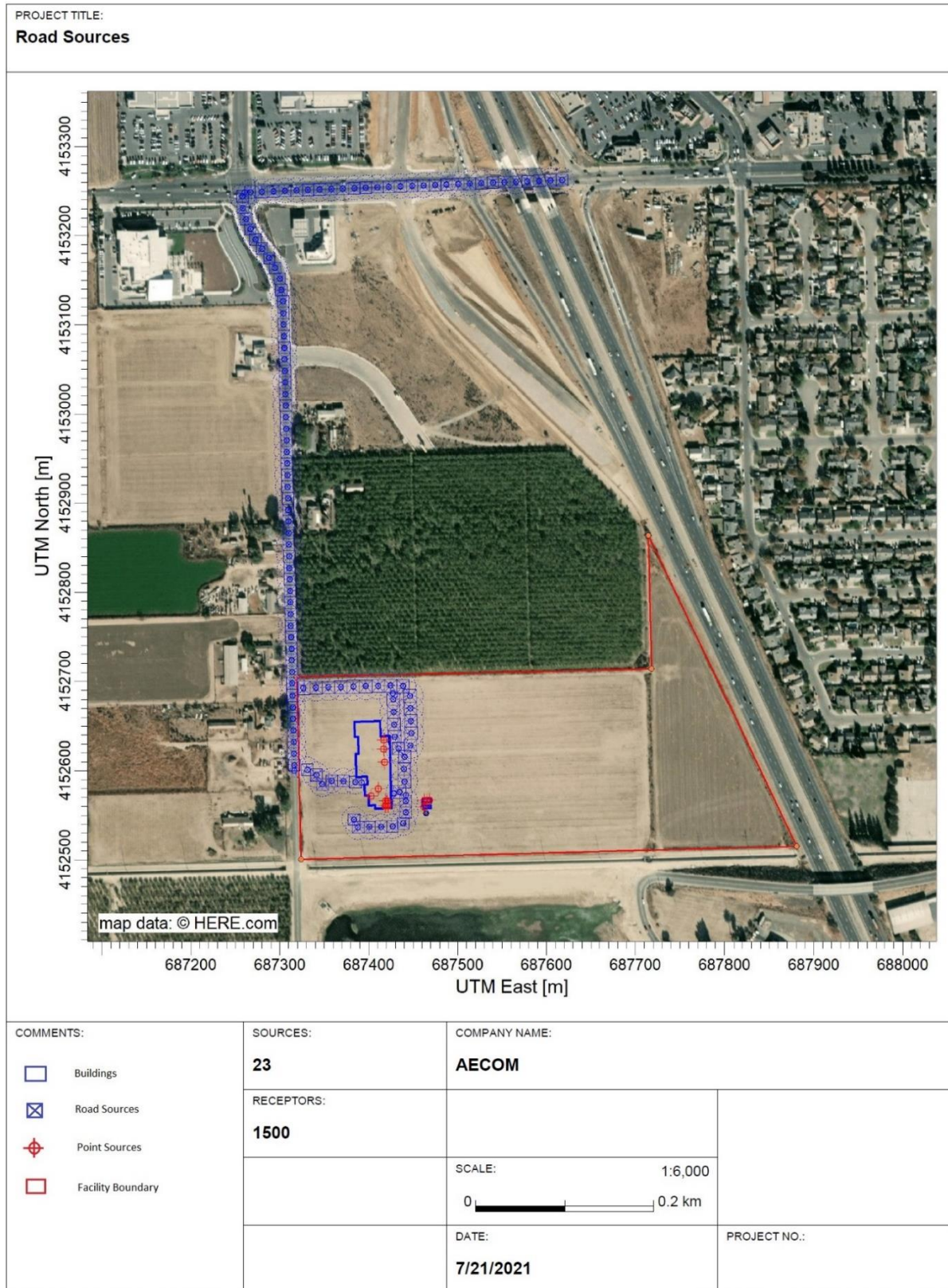
**Table 3-3  
Proposed Volume Source Parameters**

<b>Volume Source</b>	<b>Model ID</b>	<b>Structure Height (m)</b>	<b>Release Height (m)</b>	<b>Length of side (m)</b>	<b>initial sigma-y (m)</b>	<b>initial sigma-z (m)</b>
Chemical Storage Area	CHEMSTRG	3.048	1.524	3.300	0.767	1.418

**Table 3-4  
Proposed Road Source Parameters**

Road Segment Name	Description	Type	Road Width (m)	Length of Side (m)	Release Ht. (m)	Sigma-y	Sigma-z	No. of Volumes	Segment Length (m)	Emissions per vol (g/sec/vol)
Total Roads	On-road (trucks)	Adjacent Volume	-	Varies by road.	2.000	Varies by road.	2.300	116	-	8.62069E-03
ADDOUT	onsite road from animal delivery dock to Dianne Drive; exiting facility		8	14		6.512		18	245.2	
ADDIN	onsite road from main entrance road to animal delivery dock; entering		8	14		6.512		5	72	
WASTE	waste dock		7	13		6.047		8	101.3	
SUPPDEL	supply delivery		7.43	13.43		6.247		6	54.3	
DIANNE	Dianne Drive - road adjacent to property; goes north to Fulkerth Road		7	13		6.047		51	660.3	
FULKERTH	Fulkerth Road - goes to Route 99		7	13		6.047		28	369.1	

**Figure 3-5**  
**On-Road Vehicle Routes**



AERMOD View - Lakes Environmental Software

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## 4. Health Risk Analysis

### 4.1 Pollutant Concentrations

Emissions from the sources described in Section 3 were run in AERMOD to determine air pollutant concentrations at sensitive receptor locations. AERMOD was run using unit emissions. Each source was modeled assuming emissions of 1 gram per second (g/s) divided by the number of volume sources in a road segment, or 1 g/s divided by the number of point sources for a given source type. The unitized AERMOD results for each source are output in  $\mu\text{g}/\text{m}^3$  per g/s [ $(\mu\text{g}/\text{m}^3)(\text{g}/\text{s})^{-1}$ ]. Maximum hourly and period-average plot files generated by AERMOD as described above were input to Hotspots Analysis and Reporting Program (HARP2) with corresponding toxic air contaminant emission rates for project operational emissions to calculate project pollutant concentration contributions. These concentrations were then used to estimate the long-term effects of toxic air contaminants on existing sensitive receptor locations.

### 4.2 Receptor Exposure and Health Risk Calculations

Exposure factors were used to calculate the dose associated with exposure to the estimated unit concentration results obtained using AERMOD. CARB created the HARP2 software to assist in the development of emissions inventories, dispersion modeling, and risk assessment. For this project, HARP2 was used solely to estimate cancer risk via HARP2's Air Dispersion Modeling and Risk Tool (ADMRT), Version 21081; ADMRT was developed to encapsulate the exposure factors and guidance of the 2015 OEHHA Health Risk Assessment (OEHHA, 2015).

Carcinogenic risks and potential non-carcinogenic chronic health effects were calculated using the annual ground-level concentrations, and the acute non-cancer health hazards were determined using the predicted maximum 1-hour ground level concentrations from AERMOD. The latest OEHHA cancer potency factors, as well as chronic and acute recommended exposure limits for each TAC were used. The approved health values are incorporated into HARP2. The HARP2 software performed the necessary risk calculations, following the OEHHA risk assessment guidelines and the CARB Interim Risk Management Policy for risk management decisions.

The following HARP options were used for the risk analysis to estimate cancer and non-cancer impacts at the maximum impact location on the receptor grid per SJVAPCD guidance:

- 70-year Resident Cancer Risk – Derived (Adjusted) Method;
- 9-year (Child Resident) Cancer Risk – Derived (OEHHA) Method;
- 40-year Worker Cancer Risk – Point Estimate;
- Chronic Non-Cancer Hazard Index (HI) – Derived (OEHHA) Method;



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- 8-hour Chronic Non-Cancer HI; and
- Acute HI – Simple Acute HI.

The Derived (OEHHA) risk analysis method uses the high-end point estimates of exposure for the two dominant (driving) exposure pathways, while the remaining exposure pathways use average point estimates. The Derived (Adjusted) method is identical to the Derived (OEHHA) method but uses the breathing rate at the 80th percentile of exposure rather than the high-end point-estimate when the inhalation pathway is one of the dominant exposure pathways. The cancer risk estimates using the derived equations/methods are based on a 70-year exposure (resident). The point-estimate analysis uses a single value rather than a distribution of values in the dose equation for each exposure pathway.

The off-site worker exposure duration assumed a standard work schedule because the facility would operate full time, per OEHHA guidance. For the cancer and chronic HI impacts for workers, the HARP modeling option “modeled GLC and default exposure assumptions” was used. This included the highly conservative 40-year exposure duration for the worker receptors along with an OEHHA-defined 95th percentile breathing rate of 393 liters of air per kilogram-day. Child cancer risk was evaluated for a 9-year exposure scenario. The simple acute HI method is a conservative approach where the maximum concentrations from each emission source are superimposed to impact receptors at the same time, irrespective of wind direction and/or atmospheric stability, and is a health-protective approach to assess acute impacts.

The modeled exposure pathways consisted of all pathways recommended for an HRA. Exposure pathways that were enabled included homegrown produce (using rural default ingestion fractions), dermal absorption, soil ingestion, and mother’s milk in addition to the inhalation pathway. Exposure routes for the ingestion of local fish, poultry, or livestock, and drinking water were not considered in this risk analysis because no such areas exist within the proposed project’s area of influence.

### 4.3 Summary of Health Risks and Modeling Results

As previously discussed, operations at the site would generate long-term emissions, including TACs, from a variety of sources. A quantitative analysis was conducted that evaluated excess cancer, chronic non-cancer, and acute health risks for operations of the proposed project site. The results from this modeling are presented below.

**Table 4-1** summarizes the results of the excess cancer risk from operations of the proposed project for residents (70-years), childcare facilities (9-years), and workers (40-years). The Point of Maximum Impact (PMI) represents the highest modeled concentration. Due to the low-level release of all the sources included in the model, the PMIs were all located on the southern edge of the ambient air boundary. Model results are also presented for the Maximum Exposed Individual Resident (MEIR), Maximum

Exposed Individual Worker (MEIW), and the maximum childcare sensitive receptor. Both the MEIR and MEIW are located at a farm on Dianne Drive and adjacent to the northwest corner of the proposed project site, as shown in **Figure 4-1**. All modeled receptors for cancer risk are well below the threshold of 20 in-a-million. **Figures 4-2** and **4-3** depict the 1, 3, and 5 in-a-million cancer risk contours from the 70-year residential and 40-year worker model runs, respectively.

**Table 4-1**  
**Summary of Excess Cancer Risks (in-a-million)**

Group	Exposure Period	PMI	MEIR/MEIW	Threshold <sup>1</sup>	Exceeds Threshold?
Resident	70-year	8.19	1.60 <sup>2</sup>	20	No
Child	9-year	6.07	0.41 <sup>3</sup>	20	No
Worker	40-year	3.20	0.55 <sup>4</sup>	20	No

Notes: PMI = point of maximum exposure (located on southern edge of proposed project’s property boundary); MEIR = maximally exposed individual resident; MEIW = maximally exposed individual worker.

- <sup>1</sup> San Joaquin Valley Air Pollution Control District (SJVAPCD) threshold (SJVAPCD 2018).
- <sup>2</sup> Receptor location (NAD83, UTM 10): x = 687297.19, y = 4152664.00
- <sup>3</sup> Receptor location (NAD83, UTM 10): x = 687821.43, y = 4151964.07
- <sup>4</sup> Receptor location (NAD83, UTM 10): x = 687297.19, y = 4152639.50

The maximum modeled chronic non-cancer health impacts for residential and worker receptors and for acute health hazards are summarized in **Table 4-2**. For all groups, the maximum modeled Hazard Index (HI) are below the threshold of 1.0.

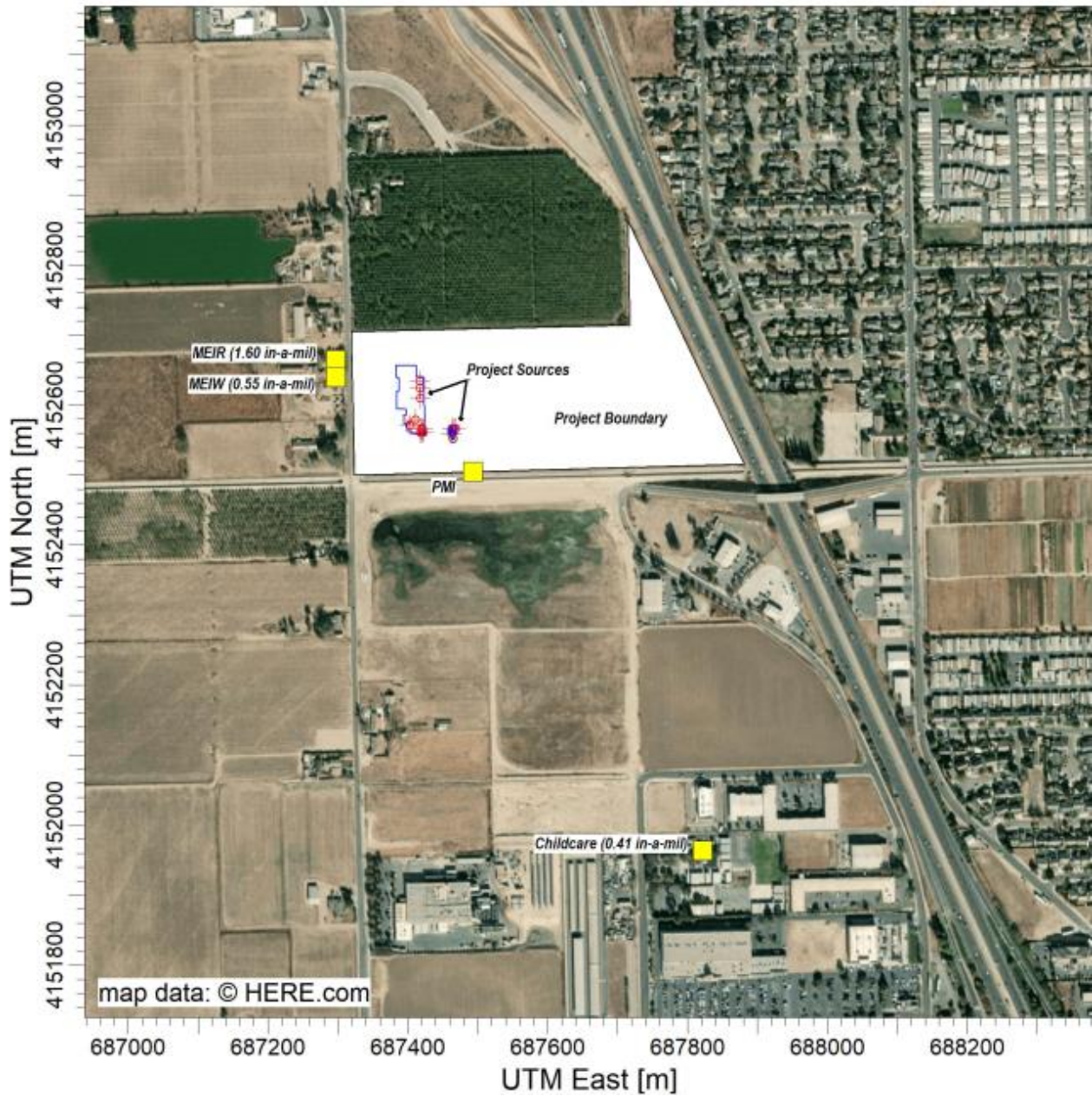
**Table 4-2**  
**Summary of Chronic Non-Cancer Impacts**

Group	Maximum Modeled HI	Threshold <sup>1</sup>	Exceeds Threshold?
Chronic Resident (Annual)	0.20	1.0	No
Chronic Resident (8-hour)	0.11	1.0	No
Chronic Worker (Annual)	0.09	1.0	No
Chronic Worker (8-hour)	0.11	1.0	No
Acute	0.93	1.0	No

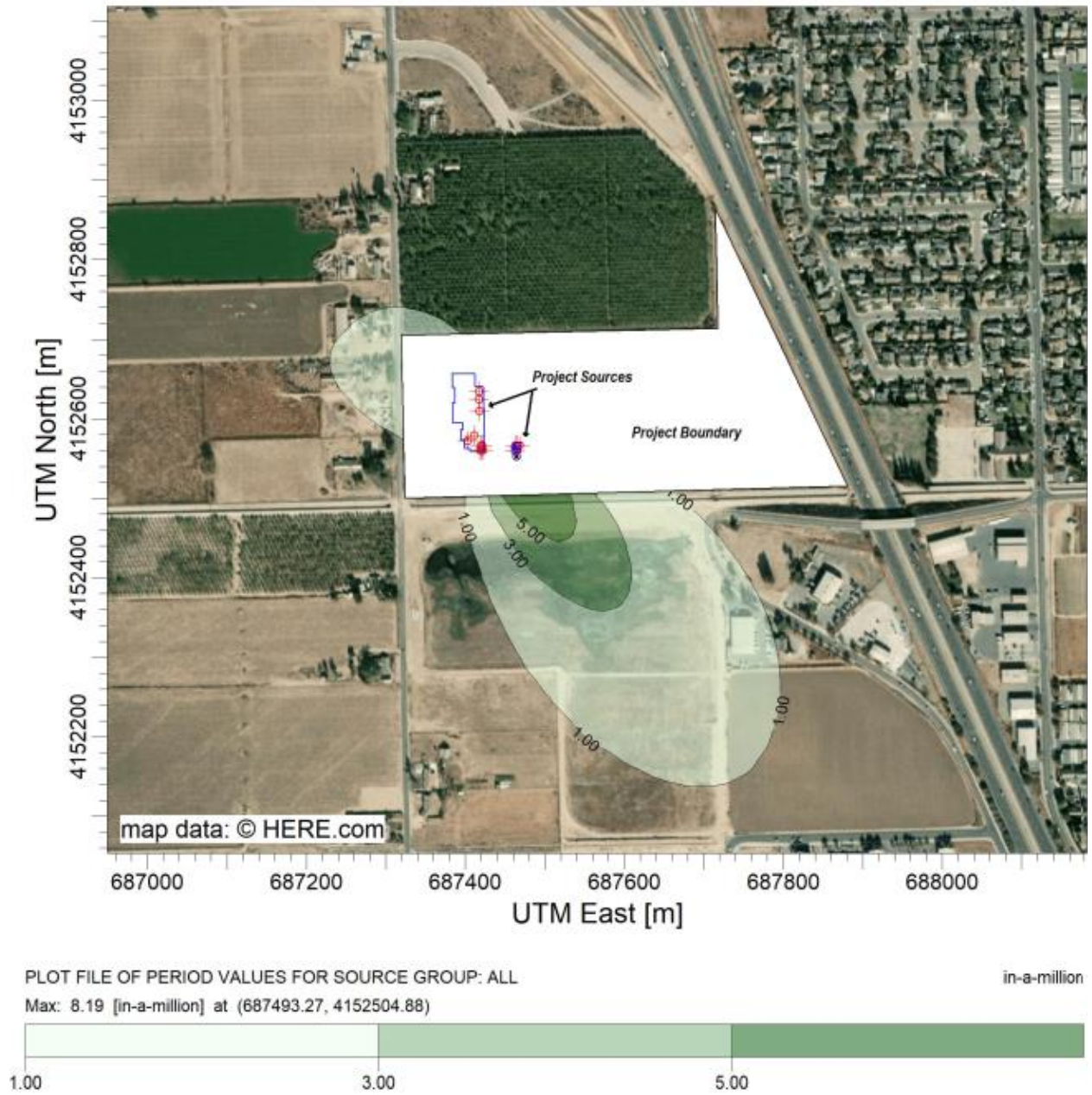
Notes: PMI = point of maximum exposure (located on southern edge of proposed project’s property boundary).

- <sup>1</sup> San Joaquin Valley Air Pollution Control District (SJVAPCD) threshold (SJVAPCD 2018).

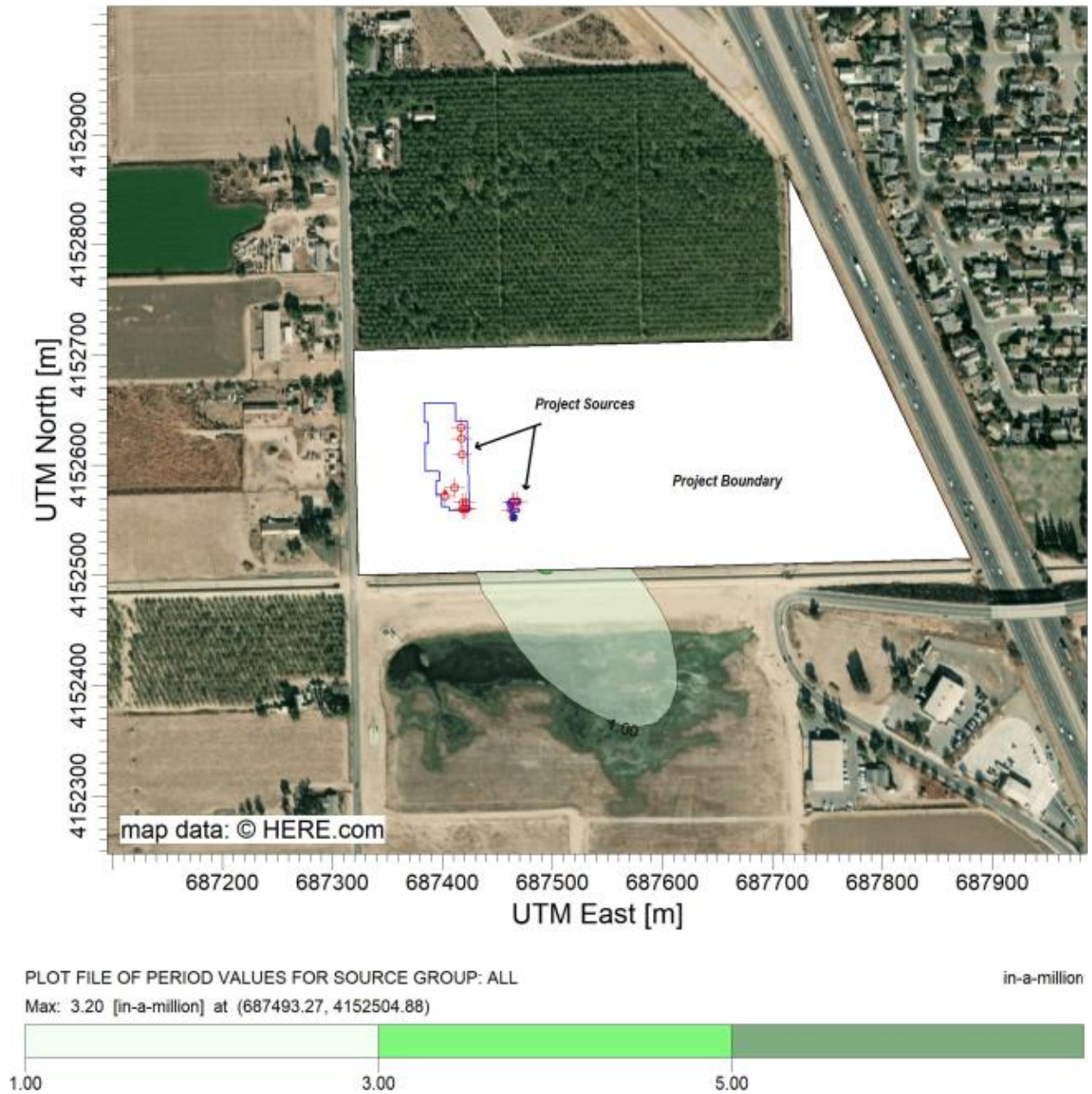
**Figure 4-1**  
**Location of PMI, MEIR, MEIW and Childcare for Cancer Risk**



**Figure 4-2**  
**Contour Map of 70-Year Residential Cancer Risk**



**Figure 4-3**  
**Contour Map of 40-Year Worker Cancer Risk**



## 5. Uncertainties

In accordance with risk assessment guidance, the following discussion summarizes the main uncertainties associated with the emissions estimation, air dispersion modeling, and risk estimation components of the HRA methodology.

### 5.1 Emissions Estimates

Uncertainties exist in estimating emissions from operational TAC emissions from potential stationary sources associated with the crematory, emergency generator, boilers, water heaters, laboratory vents, and cooling towers. The specific make and model of these equipment have not yet been determined. Representative values from similar health risk assessments were used to conservatively estimate emissions.

### 5.2 Air Dispersion Modeling

In addition to the uncertainty associated with emission estimates, uncertainty exists regarding the pollutant concentrations estimated by the air dispersion model. The limitations of the air dispersion model provide a source of uncertainty in the estimation of exposure concentrations. According to EPA, errors attributable to the limitation of the algorithms implemented in the air dispersion model in the highest estimated concentrations of +/- 10 percent to 40 percent are typical (EPA 2017). AECOM's methodologies use conservative assumptions and techniques to produce conservative results; thus, predicted exposure concentrations are likely to be at or above actual exposure concentrations.

The source parameters used to model emission sources add uncertainty. For all emission sources, AECOM uses source parameters that are either recommended as defaults, such as the emergency generator parameters from the San Francisco's 2020 Citywide HRA (SFDPH 2020). Discrepancies might exist between the actual emissions characteristics of a source and its representation in the model; exposure concentrations used in this assessment represent approximate exposure concentrations.

### 5.3 Health Risk Analysis

Numerous assumptions must be made to estimate human exposure to pollutants. These assumptions include parameters such as breathing rates, exposure time and frequency, exposure duration, and human activity patterns. While a mean value derived from scientifically defensible studies is the best estimate of central tendency, most exposure variables used in this HRA are high-end estimates. For example, it is assumed that residential receptors would be exposed to project emissions during a 70-year duration and 10 hours a day for 350 days per year. This assumption is highly conservative because most residents do not remain in their homes for this period of time. The combination of several high-end estimates used as exposure parameters may

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substantially overestimate chemical intake. The excess lifetime cancer risks calculated in this assessment are therefore likely to be higher than may be required to be protective of public health.

The OEHHA Cancer Potency Factor (CPF) for diesel PM is used to estimate cancer risks associated with exposure to diesel PM from the project and off-site emissions. However, the CPF derived by OEHHA for diesel PM is highly uncertain in the estimation of both response and dose. In the past, because of inadequate animal test data and epidemiology data on diesel exhaust, the International Agency for Research on Cancer (IARC), a branch of the World Health Organization, had classified diesel PM as Probably Carcinogenic to Humans (Group 2); EPA had also concluded that the existing data did not provide an adequate basis for quantitative risk assessment (EPA, 2002). However, based on two recent scientific studies (Benbrahim-Tallaa et al., 2012; Attfield et al, 2012), IARC recently reclassified diesel PM as Carcinogenic to Humans (Group 1) (IARC 2012), which means that the agency has determined that there is “sufficient evidence of carcinogenicity” of a substance in humans and represents the strongest weight-of-evidence rating in IARC’s carcinogen classification scheme. This determination by IARC may provide additional impetus for EPA to identify a quantitative dose/response relationship between exposure to diesel PM and cancer.

OEHHA notes that the conservative assumptions used in a risk assessment are intended to avoid underestimation of actual risks posed by a site and are designed to err on the side of health protection (OEHHA 2015). The estimated risks in this HRA are based primarily on a series of conservative assumptions related to predicted environmental concentrations, exposure, and chemical toxicity. The use of conservative assumptions tends to produce upper-bound estimates of risk. Although it is difficult to quantify the uncertainties associated with all the assumptions made in this risk assessment, the use of conservative assumptions is likely to result in substantial overestimates of exposure, and hence, risk.

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**APPENDIX E**  
***Biological Resources Analysis***  
***Supporting Information***

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## Special-status Species Table

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**Special-status Species Considered for Potential to Occur in or near the Project Site****PLANTS**

<b>Species Name (Sci./Common)</b>	<b>Federal</b>	<b>State</b>	<b>CNPS</b>	<b>WBWG</b>	<b>Habitat/Characteristics</b>	<b>Potential to Occur in the Project Site</b>
<i>Astragalus tener</i> var. <i>tener</i> Alkali milk-vetch	-	-	1B.2	-	Playas, valley and foothill grasslands in adobe clay, wetlands, vernal pools. Alkaline soils. 1-60 meters. Blooms March through June.	<b>None.</b> The project site lacks suitable habitat for this species. No CNDDDB records are known within 5 miles of the project site.
<i>Atriplex cordulata</i> var. <i>cordulata</i> heartscale	-	-	1B.2	-	Chenopod scrub, valley and foothill grassland, meadows and seeps. Alkaline flats and scalds in the Central Valley, sandy soils. 3-275 meters. Blooms April through October.	<b>None.</b> The project site lacks suitable habitat for this species. Nearest CNDDDB occurrence is approximately 2 miles north of the project site.
<i>Atriplex minuscula</i> lesser saltscale	-	-	1B.1	-	Chenopod scrub, playas, valley and foothill grassland. Occasionally occurs in wetlands. Alkaline and sandy soils. 15-200 meters. Blooms May through October.	<b>None.</b> The project site lacks suitable habitat for this species. No CNDDDB records are known within 5 miles of the project site.
<i>Atriplex persistens</i> vernal pool smallscale	-	-	1B.2	-	Vernal pools in alkaline soils at the bottom of basins. 10-115 meters. Blooms June through October.	<b>None.</b> The project site lacks suitable habitat for this species. No CNDDDB records are known within 5 miles of the project site.

Species Name (Sci./Common)	Federal	State	CNPS	WBWG	Habitat/Characteristics	Potential to Occur in the Project Site
<i>Atriplex subtilis</i> subtle orache	-	-	1B.2	-	Valley and foothill grasslands in alkaline soils, often near vernal pools. 40-100 meters. Blooms June through October.	<b>None.</b> The project site lacks suitable habitat for this species. Nearest CNDDDB occurrence is approximately 2 miles north of the project site.
<i>Clarkia rostrate</i> Beaked clarkia	-	-	1B.3	-	Cismontane woodlands, valley and foothill grasslands. North facing slopes; sometimes on sandstone. 60-500 meters. Blooms April through May.	<b>None.</b> The project site lacks suitable habitat for this species. No CNDDDB records are known within 5 miles of the project site.
<i>Eryngium racemosum</i> Delta button-celery	-	SE	1B.1	-	Seasonally flooded clay depressions in floodplains, riparian scrub. 3-30 meters. Blooms June through October.	<b>None.</b> The project site lacks suitable habitat for this species. No CNDDDB records are known within 5 miles of the project site.
<i>Lasthenia chrysantha</i> Alkali-sink goldfields	-	-	1B.1	-	Vernal pools, wet saline flats, valley grassland, foothill woodland. 0-100 meters. Blooms February through April.	<b>None.</b> The project site lacks suitable habitat for this species. No CNDDDB records are known within 5 miles of the project site.
<i>Monardella leucocephala</i> Merced monardella	-	-	1A	-	Valley and foothill grassland in sandy and mesic soils. 35-100 meters. Blooms May through August.	<b>None.</b> The project site lacks suitable habitat for this species. No CNDDDB records are known within 5 miles of the project site.



Species Name (Sci./Common)	Federal	State	CNPS	WBWG	Habitat/Characteristics	Potential to Occur in the Project Site
<i>Neostapfia colusana</i> Colusa grass	FT	SE	1B.1	-	Vernal pools, wetlands, valley grassland, wetland-riparian. 5-200 meters. Blooms May through August.	<b>None.</b> The project site lacks suitable habitat for this species. No CNDDDB records are known within 5 miles of the project site.
<i>Orcuttia inaequalis</i> San Joaquin Valley Orcutt grass	FT	SE	1B.1	-	Vernal pools, alluvial fans, high and low stream terraces, tabletop lava flows. Soils are acidic and vary from clay to sandy loam. 10-755 meters. Blooms April through September.	<b>None.</b> The project site lacks suitable habitat for this species. No CNDDDB records are known within 5 miles of the project site.
<i>Puccinellia simplex</i> California alkali grass	-	-	1B.2	-	Meadows and seeps, chenopod scrub, valley and foothill grasslands, vernal pools. Alkaline, vernal mesic. Sinks, flats, and lake margins. 1-915 meters. Blooms March through May.	<b>None.</b> The project site lacks suitable habitat for this species. No CNDDDB records are known within 5 miles of the project site.
<i>Sphenopholis obtusata</i> prairie wedge grass	-	-	2B.2	-	Cismontane woodland, wet meadows and seeps, streambanks, ponds in mesic soils. 300-2,000 meters. Blooms April through July.	<b>None.</b> The project site lacks suitable habitat for this species. No CNDDDB records are known within 5 miles of the project site.
<i>Tuctoria greenei</i> Greene's tuctoria	FE	Rare	1B.1	-	Vernal pools. 30-1,070 meters. Blooms May through September.	<b>None.</b> The project site lacks suitable habitat for this species. No CNDDDB records are known within 5 miles of the project site.

**INVERTEBRATES**

Species Name (Sci./Common)	Federal	State	CNPS	WBWG	Habitat/Characteristics	Potential to Occur in the Project Site
<i>Bombus crotchii</i> Crotch bumble bee	-	Candi- date	-	-	Open grassland and scrub habitats. Nests underground in rodent burrows and bush piles. Forages primarily on plants from the genera <i>Asclepias</i> , <i>Chaenactis</i> , <i>Lupinus</i> , <i>Medicago</i> , <i>Phacelia</i> , and <i>Salvia</i> .	<b>Not expected.</b> The project site lacks suitable native nectar source habitat for this species. Nearest CNDDDB occurrence is approximately 2 miles southeast of the project site. The presence of active agricultural activities in the project site and surrounding area indicates that herbicide and/or pesticide is likely used, which further reduces the possibility for this species to occur.
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	FT	-	-	-	Endemic to astatic rain-filled vernal pools within the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains. Inhabit small, clear-water sandstone-depression pools and grassy swales, earth slump, or basalt-flow depression pools.	<b>None.</b> The project site lacks suitable vernal pool habitat for this species. No CNDDDB records are known within 5 miles of the project site.

Species Name (Sci./Common)	Federal	State	CNPS	WBWG	Habitat/Characteristics	Potential to Occur in the Project Site
<i>Desmocerus californicus dimorphus</i> valley elderberry longhorn beetle	FT	-	-	-	Occurs only in the Central Valley of California, in association with blue elderberry ( <i>Sambucus mexicana</i> ) that possess basal stem diameters of 1 inch or greater. Prefers to lay eggs in elderberries 2-8 inches in diameter; some preference shown for “stressed” elderberries.	<b>None.</b> The project site lacks suitable host plant habitat for this species. No CNDDDB records are known within 5 miles of the project site.
<i>Lepidurus packardi</i> vernal pool tadpole shrimp	FE	-	-	-	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. Pools commonly found in grass-bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	<b>None.</b> The project site lacks suitable vernal pool habitat for this species. No CNDDDB records are known within 5 miles of the project site.

**AMPHIBIANS AND REPTILES**

Species Name (Sci./Common)	Federal	State	CNPS	WBWG	Habitat/Characteristics	Potential to Occur in the Project Site
<i>Ambystoma californiense</i> California tiger salamander	FT	ST	-	-	Central Valley distinct population segment (DPS) federally listed as threatened. Santa Barbara and Sonoma counties DPS federally listed as endangered. Need underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	<b>None.</b> The project site lacks suitable burrow complexes near breeding habitat and suitable breeding habitat for this species. No CNDDDB records are known within 5 miles of the project site.
<i>Anniella pulchra</i> Northern California legless lizard	-	SSC	-	-	Common in several habitats but especially in coastal dune, valley-foothill, chaparral, and coastal scrub types. Feed and seek cover in leaf litter and in loose soil. Will also seek cover under surface objects such as flat boards and rocks, require substrates that are slightly moist.	<b>None.</b> The project site lacks suitable habitat for this species, as most of the project site is actively maintained (disced) agricultural field. Nearest CNDDDB occurrence is approximately 2 miles southeast of the project site and is significantly isolated from the project site by numerous barriers to movement (highways, roads, and extensive patches of development).

Species Name (Sci./Common)	Federal	State	CNPS	WBWG	Habitat/Characteristics	Potential to Occur in the Project Site
<i>Emys marmorata</i> western pond turtle	-	SSC	-	-	An aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation, below 6,000 feet elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 kilometer from water for egg-laying.	<b>Not Expected.</b> Suitable aquatic and upland habitat are absent from the project site; however, suitable aquatic habitat is present within the detention basin south of the project site. The project site is likely not accessible for species movement traveling from the detention basin to the site due to the steep-walled Turlock Irrigation District (TID) Lateral No. 4 acting as a barrier. This species may occur within the TID Lateral No. 4, but high water velocity during the irrigation season and lack of vegetation reduce this possibility. Were the species to occur within Lateral No. 4, the steep concrete-lined walls would likely prevent movement outside of the canal near the project site. The nearest CNDDDB occurrence is approximately 5 miles southwest of the project site.

Species Name (Sci./Common)	Federal	State	CNPS	WBWG	Habitat/Characteristics	Potential to Occur in the Project Site
<i>Rana draytonii</i> California red-legged frog	FT	SSC	-	-	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	<b>None.</b> The project site lacks suitable habitat for this species. The Turlock Irrigation District Lateral No. 4 conveys high water velocity during the irrigation season and lacks vegetation. The detention basin is not expected to contain water for a duration sufficient to support breeding and larval development. No CNDDDB records are known within 5 miles of the project site.
<i>Thamnophis gigas</i> giant gartersnake	FT	ST	-	-	Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches. Highly associated with aquatic habitat with occasional seasonal use of immediately adjacent banks.	<b>None.</b> The project site lacks suitable habitat for this species. No CNDDDB records are known within 5 miles of the project site, which is significantly outside of and isolated from the species current population areas.

**FISH**

Species Name (Sci./Common)	Federal	State	CNPS	WBWG	Habitat/Characteristics	Potential to Occur in the Project Site
<i>Hypomesus transpacificus</i> Delta smelt	FT	SE	-	-	Sacramento-San Joaquin Delta. Seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Seldom found at salinities > 10 parts per thousand (ppt). Most often at salinities < 2ppt.	<b>None.</b> Suitable aquatic habitat is absent from the project site. No CNDDDB records are known within 5 miles of the project site.
<i>Mylopharodon conocephalus</i> hardhead	-	SSC	-	-	Juveniles are often found in small groups in pools, runs and moving water, while adults tend to school in the deepest part of pools. Found in the Sacramento-San Joaquin drainage.	<b>None.</b> Suitable aquatic habitat is absent from the project site. No CNDDDB records are known within 5 miles of the project site.
<i>Oncorhynchus mykiss irideus</i> steelhead – Central Valley DPS	FT	-	-	-	Populations in the Sacramento and San Joaquin Rivers and their tributaries.	<b>None.</b> Suitable aquatic habitat is absent from the project site. No CNDDDB records are known within 5 miles of the project site.

Species Name (Sci./Common)	Federal	State	CNPS	WBWG	Habitat/Characteristics	Potential to Occur in the Project Site
<i>Pogonichthys macrolepidotus</i> Sacramento splittail	-	SSC	-	-	Largely confined to the Delta, Suisun Bay, Suisun Marsh, Napa River, Petaluma River, and other parts of the San Francisco Estuary, while spawning on upstream floodplains and channel edges. A small population may live or migrate to the Sacramento River.	<b>None.</b> Suitable aquatic habitat is absent from the project site. No CNDDDB records are known within 5 miles of the project site.

**BIRDS**

Species Name (Sci./Common)	Federal	State	CNPS	WBWG	Habitat/Characteristics	Potential to Occur in the Project Site
<i>Agelaius tricolor</i> tricolored blackbird	-	ST, SSC	-	-	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Nests in freshwater marshes with tules or cattails, or in other dense thorny vegetation such as thistle, blackberry thickets, etc. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	<b>None.</b> The project site lacks suitable colony nesting habitat for this species. Nearest CNDDDB occurrence is documented approximately 4.5 miles south of the project site.



Species Name (Sci./Common)	Federal	State	CNPS	WBWG	Habitat/Characteristics	Potential to Occur in the Project Site
<i>Ardea herodias</i> Great blue heron	MBTA (nesting colony only)	-	-	-	Usually nests in trees, but also on large bushes, poles, reedbeds, and even on the ground. Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	<b>None.</b> The project site lacks suitable rookery habitat for this species. No CNDDDB records are known within 5 miles of the project site.

Species Name (Sci./Common)	Federal	State	CNPS	WBWG	Habitat/Characteristics	Potential to Occur in the Project Site
<i>Athene cunicularia</i> Burrowing owl	-	SSC	-	-	Typically breeds in open, treeless areas within grassland but will also utilize agricultural fields, golf courses, airports, vacant urban lots and fairgrounds. Utilize man-made objects for burrows such as road culverts, construction pipes, artificial burrows, and rubble/rock piles.	<b>Possible.</b> Numerous rodent burrows were observed within the berm that separates the project site from the adjacent orchard; however, no evidence of owl occupation was observed (e.g., feathers, bones, pellets, whitewash) was observed. Additionally, burrows were observed directly south of the site in the sandy area between the detention basin and the TID Lateral No. 4 canal. The project site contains an open area which is suitable for burrowing owl foraging. The presence of trees near the project site reduce the possibility for burrowing owl to occur, since these trees represent suitable predatory raptor perches. An e-bird sighting from 1985 at California State University (CSU), Stanislaus was documented in 2020, approximately 2 miles northeast of the project site; the number of individuals observed is not listed (ebird 2020a). No CNDDDB records are known within 5 miles of the project site.

Species Name (Sci./Common)	Federal	State	CNPS	WBWG	Habitat/Characteristics	Potential to Occur in the Project Site
<p><i>Branta hutchinsii leucopareia</i> Cackling (=Aleutian Canada) goose</p>	<p>MBTA (active nest)</p>	<p>-</p>	<p>-</p>	<p>-</p>	<p>Preferred habitats include lacustrine, fresh emergent wetlands, and moist grasslands, croplands, pastures, and meadows. Feeds mainly on green shoots and seeds of cultivated grains and wild grasses and forbs, and also feeds on aquatic plants. Typically roosts on open water of lakes or ponds.</p>	<p><b>Not Expected.</b> The project site lacks suitable nesting habitat for this species; however, suitable foraging habitat exists within the detention basin south of the project site. Six individuals were observed at Donnelly Park in 2019, approximately 1.2 miles northeast of the project site (ebird.org 2020b). No CNDDDB records are known within 5 miles of the project site.</p>

Species Name (Sci./Common)	Federal	State	CNPS	WBWG	Habitat/Characteristics	Potential to Occur in the Project Site
<p><i>Buteo swainsoni</i> Swainson’s hawk</p>	-	ST	-	-	<p>Breeds in groves or lines of tall trees in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.</p>	<p><b>Possible.</b> This species is known to occur in the region. Suitable nesting habitat is absent from the project site itself; however, this species could use the project site to forage, and suitable nesting habitat (trees) occur on the west side of Dianne Drive within the nearby vicinity. One individual was observed at CSU Stanislaus in 2020, approximately 2 miles northeast of the project site (ebird 2020a). Two CNDDDB occurrences are located within 5 miles of the project site; one occurrence is approximately 1.5 miles north, and the other occurrence is approximately 5 miles south of the project site.</p>

Species Name (Sci./Common)	Federal	State	CNPS	WBWG	Habitat/Characteristics	Potential to Occur in the Project Site
<p><i>Circus hudsonius</i> Northern harrier</p>	-	SSC	-	-	<p>Found throughout lowlands of California in grasslands, meadows, seasonal and agricultural wetlands, and marshes. Species nests within thickets of vegetation on the ground.</p>	<p><b>Possible.</b> This species is known to occur within the region. Suitable nesting habitat is absent within the project site (since vegetation is routinely maintained for agricultural purposes); however, this species could use the project site to forage. Suitable nesting habitat is present south of the project site within the vegetation surrounding the detention basin. No CNDDDB records are known within 5 miles of the project site, but this species is infrequently tracked by the CNDDDB.</p>
<p><i>Egretta thula</i> Snowy egret</p>	<p>MBTA (nesting colony only)</p>	-	-	-	<p>Found along the shores of coastal estuaries, fresh and saline emergent wetlands, ponds, slow-moving rivers, irrigation ditches, and wet fields. Feeds in shallow waters and nests in dense marshes or low trees on stick nests.</p>	<p><b>None.</b> Suitable aquatic habitat is absent from the project site, but the species could forage in the detention basin south of the project site. Suitable nesting habitat is absent from the project site. No CNDDDB records are known within 5 miles of the project site, but this species is infrequently tracked in the CNDDDB.</p>

Species Name (Sci./Common)	Federal	State	CNPS	WBWG	Habitat/Characteristics	Potential to Occur in the Project Site
<i>Elanus leucurus</i> White-tailed kite	-	FP	-	-	Occurs in lowlands west of the Sierra Nevada Mountains from the northern portion of the Sacramento Valley south to the U.S./Mexico border, including coastal valleys and foothills. Nests in trees or shrubs with dense foliage and forages over open grasslands, agricultural fields, and marshes.	<b>Possible.</b> This species is known to occur in the region. Suitable nesting habitat is absent from the project site; however, this species could forage within the project site, and suitable nesting habitat (trees) occur on the west side of Dianne Drive within the nearby vicinity. No CNDDDB records of this species are known within 5 miles of the project site, but this species is infrequently tracked in the CNDDDB.
<i>Falco peregrinus</i> Peregrine falcon	DL	FP	-	-	This raptor is adapted to open habitats in all seasons. Shows preference for breeding sites near water with nearby cliffs or ledges for nesting sites. They do not build nests, but instead make scrapes in various substrates.	<b>Not Expected.</b> Peregrine falcons forage throughout the Central Valley; however, nesting does not typically occur within the Valley floor. No suitable nesting habitat occurs within or around the project site. No CNDDDB records of the species are known within 5 miles of the project site.

Species Name (Sci./Common)	Federal	State	CNPS	WBWG	Habitat/Characteristics	Potential to Occur in the Project Site
<i>Vireo bellii pusillus</i> Least Bell's vireo	FE	SE	-	-	Utilizes dense brush, mesquite, willow-cottonwood forest, streamside thickets, scrub oak, moist woodland, scattered cover and hedgerows in cultivated areas, riparian woodlands. Nests in shrubs or low trees. Historically an abundant breeder throughout Central Valley; however, it is now possibly extirpated from this area.	<b>None.</b> Suitable riparian nesting habitat is absent from the project site and the project site is outside of the species current nesting range. No CNDDDB records are known within 5 miles of the project site.

**MAMMALS**

Species Name (Sci./Common)	Federal	State	CNPS	WBWG	Habitat/Characteristics	Potential to Occur in the Project Site
<i>Antrozous pallidus</i> Pallid bat	-	-	-	High priority	Found in arid regions with rocky outcroppings, to open, sparsely vegetated grasslands. Roost in attics, shutters, crevices, buildings, caves, cracks in rocks, trees, bridges, and barns. They have also been found roosting on the ground under burlap sacks, stone piles, rags and baseboards. Forages over grasslands, forests, roads, fruit orchards, and vineyards. Requires water.	<b>Not expected.</b> Suitable roosting habitat is absent from the project site. Suitable roosting habitat is potentially present in trees with cavities in the surrounding vicinity, but these trees would not be affected by the project. No CNDDDB records are known within 5 miles of the project site.

Species Name (Sci./Common)	Federal	State	CNPS	WBWG	Habitat/Characteristics	Potential to Occur in the Project Site
<i>Corynorhinus townsendii</i> Townsend’s big-eared bat	-	SSC	-	High priority	Found in coniferous forests, mixed meso-phytic forests, deserts, native prairies, riparian communities, active agricultural areas, and coastal habitat types.	<b>Not expected.</b> Suitable roosting habitat is absent from the project are. Suitable roosting habitat is potentially present in trees in the surrounding vicinity, but these trees would not be affected by the project. No CNDDDB records are known within 5 miles of the project site.
<i>Lasiurus blossevilli</i> Western red bat	-	SSC	-	High priority	Roosts primarily in the foliage of trees or shrubs. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas.	<b>Not expected.</b> Suitable roosting habitat is absent from the project site. Suitable roosting habitat is potentially present in the orchard trees adjacent to the project site, but these trees would not be impacted by the project. No CNDDDB records are known within 5 miles of the project site.
<i>Lasiurus cinereus</i> Hoary bat	-	-	-	Medium priority	Found in open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Requires water.	<b>Not expected.</b> Suitable roosting habitat is absent from the project site. Suitable roosting habitat is potentially present within the trees in the project vicinity, but these trees would not be impacted by the project. Nearest CNDDDB record is documented approximately 2 miles southeast of the project site.



*U.S. Fish and Wildlife Service (Federal) Listing Categories:*

Candidate	Federal Candidate for Listing
DL	Federally Delisted
FE	Federally Listed as Endangered
FT	Federally listed as Threatened
MBTA	Migratory Bird Treaty Act
-	No Listing

*California Department of Fish and Wildlife(State) Listing Categories:*

Candidate	State Candidate for Listing
SE	State listed as Endangered
FP	State Fully Protected Species
SR	State listed as Rare
SSC	Species of Special Concern
ST	State listed as Threatened
-	No Listing

*California Native Plant Society (CNPS) Listing Categories*

1A	Presumed extirpated or extinct in California
1B.1	Rare, threatened, or endangered in California and elsewhere; seriously threatened in California
1B.2	Rare, threatened, or endangered in California and elsewhere; fairly threatened in California
2B.1	Rare, threatened, or endangered in California, but more common elsewhere; seriously threatened in California
2B.2	Rare, threatened, or endangered in California, but more common elsewhere; fairly threatened in California

*Western Bat Working Group (WBWG)*

High priority	Imperiled or at high risk of imperilment.
Moderate priority	Level of concern that should warrant closer evaluation, more research, and conservation actions of both the species and possible threats.

*Special-status Species Potential to Occur Criteria*

None	Indicates that the project site completely lacks suitable habitat, the local range for the species is restricted and does not overlap with the project site, and/or the species is extirpated in this region.
Not Expected	Indicates situations where suitable habitat or key habitat elements may be present but are of poor quality or isolated from the nearest extant occurrences. Habitat suitability refers to factors such as elevation, soil chemistry and type, vegetation communities, microhabitats, continuity with patches of nearby suitable habitat, and degraded/substantially altered habitats.
Possible	Indicates the presence of suitable habitat or key habitat elements that potentially support the species.
Present	Indicates that either the target species was observed directly, or its presence was confirmed by diagnostic signs during field investigations or in previous studies in the area.

## References

- ebird. 2020a. ebird Field Checklist. CSU Stanislaus observations of burrowing owl and Swainson's hawk. Available at: <https://ebird.org/printableList?regionCode=L8325649&yr=all&m=>. Accessed August 12, 2020.
- ebird. 2020b. ebird Field Checklist. Donnelly Park observations of Cackling Goose. Available at: <https://ebird.org/printableList?regionCode=L1352134&yr=all&m=>. Accessed August 12, 2020.

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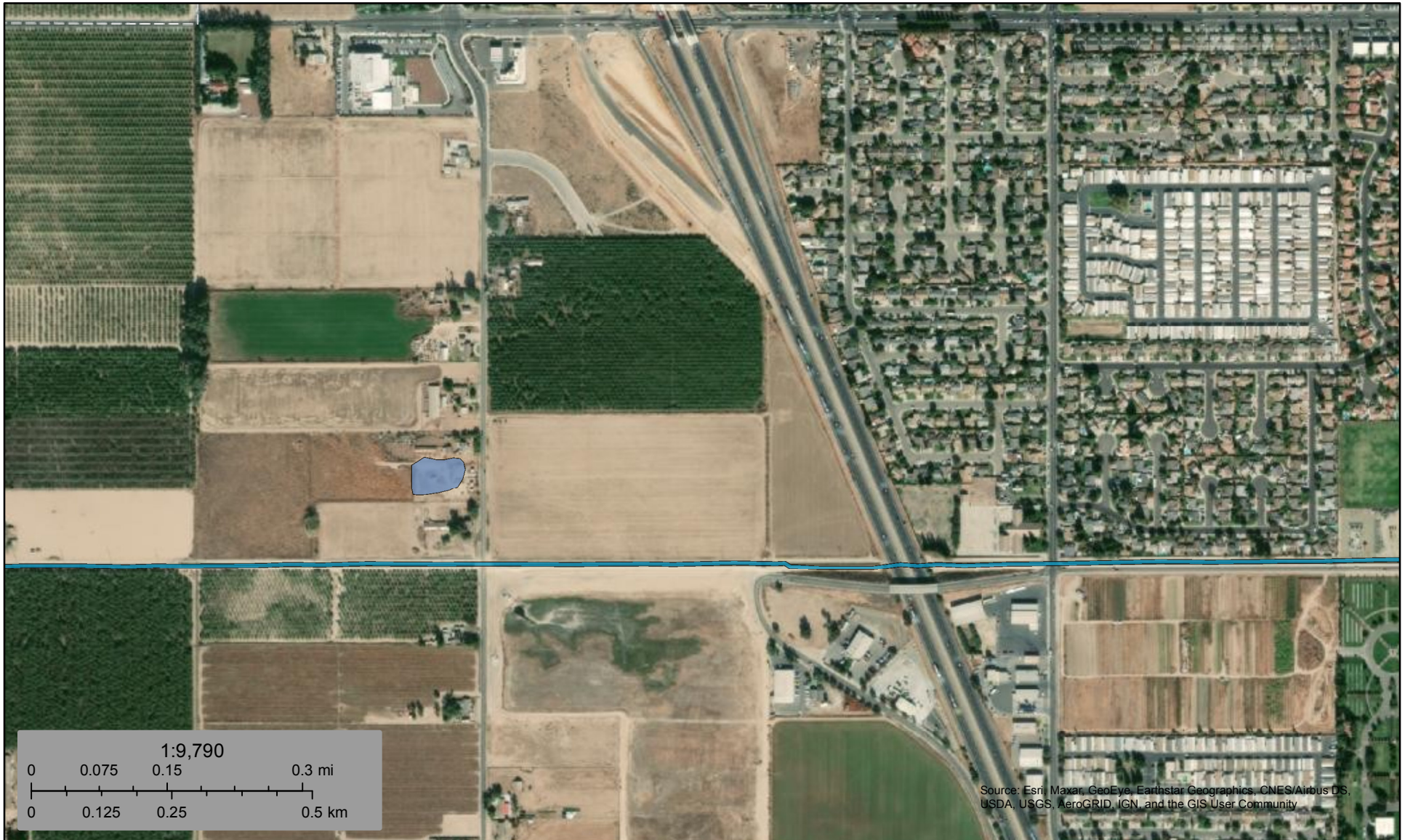
## **Supporting Information**

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This section of the appendix includes complex tables and website content that are not accessible using an assistive device such as a screen reader. For assistance please contact the California Relay Service by dialing 711 or contact CDFA.

Skip to Appendix F





November 5, 2020

**Wetlands**

-  Estuarine and Marine Deepwater
-  Estuarine and Marine Wetland
-  Freshwater Emergent Wetland
-  Freshwater Forested/Shrub Wetland
-  Freshwater Pond
-  Lake
-  Other
-  Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

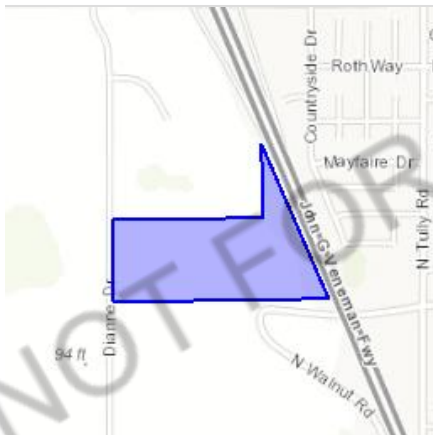
# IPaC resource list

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

Stanislaus County, California



## Local office

Sacramento Fish And Wildlife Office

☎ (916) 414-6600

📠 (916) 414-6713

Federal Building  
2800 Cottage Way, Room W-2605  
Sacramento, CA 95825-1846

# Endangered species

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

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

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

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

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

Listed species

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

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

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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.
  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:

## Reptiles

NAME	STATUS
Giant Garter Snake <i>Thamnophis gigas</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/4482">https://ecos.fws.gov/ecp/species/4482</a>	Threatened

## Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. <a href="https://ecos.fws.gov/ecp/species/2891">https://ecos.fws.gov/ecp/species/2891</a>	Threatened
California Tiger Salamander <i>Ambystoma californiense</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. <a href="https://ecos.fws.gov/ecp/species/2076">https://ecos.fws.gov/ecp/species/2076</a>	Threatened

## Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. <a href="https://ecos.fws.gov/ecp/species/321">https://ecos.fws.gov/ecp/species/321</a>	Threatened

## Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. <a href="https://ecos.fws.gov/ecp/species/7850">https://ecos.fws.gov/ecp/species/7850</a>	Threatened

## Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. <a href="https://ecos.fws.gov/ecp/species/498">https://ecos.fws.gov/ecp/species/498</a>	Threatened



Vernal Pool Tadpole Shrimp *Lepidurus packardii* Endangered  
There is **final** critical habitat for this species. Your location is outside the critical habitat.  
<https://ecos.fws.gov/ecp/species/2246>

## Flowering Plants

NAME	STATUS
San Joaquin Orcutt Grass <i>Orcuttia inaequalis</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. <a href="https://ecos.fws.gov/ecp/species/5506">https://ecos.fws.gov/ecp/species/5506</a>	Threatened

## Critical habitats

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

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

## Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

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

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

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

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ

[below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

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

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Nuttall's Woodpecker *Picoides nuttallii*

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

<https://ecos.fws.gov/ecp/species/9410>

Breeds Apr 1 to Jul 20

Oak Titmouse *Baeolophus inornatus*

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

<https://ecos.fws.gov/ecp/species/9656>

Breeds Mar 15 to Jul 15

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

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

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur

and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

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

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

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

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

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

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

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

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

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

### **What are the levels of concern for migratory birds?**

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

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

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

## Details about birds that are potentially affected by offshore projects

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

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

## What if I have eagles on my list?

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

## Proper Interpretation and Use of Your Migratory Bird Report

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

# Facilities

## National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

# Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

## Wetlands in the National Wetlands Inventory

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

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

[R4SBCx](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

### Data limitations

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

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

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

### Data exclusions

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

### Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this

inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION



**Selected Elements by Scientific Name**  
**California Department of Fish and Wildlife**  
**California Natural Diversity Database**



**Query Criteria:** Quad IS (Riverbank (3712068) OR Salida (3712161) OR Waterford (3712067) OR Brush Lake (3712151) OR Ceres (3712058) OR Denair (3712057) OR Crows Landing (3712141) OR Hatch (3712048) OR Turlock (3712047))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Agelaius tricolor</i> tricolored blackbird	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
<i>Ambystoma californiense</i> California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3	WL
<i>Anniella pulchra</i> northern California legless lizard	ARACC01020	None	None	G3	S3	SSC
<i>Ardea herodias</i> great blue heron	ABNGA04010	None	None	G5	S4	
<i>Astragalus tener var. tener</i> alkali milk-vetch	PDFAB0F8R1	None	None	G2T1	S1	1B.2
<i>Athene cunicularia</i> burrowing owl	ABNSB10010	None	None	G4	S3	SSC
<i>Atriplex cordulata var. cordulata</i> heartscale	PDCHE040B0	None	None	G3T2	S2	1B.2
<i>Atriplex minuscula</i> lesser saltscale	PDCHE042M0	None	None	G2	S2	1B.1
<i>Atriplex persistens</i> vernal pool smallscale	PDCHE042P0	None	None	G2	S2	1B.2
<i>Atriplex subtilis</i> subtle orache	PDCHE042T0	None	None	G1	S1	1B.2
<i>Bombus caliginosus</i> obscure bumble bee	IIHYM24380	None	None	G4?	S1S2	
<i>Bombus crotchii</i> Crotch bumble bee	IIHYM24480	None	Candidate Endangered	G3G4	S1S2	
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
<i>Branta hutchinsii leucopareia</i> cackling (=Aleutian Canada) goose	ABNJB05035	Delisted	None	G5T3	S3	WL
<i>Buteo swainsoni</i> Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
<i>Clarkia rostrata</i> beaked clarkia	PDONA050Y0	None	None	G2G3	S2S3	1B.3
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
<i>Desmocerus californicus dimorphus</i> valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S2	
<i>Dipodomys heermanni dixonii</i> Merced kangaroo rat	AMAFD03062	None	None	G3G4T2T3	S2S3	



**Selected Elements by Scientific Name**  
**California Department of Fish and Wildlife**  
**California Natural Diversity Database**



<b>Species</b>	<b>Element Code</b>	<b>Federal Status</b>	<b>State Status</b>	<b>Global Rank</b>	<b>State Rank</b>	<b>Rare Plant Rank/CDFW SSC or FP</b>
<b><i>Egretta thula</i></b> snowy egret	ABNGA06030	None	None	G5	S4	
<b><i>Emys marmorata</i></b> western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
<b><i>Eryngium racemosum</i></b> Delta button-celery	PDAP10Z0S0	None	Endangered	G1	S1	1B.1
<b><i>Lasiurus cinereus</i></b> hoary bat	AMACC05030	None	None	G5	S4	
<b><i>Lasthenia chrysantha</i></b> alkali-sink goldfields	PDAST5L030	None	None	GNR	SNR	1B.1
<b><i>Lepidurus packardii</i></b> vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	
<b><i>Lytta moesta</i></b> moestan blister beetle	IICOL4C020	None	None	G2	S2	
<b><i>Monardella leucocephala</i></b> Merced monardella	PDLAM180C0	None	None	GX	SX	1A
<b><i>Mylopharodon conocephalus</i></b> hardhead	AFCJB25010	None	None	G3	S3	SSC
<b><i>Neostapfia colusana</i></b> Colusa grass	PMPOA4C010	Threatened	Endangered	G1	S1	1B.1
<b><i>Oncorhynchus mykiss irideus pop. 11</i></b> steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
<b><i>Orcuttia inaequalis</i></b> San Joaquin Valley Orcutt grass	PMPOA4G060	Threatened	Endangered	G1	S1	1B.1
<b><i>Pogonichthys macrolepidotus</i></b> Sacramento splittail	AFCJB34020	None	None	GNR	S3	SSC
<b><i>Puccinellia simplex</i></b> California alkali grass	PMPOA53110	None	None	G3	S2	1B.2
<b><i>Sphenopholis obtusata</i></b> prairie wedge grass	PMPOA5T030	None	None	G5	S2	2B.2
<b><i>Tuctoria greenei</i></b> Greene's tuctoria	PMPOA6N010	Endangered	Rare	G1	S1	1B.1
<b><i>Vireo bellii pusillus</i></b> least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S2	

**Record Count: 36**



\*The database used to provide updates to the Online Inventory is under construction. [View updates and changes made since May 2019 here.](#)

## Plant List

3 matches found. [Click on scientific name for details](#)

### Search Criteria

California Rare Plant Rank is one of [1A, 1B, 2A, 2B, 3, 4], FESA is one of [Endangered, Threatened, Candidate], CESA is one of [Endangered, Threatened, Rare], Found in Quads 3712161, 3712068, 3712067, 3712151, 3712058, 3712057, 3712141, 3712048 and 3712047;  
 Lifeform is one of [Tree, Shrub, Leaf succulent, Herb, Vine, Stem succulent, Lichen, Moss, Liverwort],  
 Duration is one of [ann, per, ephem],  
 Bloom Time is one of [January, February, March, April, May, June, July, August, September, October, November, December]

[Modify Search Criteria](#) [Export to Excel](#) [Modify Columns](#) [Modify Sort](#) [Display Photos](#)

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
<a href="#">Neostapfia colusana</a>	Colusa grass	Poaceae	annual herb	May-Aug	1B.1	S1	G1
<a href="#">Orcuttia inaequalis</a>	San Joaquin Valley Orcutt grass	Poaceae	annual herb	Apr-Sep	1B.1	S1	G1
<a href="#">Tuctoria greenei</a>	Greene's tuctoria	Poaceae	annual herb	May-Jul(Sep)	1B.1	S1	G1

### Suggested Citation

California Native Plant Society, Rare Plant Program. 2020. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website <http://www.rareplants.cnps.org> [accessed 20 July 2020].

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[CalPhotos](#)

#### Questions and Comments

[rareplants@cnps.org](mailto:rareplants@cnps.org)

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**APPENDIX F**  
***Archaeological Inventory Report***

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Technical Report

# ARCHAEOLOGICAL INVENTORY REPORT

California Department of Food and Agriculture Laboratory Replacement Project

Turlock, Stanislaus County, California

January 2021

Prepared for:

Dakota Smith  
California Department of General Services  
707 3rd Street  
West Sacramento, CA 95605

Prepared by:



Horizon Water and Environment, LLC  
P.O. Box 2727  
Oakland, CA 94612  
Janis Offermann, RPA  
Cultural Resources Practice Lead



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## List of Acronyms

CAHFS	California Animal Health and Food Safety
CCIC	Central California Information Center
CCR	California Code of Regulations
CCTS	Central California Taxonomic System
CDFA	California Department of Food and Agriculture
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CRHR	California Register of Historical Resources
DGS	California Department of General Services
Horizon	Horizon Water and Environment, LLC
NAHC	Native American Heritage Commission
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
PRC	Public Resources Code
RPA	Registered Professional Archaeologist
SR	State Route
TCR	tribal cultural resource
TID	Turlock Irrigation District
USGS	U.S. Geological Survey



## Executive Summary

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The California Department of Food and Agriculture (CDFA), with support from the California Department of General Services (DGS), is proposing to replace the existing California Animal Health and Food Safety (CAHFS) laboratory located in Turlock, Stanislaus County, California. Together with the University of California, Davis, School of Veterinary Medicine, the CDFA operates four such facilities throughout the state to provide the necropsy and laboratory support needed by CDFA and CDFA's Animal Health and Food Safety Services Division.

The current Turlock laboratory facility was constructed in 1958 at 1550 N. Soderquist Road in Turlock, when the immediately surrounding area was entirely agricultural. This facility is outdated and cannot support the goals of the CDFA and CAHFS programs and desired operations, particularly related to mammalian pathology and necropsy. The existing Turlock facility is too small for mammalian necropsy/pathology services and the existing facility can only accept avian species. In addition, the existing Turlock laboratory is now surrounded by residential and other urban land uses that prevent an expansion of the existing facility. Due to the age, design, and space constraints of the existing facility, upgrading the facility to meet the needs of CDFA and CAHFS is not feasible. As a result, the CDFA is proposing to move the operations to the western outskirts of town.

CDFA is proposing the Turlock North Valley Laboratory Replacement Project (Proposed Project or Project) to relocate the Turlock North Valley Laboratory services to a new site and facility with adequate space for the necropsy, laboratory, and office functions to provide full services to the livestock and poultry farmers in the region, and consolidate the local field offices to a central location. The Proposed Project will provide adequate workspace, equipment storage, and vehicle parking for an increasing number of employees assigned to this office.

An archaeological survey of the Proposed Project area parcel was conducted on November 10, 2020; no archaeological materials were identified within the Project study area. An irrigation ditch, which is located outside of the Project construction area, was recorded on a California Department of Parks and Recreation Form 523 Primary Record.

This report documents the archaeological inventory methods and results, as required for compliance with California regulations. The study consisted of a literature review to identify any previously recorded cultural resources that could be affected by the Proposed Project, and a field survey to locate any archaeological sites that may exist but have not yet been recorded. Although no archaeological resources were identified as the result of a pedestrian survey, archaeological remains are not always visible on the ground surface and may be buried.

This report has been prepared based on certain key assumptions made by Horizon Water and Environment, LLC (Horizon) that substantially affect its conclusions and recommendations.

These assumptions are that the information gathered during the record search is up to date and accurate, and that the field survey results accurately identified the presence or absence of archaeological resources visible on the ground surface. These assumptions, although thought to be reasonable and appropriate, may not prove to be true in the future. Horizon's conclusions and recommendations are conditioned upon these assumptions.

The archaeological inventory was performed based on information obtained at the Central California Information Center of the California Historical Resources Information System, as well as on direct observation of site conditions and other information generally applicable as of December 2020. The conclusions and recommendations herein are, therefore, based on information available up to that point in time. Information may come to light in the future that could substantially change the conclusions found herein.

# 1 Introduction

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## 1.1 Location and Setting

The Proposed Project site is located in the San Joaquin Valley at the west edge of the City of Turlock, Stanislaus County, California (**Figure 1**). It is situated directly west of State Route 99 (SR 99), at the northeast corner of Dianne Drive and West Canal Drive. The study area parcel (Assessor Parcel Number 089-021-004-000) covers approximately 27 acres. The parcel is roughly rectangular in shape and with a portion angled to the north along the east boundary of the parcel adjacent to SR 99. Access to the site is available through Dianne Drive, a two-lane road that runs along the west boundary of the parcel. The Turlock Irrigation District (TID) owns and operates an uncovered lined irrigation canal, Upper Lateral Number Four, located along the southern boundary of the parcel, adjacent to but outside of the study area. The Proposed Project area is depicted on the Ceres and Denair 7.5" U.S. Geological Survey (USGS) topographic map in Section 16, Township 5 South, Range 10 East (**Figure 2**). The Proposed Project site is located approximately 0.77 miles southwest of the existing CDFA Turlock Laboratory.

The Project site is currently owned by CDFA, as of March 2020. The parcel consists of level agricultural land currently designated as Prime Farmland. Land uses immediately adjacent to the site include agricultural land and rural residences. An almond orchard bounds the parcel to the north. There is a low earthen berm along the boundary between the Project parcel and the orchard; a dirt road parallels the berm within the Project parcel. To the east of SR 99, the land uses include residential and commercial development. There are no extant buildings on the site, but an irrigation ditch extends north from the TID canal through the eastern quarter of the parcel.

The parcel has historically been used to plant row crops and is devoid of perennial vegetation. At the time of the pedestrian survey, the parcel had recently been disked. Photographs of the study area are presented in **Appendix 1**.

## 1.2 Project Description

The Proposed Project involves the construction and operation of a replacement CAHFS necropsy, laboratory, and office facility, new CDFA offices, a cremator, secured and visitor parking areas, utility and landscape improvements, and other ancillary improvements. The preliminary conceptual site plan for the proposed CAHFS Turlock Laboratory is shown in **Figure 3**. (Note: the site plan shown on Figure 3 is preliminary and conceptual; the final design for the Proposed Project may include modifications to this site plan, though the location of the development will remain the same.) Within the approximate 27-acre parcel, approximately 7 acres adjacent to Dianne Drive would be developed. The Proposed Project would also include the re-surfacing of approximately 27,940 square feet of roadway/sidewalks along Dianne Drive

adjacent to the Proposed Project site, and development of an access driveway along the north boundary of the Project parcel adjacent the orchard. DGS will determine how the remaining 20 acres of the parcel will be used in the future.

Site preparation would include clearing and grubbing, grading, excavation, importing and placing fill, and compacting the fill and other materials. Clearing and grubbing of the site, including the potential removal of all on-site vegetation, would be conducted using bulldozers, standard excavators, and hand labor. Excavation would occur at depths ranging from approximately 3 to 4 feet for the main facility and up to 40 feet for the basement area of the cremator. Excavation would generate approximately 3,800 cubic yards of fill materials that would be redistributed on site.

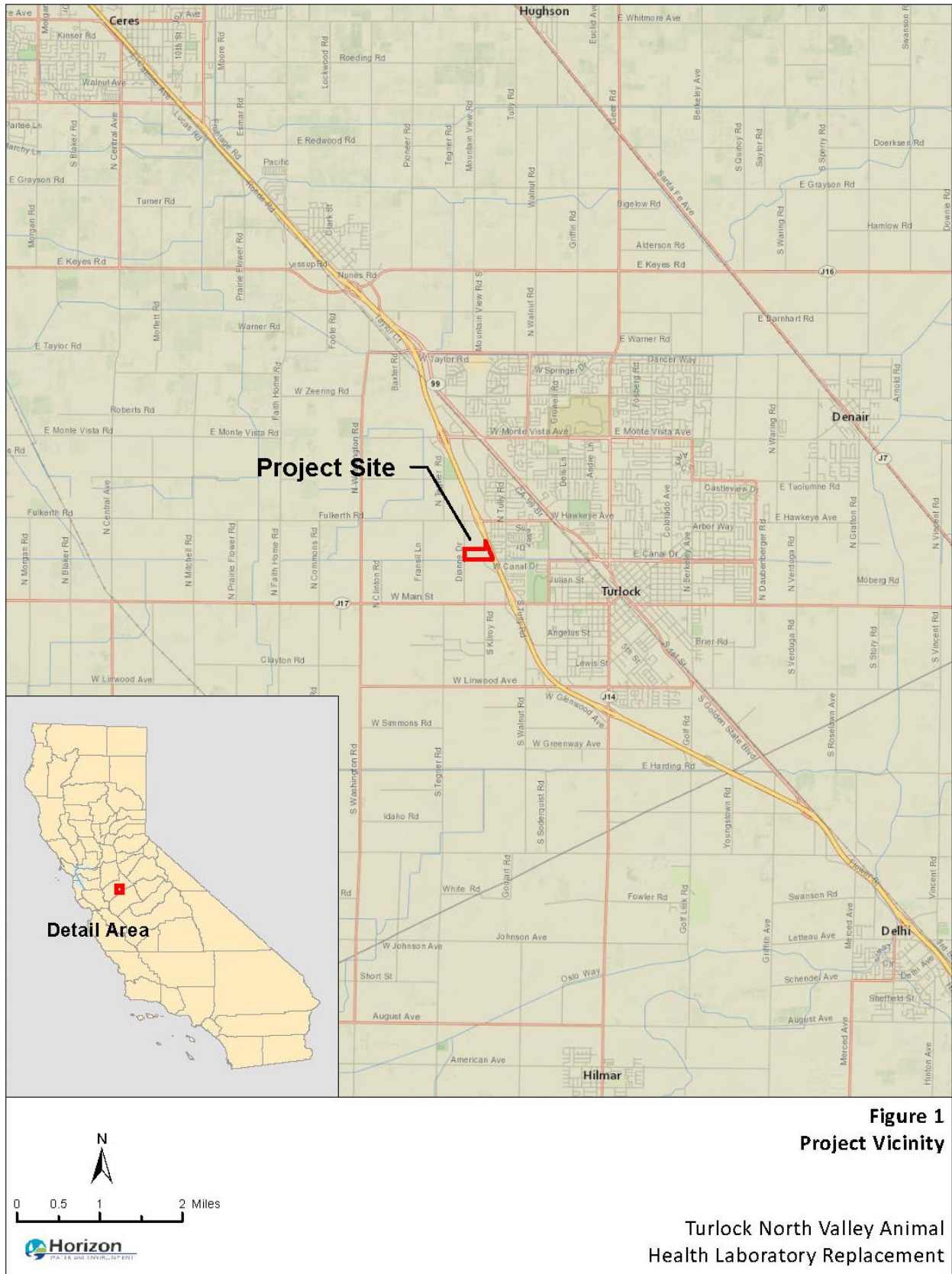
Drainage, water supply, and wastewater pipelines and underground utilities generally would be installed in open trenches using conventional cut-and-cover construction techniques. A backhoe, track-mounted excavator, or similar equipment would then be used to dig trenches for pipelines or installation of underground utility equipment. Each trench will generally vary between 3 and 6 feet in width with a depth of approximately three times the pipeline diameter, or deeper. The diameter of pipelines would vary by service flow requirements, material type, and purpose. It is estimated that water, sewer, stormwater, gas, electrical, and phone/internet/cable utility infrastructure trenching would be approximately 100 to 150 linear feet.

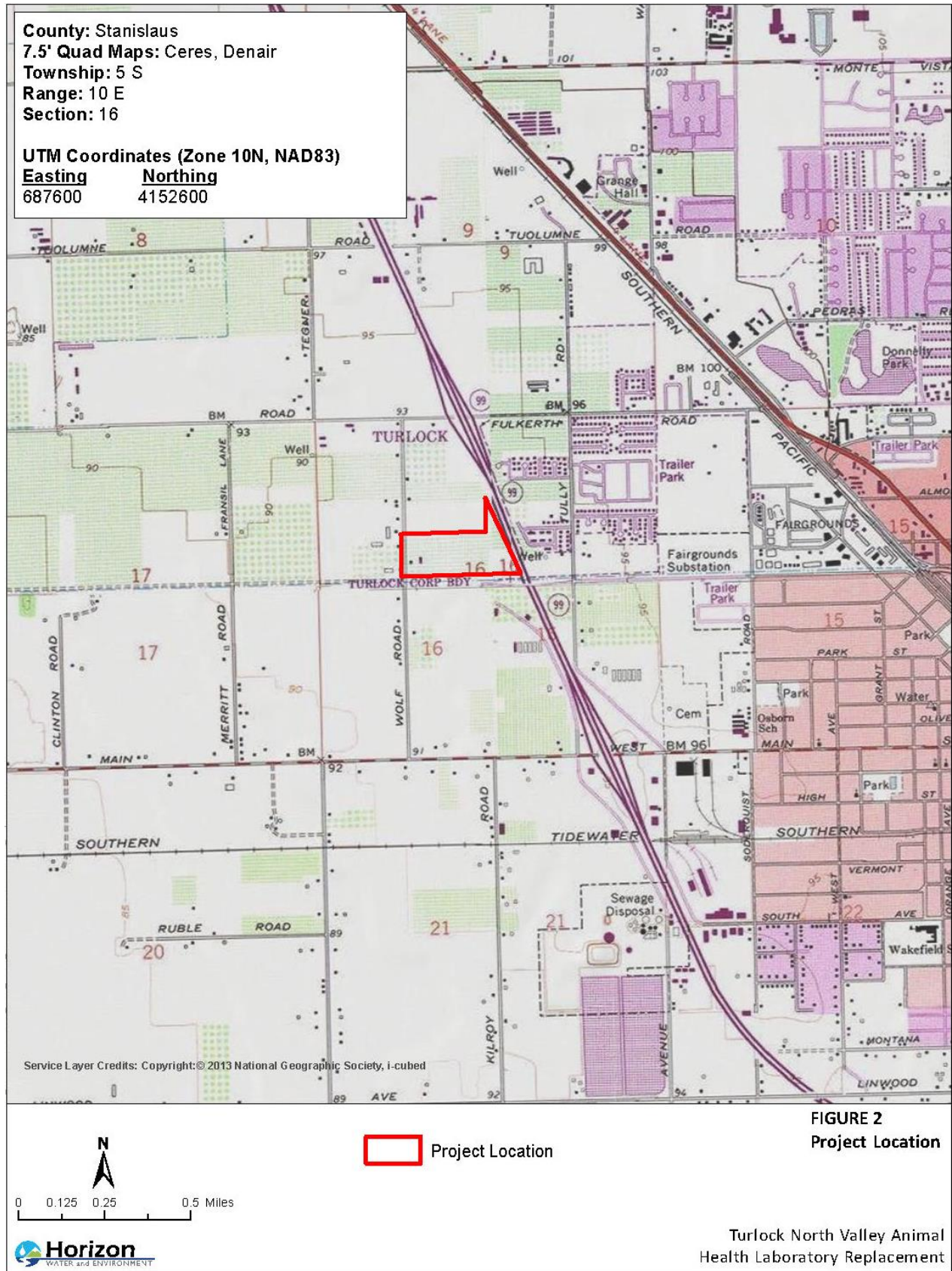
## **1.3 Regulatory Setting and Need for Study**

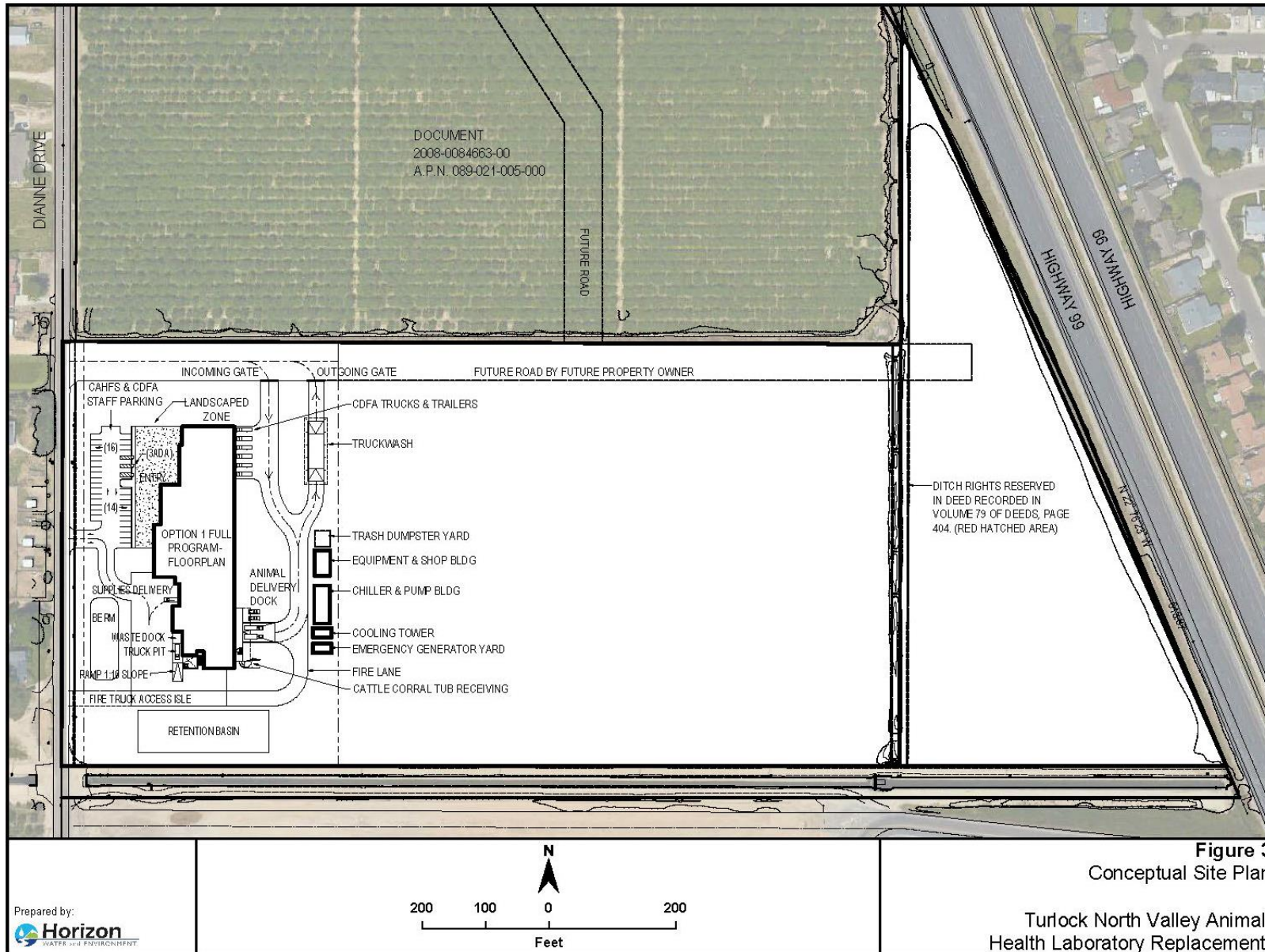
### **1.3.1 State of California Regulations**

#### ***CEQA and State CEQA Guidelines***

The Proposed Project must comply with California Environmental Quality Act (CEQA) (Public Resources Code [PRC] 21000 et seq. and the CEQA Guidelines (California Code of Regulations [CCR], Title 14, Chapter 3), which determine, in part, whether the project has a significant effect on a unique archaeological resource (per PRC 21083.2) or a historical resource (per PRC 21084.1).







CEQA Guidelines CCR 15064.5 notes that “a project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment.” Lead agencies are required to identify potentially feasible measures or alternatives to avoid or mitigate significant adverse changes in the significance of a historical resource before such projects are approved. According to the CEQA guidelines, historical resources are:

- Listed in, or determined to be eligible for listing in, the California Register of Historical Resources (per PRC 5024.1(e));
- Included in a local register of historical resources (per PRC 5020.1(k)) or identified as significant in a historical resource survey meeting the requirements of PRC 5024.1(g); or
- Determined by a lead state agency to be historically significant.

CEQA Guidelines CCR 15064.5 also applies to unique archaeological resources as defined in PRC 21084.1.

PRC 21080.3.1, chaptered as the result of Assembly Bill 52, requires that CEQA lead agencies consult with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of a proposed project if so requested by the tribe, and if the agency intends to release a negative declaration, mitigated negative declaration, or environmental impact report for a project. The bill also specifies, under PRC 21084.2, that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource (TCR) is considered a project that may have a significant effect on the environment. This latter language was added to the CEQA checklist in September 2016. DGS, as the Project’s CEQA lead agency, consulted with Native American tribes pursuant to PRC 21080.3.1.

As defined in Section 21074(a) of the PRC, TCRs are:

- (1) Sites, features, places, 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 California Register of Historical Resources; or
  - b. Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.



- (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 subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

TCRs are further defined under Section 21074(b) and (c) as follows:

- (b) A cultural landscape that meets the criteria of subdivision (a) is a TCR to the extent that the landscape is geographically defined in terms of the size and scope of the landscape; and
- (c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a “nonunique archaeological resource” as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms to the criteria of subdivision (a).

Mitigation measures for TCRs must be developed in consultation with the affected California Native American tribe pursuant to the newly chaptered Section 21080.3.2, or according to Section 21084.3. Section 21084.3 identifies mitigation measures that include avoidance and preservation of TCRs and treating TCRs with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource.

### ***California Register of Historical Resources***

PRC Section 5024.1 establishes the California Register of Historical Resources (CRHR). This register lists all California properties considered to be significant historical resources. The CRHR includes all properties listed, or determined to be eligible for listing, in the National Register of Historic Places (NRHP), including properties evaluated under Section 106 of the National Historic Preservation Act. The criteria for listing are similar to those of the NRHP. Criteria for listing in the CRHR include resources that:

1. Are associated with the events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
2. Are associated with the lives of persons important in our past;
3. Embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possess high artistic values; or
4. Have yielded, or may be likely to yield, information important in prehistory or history.

The regulations set forth the criteria for eligibility as well as guidelines for assessing historical integrity and resources that have special considerations.

### 1.3.2 Federal Regulations

The Proposed Project does not require any federal permits, and it is not located on federal lands; therefore, federal laws do not apply to the Proposed Project. The following laws are provided for context only.

The implementing regulations of the National Historic Preservation Act (NHPA) require that cultural resources be evaluated for NRHP eligibility if they cannot be avoided by an undertaking (Proposed Project). To determine site significance through application of NRHP criteria, several levels of potential significance that reflect different (although not necessarily mutually exclusive) values must be considered. As provided in Title 36 Code of Federal Regulations (CFR) Section 60.4, “the quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association” and must be considered within the historic context. Resources must also be at least 50 years old, except in rare cases, and, to meet eligibility criteria of the NRHP, must:

- (A) Be associated with events that have made a significant contribution to the broad patterns of our history; or
- (B) Be associated with the lives of persons significant in our past; or
- (C) Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- (D) Have yielded, or may be likely to yield, information important in prehistory or history.

For archaeological sites evaluated under criterion (D) above, integrity requires that the site remain sufficiently intact to convey the expected information to address specific important research questions.

## 1.4 Personnel

Fieldwork, analysis, and reporting were carried out by the below-listed professionals who meet the U.S. Secretary of the Interior’s Professional Standards for Archaeology (per Title 48 of the

CFR, Section 44716, as amended in 1983). Procedures complied with NHPA Section 106 as set forth in Title 36 of the CFR, Section 800.

**Janis Offermann, Registered Professional Archaeologist** (Horizon), prepared this report. She has a bachelor's degree in Anthropology from Sonoma State University in Rohnert Park, California, and a master's degree in Anthropology from the University of California at Davis. She has more than 40 years of experience in California archaeology and cultural resource management. Ms. Offermann is the cultural resources practice leader with Horizon.

**Eric Durksen, Archaeologist** (Horizon), conducted the pedestrian survey of the Project study area. Eric received a bachelor's degree in 2017 from California State University, Sacramento in Anthropology with a specialization in Archaeology. He has 9 years of experience as a field technician and field crew member on a substantial number of archaeological projects throughout California and Oregon.

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## 2 Project Context

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### 2.1 Prehistoric Context

Little archaeological work has been conducted in the Turlock area or in the San Joaquin Valley in general; therefore, the archaeology of the Project area is understood within the prehistoric context developed for the Central Valley as a whole. Since the early 1930s, various schemes have been set forth by researchers to organize the archaeological data of California into a chronological framework. The Central Valley sequence established by Lillard, Heizer, and Fenenga in 1939 is particularly notable. Based on archaeological investigations in the lower Sacramento Valley, Lillard and colleagues divided human prehistory into three broad cultural horizons: Early, Middle, and Late. This chronology was first known as the Delta sequence and later became the basis of Richard Beardsley's Central California Taxonomic System (CCTS) (Moratto 1984:181). The system relies on the identification of characteristics such as burial patterns, shell bead types, stone tools, and the types of locations where the sites tend to occur. These traits and characteristics are used to identify an archaeological resource as belonging to a specific time period.

The CCTS has continued to undergo significant refinement but remains the framework within which California archaeologists explain cultural change. The general system is still widely used by archaeologists, but it has been expanded and revised to include economic and technological strategies, socio-politics, trade networks, population density, and variations of artifact types to differentiate between cultural periods. The current chronology (Rosenthal et al. 2010:150) for central California archaeology includes:

- Paleo-Indian: 11,550–8550 B.C.
- Lower Archaic: 8550–5550 B.C.
- Middle Archaic: 5550–550 B.C.
- Upper Archaic: 550 B.C to 1100 A.D.
- Emergent: 1100 A.D. to Historic

The Paleo-Indian Period (11,550–8,550 B.C.) is generally characterized by big-game hunters occupying broad geographic areas. Archaeological deposits from the Paleo-Indian period are rarely found in the Central Valley, however, and those that have been identified have largely been discovered at the south end of the San Joaquin Valley near Tulare Lake. Post-depositional processes, mainly glacial outwash occurring at the end of the Pleistocene Epoch, either destroyed or deeply buried much of the existing evidence of human activity in the region from this period. As result, little is known about Paleo-Indian lifeways in the region (Moratto 1984:214).

Similar to the preceding period, the Lower Archaic Period (8550–5550 B.C.) is presumed to reflect a mobile population that continued to hunt big game. Few localities in the Central Valley are associated with this period, and those that have been found are largely isolated artifacts consisting of large wide-stemmed and leaf-shaped projectile points, along with flaked stone crescents. Only two sites with associated deposits of faunal and shell remains have been identified for the Lower Archaic Period, one at Buena Vista Lake in the southern San Joaquin Valley (Rosenthal et al. 2010:151-152) and one in Sacramento (Tremaine 2008). Some sites in the Sierra Nevada foothills from this period, however, indicate the use of milling equipment (hand stones and milling stones) to process seeds and nuts.

The Middle Archaic Period (5550–550 B.C.) indicates a shift to a more settled way of life that is reflected by substantial, though often deeply buried, archaeological sites with artifacts that are more elaborate in design, imply a more diverse subsistence regime, and indicate interregional trade. Sites are often situated along the major rivers and streams within the Central Valley, emphasizing a focus on riverine and marsh habitats. The Windmill Tradition or Pattern, which was first identified in sites around the Sacramento–San Joaquin River Delta, is often considered representative of this period. Characteristic artifacts from this period include a variety of fish hooks and spears; large stemmed and leaf-shaped projectile points of obsidian and chert; shaped charmstones of alabaster, steatite, or marble; and a variety of *Haliotis* and *Olivella* shell ornaments and beads, respectively. Mortars and pestles, associated with acorn preparation, became commonplace by the middle of the period. The presence of ventrally and dorsally extended burials with a western orientation is particularly indicative of the Windmill Pattern.

Increased sedentism and technological specialization are evidenced during the Upper Archaic Period (550 B.C to 1100 A.D.), as populations exploited more diverse resources and established trade relationships. Mortars and pestles became the primary ground stone implements, suggesting that acorns had become a more important dietary staple. Regional diversity in artifact styles, such as *Haliotis* shell ornaments, bone tools, and ground charmstones or plummets, became more pronounced; burial postures also varied.

Archaeological sites from the Emergent Period (A.D. 1100 to the historic period) indicate increased social complexity and the development of large, central villages with resident political leaders and specialized activity sites. Enhanced regional diversity in terms of artifact styles, housing, and interment methods is evident in the archeological record. Artifacts associated with the period include the bow and arrow, small corner-notched projectile points, and a variety of shell and stone beads and ornaments.

## 2.2 Ethnohistoric Context

The Turlock area lies within the ancestral territory of the Northern Valley Yokuts. The term “Yokuts” is applied to a large and diverse group of people inhabiting the San Joaquin Valley and

Sierra Nevada foothills of central California. The Northern Valley Yokuts inhabited a 40- to 60-mile-wide area straddling the San Joaquin River, south of the Mokelumne River, east of the Diablo Range, and north of the sharp bend that the San Joaquin River takes to the east-northeast near Mendota in Fresno County. The Southern Valley Yokuts occupied the San Joaquin Valley south of the bend in the river. Although they were divided geographically and ecologically, the two Yokuts divisions have a common linguistic heritage (Wallace 1978:462).

The Northern Valley tribes closely resembled the Yokuts groups to the south, although there were some cultural differences. The northerners had greater access to salmon and acorns, two important dietary resources, compared to the Southern Yokuts, and some of their religious practices reflected the influences of groups to their north, such as the Miwok. While inhumation was the usual practice in the southern valley, the Northern Valley Yokuts either cremated their dead or buried them in a flexed position (Wallace 1978:464, 468). A chief headed the tribal villages, which averaged around 300 people. Family houses were round or oval in shape, sunken, with a cone-shaped pole frame, and covered with tule mats. Each village also had a lodge for dances and other community functions, as well as a sweathouse (Wallace 1978:462-464).

The Northern Valley Yokuts built their riverside villages on elevated areas along the water's edge to avoid the spring floods, which were a result of heavy Sierra Nevada snow melts. Living beside rivers and streams provided plentiful river perch, Sacramento pike, salmon, and sturgeon. Hunting provided waterfowl such as geese and ducks as well as terrestrial animals such as antelope, elk, and brown bear, although by all indications, fish constituted a majority of the diet. The surrounding woodland, grasslands, and marshes provided acorns, tule root, and seeds.

The Northern Valley Yokuts used bone harpoon tips for fishing, stone sinkers for nets, chert projectile points for hunting, and mortars and pestles, scrapers, knives, and bone awl tools to procure and process food. Marine shells, procured from coastal tribes, were used for necklaces and other adornments, and marine shell beads sometimes accompanied the deceased. The northern tribes used tule reed rafts to navigate the waterways for fishing and hunting fowl. The Yokuts also manufactured intricate baskets for a variety of purposes, including storing, cooking, eating, winnowing, hopper mortars, the transport of food materials, and rituals. Very little is known of the Northern Valley Yokuts' clothing, but drawings of their tattoos show that they served not only as a decoration but also as a form of identity (Wallace 1978:464).

Initially, the Diablo Range served as a natural barrier against heavy recruitment of Native Californians by the Spanish, who established missions along the coast; however, by the early 19th century, Spanish—and later, Mexican—missionaries began to explore the inner valleys in search of potential neophytes, or converts to Catholicism. The Yokuts resisted recruitment and California Indians from various tribes sought refuge among the Yokuts after fleeing the

missions. Introduced diseases, destruction of traditional resources from cattle grazing, and forced relocation took a heavy toll on the Northern Yokuts. Despite decades of hardship, many individuals who can trace their ancestry to the Northern Valley Yokuts continue to live and thrive in the Central Valley, as well as throughout California and the United States.

## 2.3 Historic-Era Context

The historic era began in Stanislaus County when the first Spanish expedition entered the San Joaquin Valley in 1806 under the leadership of Gabriel Moraga. Traveling north and northwest through the region in search of possible mission sites, Moraga's party explored up what came to be known as the Stanislaus River. Moraga visited the area again in 1808 and 1810 (Kyle et al. 2002:516-517).

After Mexico gained its independence from Spain in 1822, two additional expedition forces entered the area; however, the purposes of their campaigns were no longer exploratory. Soldiers were sent into the Central Valley to recover stolen animals and punish rebellious Indians in an attempt to reduce attacks upon coastal towns, missions, and ranchos.

Americans also began to enter the region during the Mexican period. In 1827 and 1828, Jedediah Smith entered the San Joaquin Valley through the Tejon Pass and trapped beavers along the San Joaquin, Kings, and other rivers and streams that flowed from the Sierra. Smith was followed by fellow trappers such as Peter Ogden, Ewing Young, Kit Carson, and Joseph Walker.

The first permanent European settlement in Stanislaus County may have been established when two land grants were issued by the Mexican government in 1843. The first was the Rancho El Pescadero on the west side of the San Joaquin River near the border of what would eventually become San Joaquin County. The second was the Rancheria del Rio de Estanislao located north of the Stanislaus River bordering Tuolumne County. Two additional land grants were issued the following year. These were the Ranchos del Puerto and Orestimba, both of which were on the west side of the county near Rancho Pescadero (Tinkham 1921).

Anglo-Americans started to arrive in the territory that would become Stanislaus County during the Gold Rush, both as miners seeking gold and as agricultural entrepreneurs who recognized the opportunity to raise livestock or grow food for the gold seekers. As early as 1849, the town of Adamsville was founded on the south bank of the Tuolumne River just east of present-day Modesto. It became the first county seat of Stanislaus County in 1854 but was replaced by Empire, a short distance upriver, soon thereafter (Kyle et al. 2002). After a later move to Knights Ferry, the county seat was finally moved to Modesto in 1971.



During the historic era, the Project area was agricultural, and it has remained so. Turlock was part of a large wheat operation owned by John W. Mitchell, who owned 100,000 acres in the area from Turlock to Atwater. He began growing large acreages of wheat in 1867, hauling his abundance to Stockton. He soon began building houses on sections of land that he sold to other farmers. Non-farmers also moved to the area and began various businesses such as a blacksmith, grocery stores and hotels; a post office was established in 1870. During this time Mitchell had granted right of way to the railroad, which constructed a depot, called Turlock, in 1871 (Turlock Historical Society 2020). By this time, Mitchell had built a grain warehouse in order to store the local grain that would be transported by train and other business that were scattered in the area consolidated around the depot; thus, the city of Turlock was founded.

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### 3 Native American Consultation and Archival Research

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In accordance with the Secretary of the Interior’s Standards and the Guidelines for Archaeology and Historic Preservation (Title 48 CFR Section 44716 [amended 1983]), the goals of this archaeological inventory were to identify and completely document the location, qualities, and condition of any potential historic properties in the Project’s study area. Methods employed to achieve these goals follow.

#### 3.1 Native American Consultation

A request was made to the Native American Heritage Commission (NAHC) on June 9, 2020, to review its files for the presence of sacred sites at or near the project location. At the same time, requests were made for a list of tribes with a traditional and cultural affiliation with the Project area for the purpose of consultation as required by PRC Section 21080.3.1. The NAHC responded the same day, noting that no sacred sites are known to exist in the vicinity of the Proposed Project, and provided a list of three tribal contacts for the purposes of PRC Section 21080.3.1 consultation. Each of the individuals identified by the NAHC was provided notification about the Project via U.S. mail with a returned certified receipt on June 24, 2020, and follow-up emails were sent on July 24, 2020 (see **Table 1**). There have been no responses from any of those contacted, to date. All correspondence related to PRC Section 21080.3.1 is provided in **Appendix 2**.

**Table 1. Native American Consultation**

Contact	Tribe	Letter Date	Email Follow-up Date	Comments
Katherine Erolinda Perez, Chairperson	North Valley Yokuts Tribe	June 24, 2020	July 24, 2020	No response to date
Timothy Perez, Most Likely Descendent Contact	North Valley Yokuts Tribe	June 24, 2020	July 24, 2020	No response to date
William Leonard, Chairperson	Southern Sierra Miwuk Nation	June 24, 2020	July 24, 2020	No response to date

#### 3.2 Archival Research

A records search was conducted by the Central California Information Center (CCIC) of the California Historical Resources Information System at California State University, Stanislaus

(Records Search File: 11419N) for the Proposed Project prior to initiating the field study. The purpose of the records search was to determine if the study area had previously been surveyed for cultural resources, and to identify any previously recorded cultural resources in or within ½ mile of the Project site. The archival research included review of the California Inventory of Historic Resources, local historical inventories, historical literature, and historical maps, including USGS topographic maps, General Land Office maps, and Rancho Plat Maps. The results of the record search are included in **Appendix 3**.

The records search indicated that no cultural resources have been recorded within the Project footprint or within the ½ mile radius. The search identified one previous study, ST-05354, that included the Project site. The study was a desktop review and did not include archaeological survey. In addition, five studies were previously conducted within the ½ mile search radius. These studies are listed in **Table 2**

**Table 2. Cultural Studies Previously Conducted Entirely or Partially in the Project Area**

CCIC Report No.	Author	Date	Title	Comments
01835	S. Crull	1982	Historic Reminiscences of Turlock, California. Publisher: Ghost Rider Limited, ISBN: 0-5247748-0	In ½ mile search radius; literature search of old Turlock
04074	P. M. Jensen	2000	Department of Transportation Negative Archaeological Survey Report, 10-STA-99, PM 3.5-3.6 CU 10-170, EA 10-965120, Modify Interchange at Rt 99/W.Main Street in Turlock	In ½ mile search radius; at SR 99/W. Main Street Interchange
05354	R. Windmiller and D. Napoli	2004	City of Turlock - Westside Industrial Specific Plan; Background Reports: Archaeological Resources, Historical Resources, Records Search Results	Overview that includes Project area

<b>CCIC Report No.</b>	<b>Author</b>	<b>Date</b>	<b>Title</b>	<b>Comments</b>
07452	R. Baloian	2011	Historic Property Survey Report / Archaeological Survey Report, State Route 99/ Fulkerth Road Interchange Improvement Project, City of Turlock, Stanislaus County, CA	In ½ mile search radius; at SR 99/Fulkerth Road Interchange
07537	C. Kuzak	2011	Historic Property Survey Report, 10-STA-99, P.M. 0.0/24.7, 2576 E-FIS1000020344, Stanislaus County, California	In ½ mile search radius; along SR 99
08638	N. Jordan	2015	Letter Report: South County Corridor Feasibility Study - Cultural Resources Constraints Analysis	In ½ mile search radius; literature search

The supporting documentation for the City of Turlock General Plan did not identify any historical areas or points of historical interest in the study area (City of Turlock 2012).

An examination of USGS topographic maps dating back to 1916 and of aerial photography dating to 1939 was conducted for a Phase I Environmental Site Assessment of the Proposed Project parcel (Geocon 2019). These data indicate that the area has been agricultural for the last century, with little change until the construction of the SR 99 bypass that is depicted in maps from 1976. The agricultural nature of the parcel is corroborated by aerial imagery that reveals full development of the land on the east side of SR 99, directly opposite of the Project area, by 1998. The topographic maps and aerial photos, furthermore, depict the presence of structures (presumably a home and barn or other outbuildings) and surrounding trees located adjacent to Dianne Lane, near the center of parcel as it borders the street. Aerial photos indicate that buildings were present from at least 1948 through 2012; by 2016, they no longer exist. The USGS topographic maps indicate that the house was present by 1939.

The Phase I Environmental Site Assessment (Geocon 2019) reported that the soils present at the Project site include a combination Delhi Loamy Sand, Dinuba Sandy Loam, and Greenfield Sandy Loam. According to Rosenthal et al. (2004), these soil types largely date to the late Pleistocene/early Holocene and generally have a low potential to contain buried archaeological deposits.

## 4 Inventory Methods and Results

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A pedestrian archaeological survey was conducted of the area of potential effects on November 10, 2020, by a qualified Horizon archaeologist who was overseen by an archaeologist who meets the U.S. Secretary of Interior's professional standards in archaeology. The entire Project area was investigated by pedestrian survey in transects spaced approximately 30 meters apart.

The Project parcel had recently been tilled and, therefore, ground surface visibility was excellent (see Appendix 1).

No archaeological resources, including evidence of the historic era buildings identified during the archival research, were observed during the survey. The only cultural resource on the parcel is an irrigation diversion and a ditch that extends 600 feet north through the parcel off the TID canal. The ditch, which is outside of the Proposed Project area of construction (see Figure 3), was recorded on a California Department of Parks and Recreation Primary Record (**Appendix 4**). Because it will not be impacted by proposed construction, the ditch was not evaluated for CRHR eligibility.

## 5 Summary and Recommendations

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The CDFA, with assistance from DGS, is proposing to replace the existing CAHFS laboratory, which is within a developed portion of the city of Turlock. Because the CAHFS laboratory is outdated, and there is no room to expand the current facility, the CDFA is proposing to move the laboratory to the west outskirts of town. The new CAHFS laboratory will occupy approximately 7 acres along Dianne Drive within a 27-acre parcel. A pedestrian survey did not identify any archaeological resources within the Project's study area. An agricultural irrigation ditch, located well to the east of the Proposed Project construction zone, was recorded on a California Department of Parks and Recreation Primary Record. The ditch will not be impacted by construction and, therefore, was not evaluated for CRHR eligibility. To date, consulting tribes have not identified any tribal cultural resources within the Project area.

Although no archaeological sites were identified by the archaeological inventory, nor have tribal cultural resources been identified during tribal consultation, significant cultural resources may be buried with no surface manifestation. Although the soils that underlie the Project site date to the late Pleistocene/Early Holocene and have low potential to contain buried archaeological deposits, the possibility remains that buried prehistoric archaeological materials could be encountered. Furthermore, historic-era archaeological remains related to the mid-twentieth century farmstead could also be uncovered. If prehistoric or historic-era materials are encountered, all work in the vicinity should halt until a qualified archaeologist can evaluate the discovery and make recommendations in accordance with 36 CFR Section 800.13(b). Native American materials would most likely include obsidian and chert flaked-stone tools (e.g., projectile points, knives, choppers), tool-making debris, or milling equipment such as mortars and pestles. Historic-era materials might reflect the area's early farming era and include the remains of agricultural implements; stone or concrete footings and walls; and deposits of metal, glass, and/or ceramic refuse.

The possibility of encountering human remains cannot be discounted. Section 7050.5 of the California Health and Safety Code states that it is a misdemeanor to knowingly disturb a human burial. If human remains are encountered, work should halt in the vicinity of the remains and, as required by law, the County Coroner should be notified immediately. An archaeologist should also be contacted to evaluate the find. If human remains are of Native American origin, the coroner must notify the NAHC within 24 hours of that determination. Pursuant to PRC Section 5097.98, the NAHC, in turn, will immediately contact an individual who is most likely descended from the remains (the "Most Likely Descendant"). The Most Likely Descendant has 48 hours to inspect the site once access is provided and recommend treatment of the remains. The landowner is obligated to work with the Most Likely Descendant in good faith to find a respectful resolution to the situation and entertain all reasonable options regarding the Most Likely Descendant's preferences for treatment.

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## 6 References

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## **Appendix 1**

### **Photographs**

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View to northwest of the project parcel from the TID Irrigation Diversion Ditch. Orchard in the Background marks the north boundary of the parcel. November 10, 2020.



View east long TID canal and TID access road from Dianne Drive. Project parcel is on the left, outside of the TID right of way. November 10, 2020.



View north of the east portion of the project parcel from the TID canal access road. Highway 99 is on the right side of the picture and the TID Irrigation Diversion Ditch (marked by vegetation) is on the left. November 10, 2020.



View west along north border of project area adjacent to the almond orchard. November 10, 2020.



**Appendix 2**  
**Native American Correspondence**

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# Local Government Tribal Consultation List Request

## Native American Heritage Commission

1550 Harbor Blvd, Suite 100  
West Sacramento, CA 95691  
916-373-3710  
916-373-5471 – Fax  
[nahc@nahc.ca.gov](mailto:nahc@nahc.ca.gov)

### Type of List Requested

CEQA Tribal Consultation List (AB 52) – *Per Public Resources Code § 21080.3.1, subs. (b), (d), (e) and 21080.3.2*

General Plan (SB 18) - *Per Government Code § 65352.3.*

#### Local Action Type:

General Plan

General Plan Element

General Plan Amendment

Specific Plan

Specific Plan Amendment

Pre-planning Outreach Activity

### Required Information

Project Title: Turlock North Valley Animal Health Laboratory Replacement Project

Local Government/Lead Agency: Department of General Services

Contact Person: Dakota Smith, Sr. Environmental Planner

Street Address: 707 Third Street, Suite 4-430

City: West Sacramento, CA

Zip: 95605

Phone: (916) 376-1609

Fax: \_\_\_\_\_

Email: Dakota.Smith@dgs.ca.gov

#### Specific Area Subject to Proposed Action

County: Stanislaus

City/Community: Turlock

#### Project Description:

The Department of General Services is assisting the California Department of Food and Agriculture with a project to build a new animal health laboratory in Turlock, Stanislaus County to replace the aging existing facility in Turlock.

### Additional Request

Sacred Lands File Search - *Required Information:*

USGS Quadrangle Name(s): Denair, Ceres

Township: 5S

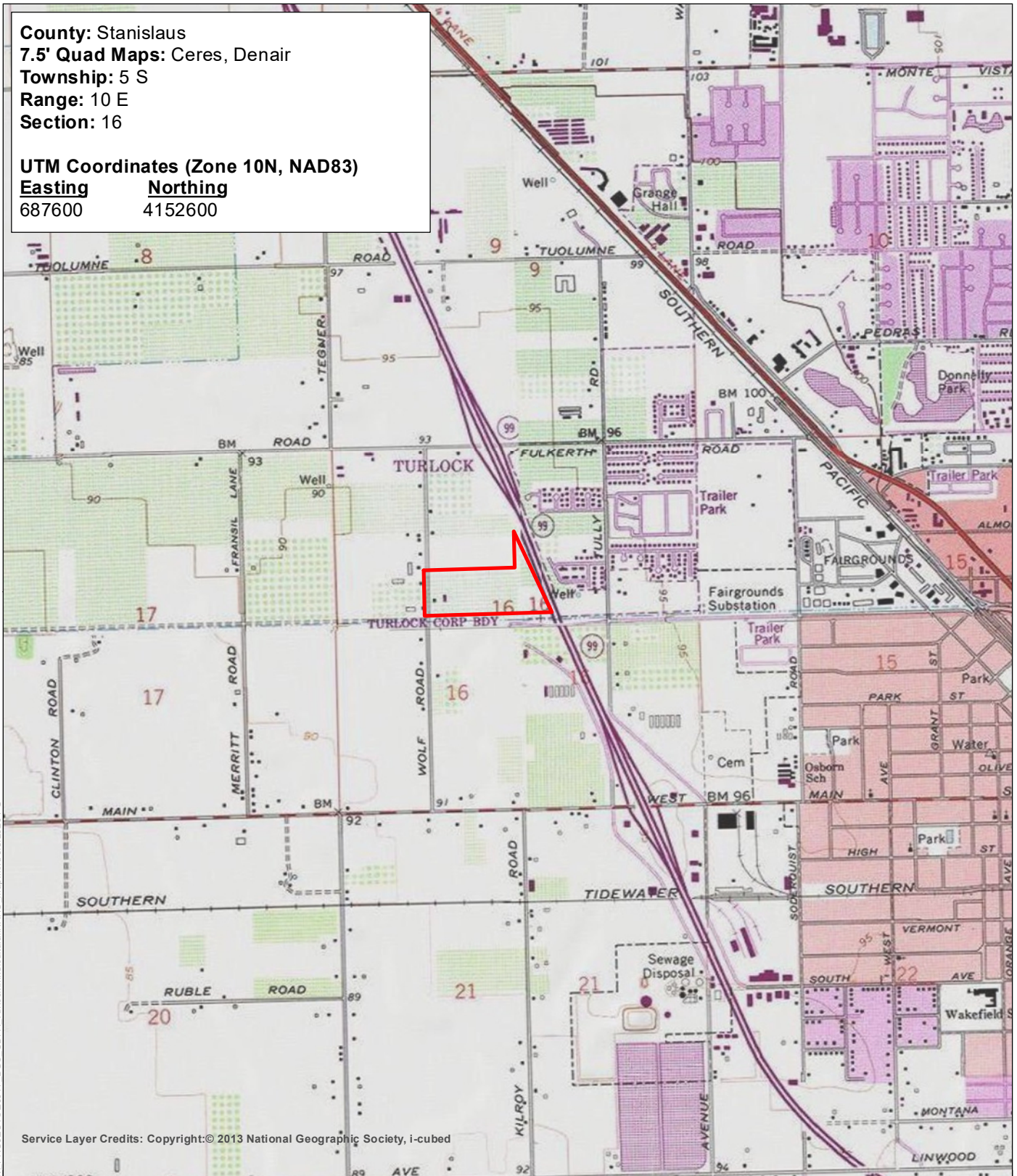
Range: 10E

Section(s): 16



**County:** Stanislaus  
**7.5' Quad Maps:** Ceres, Denair  
**Township:** 5 S  
**Range:** 10 E  
**Section:** 16

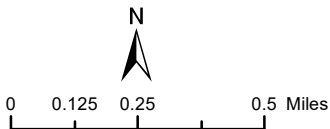
**UTM Coordinates (Zone 10N, NAD83)**  
**Easting**      **Northing**  
 687600      4152600



Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed

**Project Area**

 Project Area



T:\PROJECTS\2017\_DGS\_CDEA\_Turbokmxcultural\NAHC\_map.mxd 6/8/2020 PG

## NATIVE AMERICAN HERITAGE COMMISSION

June 9, 2020

Dakota Smith  
Department of General Services

Via Email to: Daakota.Smith@dgs.ca.gov

**Re: Native American Tribal Consultation, Pursuant to the Assembly Bill 52 (AB 52), Amendments to the California Environmental Quality Act (CEQA) (Chapter 532, Statutes of 2014), Public Resources Code Sections 5097.94 (m), 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2 and 21084.3, Turlock Valley North Animal Health Laboratory Replacement Project, Stanislaus County**

Dear Ms. Smith:

Pursuant to Public Resources Code section 21080.3.1 (c), attached is a consultation list of tribes that are traditionally and culturally affiliated with the geographic area of the above-listed project. Please note that the intent of the AB 52 amendments to CEQA is to avoid and/or mitigate impacts to tribal cultural resources, (Pub. Resources Code §21084.3 (a)) ("Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.")

Public Resources Code sections 21080.3.1 and 21084.3(c) require CEQA lead agencies to consult with California Native American tribes that have requested notice from such agencies of proposed projects in the geographic area that are traditionally and culturally affiliated with the tribes on projects for which a Notice of Preparation or Notice of Negative Declaration or Mitigated Negative Declaration has been filed on or after July 1, 2015. Specifically, Public Resources Code section 21080.3.1 (d) provides:

*Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.*

The AB 52 amendments to CEQA law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction prior to receiving requests for notification of projects in the tribe's areas of traditional and cultural affiliation. The Native American Heritage Commission (NAHC) recommends, but does not require, early consultation as a best practice to ensure that lead agencies receive sufficient information about cultural resources in a project area to avoid damaging effects to tribal cultural resources.

The NAHC also recommends, but does not require that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:



CHAIRPERSON  
**Laura Miranda**  
Luiseño

VICE CHAIRPERSON  
**Reginald Pagaling**  
Chumash

SECRETARY  
**Merri Lopez-Keifer**  
Luiseño

PARLIAMENTARIAN  
**Russell Attebery**  
Karuk

COMMISSIONER  
**Marshall McKay**  
Wintun

COMMISSIONER  
**William Mungary**  
Paiute/White Mountain  
Apache

COMMISSIONER  
**Julie Tumamait-Stenslie**  
Chumash

COMMISSIONER  
**[Vacant]**

COMMISSIONER  
**[Vacant]**

EXECUTIVE SECRETARY  
**Christina Snider**  
Pomo

**NAHC HEADQUARTERS**  
1550 Harbor Boulevard  
Suite 100  
West Sacramento,  
California 95691  
(916) 373-3710  
[nahc@nahc.ca.gov](mailto:nahc@nahc.ca.gov)  
[NAHC.ca.gov](http://NAHC.ca.gov)

- A listing of any and all known cultural resources that have already been recorded on or adjacent to the APE, such as known archaeological sites;
- Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
- Whether the records search indicates a low, moderate, or high probability that unrecorded cultural resources are located in the APE; and
- If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

- Any report that may contain site forms, site significance, and suggested mitigation measures.

All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code section 6254.10.

3. The result of any Sacred Lands File (SLF) check conducted through the Native American Heritage Commission was negative.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: [Nancy.Gonzalez-Lopez@nahc.ca.gov](mailto:Nancy.Gonzalez-Lopez@nahc.ca.gov).

Sincerely,



Nancy Gonzalez-Lopez  
*Cultural Resources Analyst*

Attachment

**Native American Heritage Commission  
Tribal Consultation List  
Stanislaus County  
6/9/2020**

***North Valley Yokuts Tribe***

Timothy Perez, MLD Contact  
P.O. Box 717  
Linden, CA, 95236  
Phone: (209) 662 - 2788  
huskanam@gmail.com

Costanoan  
Northern Valley  
Yokut

***North Valley Yokuts Tribe***

Katherine Perez, Chairperson  
P.O. Box 717  
Linden, CA, 95236  
Phone: (209) 887 - 3415  
canutes@verizon.net

Costanoan  
Northern Valley  
Yokut

***Southern Sierra Miwuk Nation***

William Leonard, Chairperson  
P.O. Box 186  
Mariposa, CA, 95338  
Phone: (209) 628 - 8603

Miwok  
Northern Valley  
Yokut  
Paiute

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed Turlock Valley North Animal Health Laboratory Replacement Project, Stanislaus County.

June 24, 2020

Katherine Perez, Chairperson  
North Valley Yokuts Tribe  
P.O. Box 717  
Linden, CA, 95236

RE: CDFA Turlock North Valley Animal Health Laboratory Replacement Project

Dear Honorable Chairperson Perez:

The Department of General Services (DGS), on behalf of the California Department of Food and Agriculture (CDFA), is writing to notify you of a proposed project in order to coordinate with you and request any information about tribal cultural resources that may be present or affected. It is important to note that neither DGS nor CDFA has received a request from you for notification of projects under Assembly Bill 52 (AB52).

The CDFA currently operates the North Valley Animal Health Laboratory in Turlock. The facility was constructed in 1958 and is now outdated. As a result, CDFA proposes to build a new facility on 26 acres of undeveloped land at 830 Dianne Drive in west Turlock, west of State Highway 99 (see attached map). The proposed project would involve construction of a new laboratory building of approximately 35,000 square feet and a separate office space building for CDFA employees. The project would include laboratory equipment and casework, a mechanical loft, site work, utilities, walkways, curbs, gutters, signage, landscaping, irrigation, fencing, gates, trash enclosure, storage outbuilding, animal holding pens, site drainage, site lighting, communications (fire alarm, security, telecommunications/data), water tank, septic system, water retention system, and related items.

A search of the Sacred Lands Files at the Native American Heritage Commission (NAHC) did not identify previously recorded significant Native American resources in the project vicinity. However, the NAHC suggested that local tribes may have information that is not on file at the NAHC, and your contact information was provided on their List of Native American Contacts for the area as a traditionally and culturally affiliated California Native American tribal representative. We are requesting any information that you may have regarding tribal cultural resources (as defined by Public Resources Code 21074) within the project area so that this information can be incorporated into project planning and we can work with you to avoid impacts to tribal cultural resources. DGS is respectfully requesting input from you within 30 days of receipt of this letter.

Your comments and concerns are important to us and we look forward to hearing from you. If you have any questions or comments regarding the project, I can be contacted via email at [Dakota.Smith@dgs.ca.gov](mailto:Dakota.Smith@dgs.ca.gov) or by phone at (916) 376-1604.

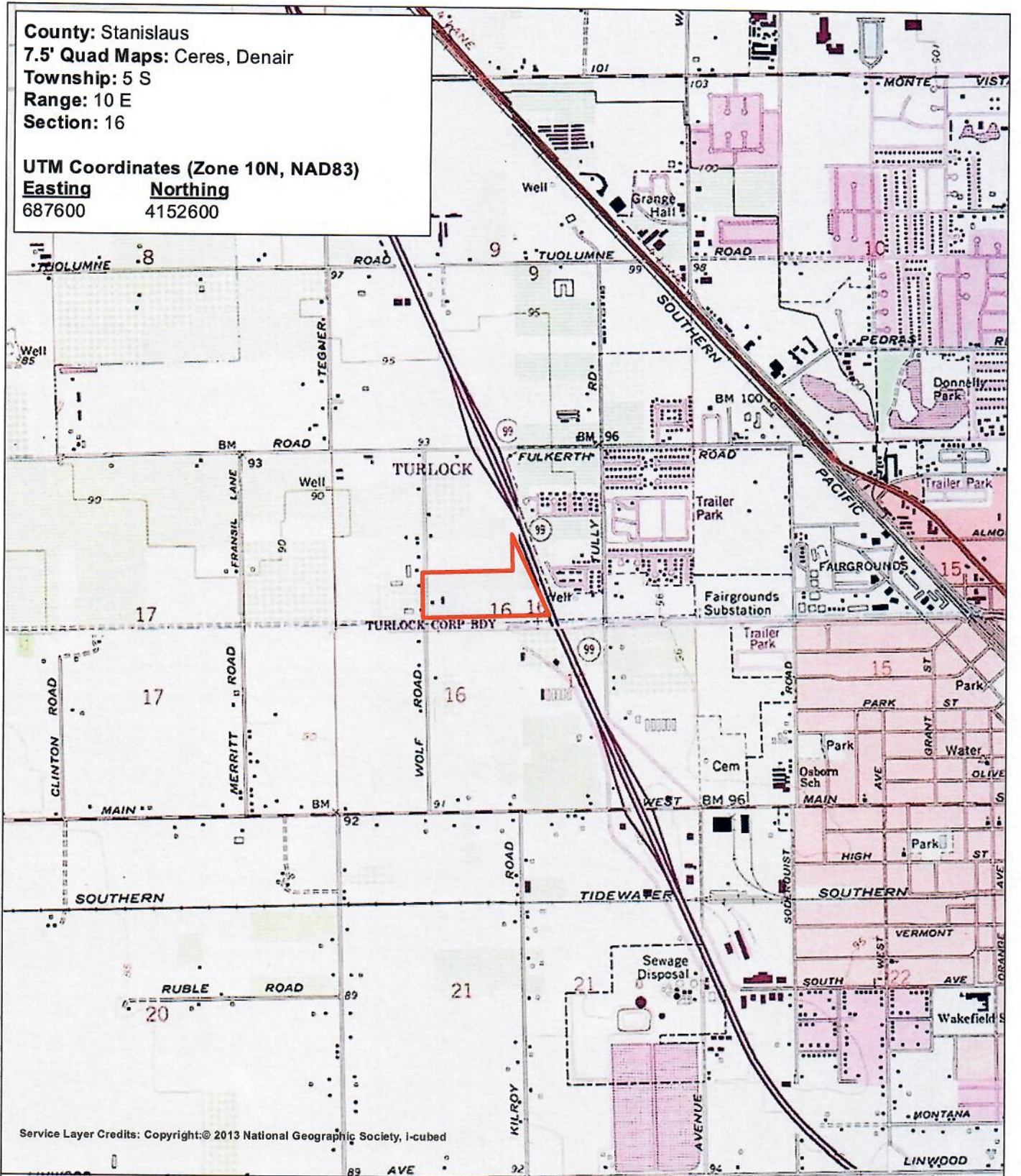
Sincerely,

*Dakota Smith*

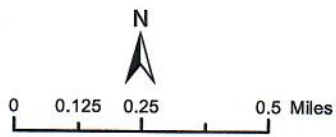
Dakota Smith  
Senior Environmental Planner

County: Stanislaus  
7.5' Quad Maps: Ceres, Denair  
Township: 5 S  
Range: 10 E  
Section: 16

UTM Coordinates (Zone 10N, NAD83)  
Easting      Northing  
687600      4152600



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 Project Area

Project Area



Turlock North Valley Animal Health Laboratory Replacement

June 24, 2020

Timothy Perez, MLD Contact  
North Valley Yokuts Tribe  
P.O. Box 717  
Linden, CA, 95236

RE: CDFA Turlock North Valley Animal Health Laboratory Replacement Project

Dear Mr. Perez:

The Department of General Services (DGS), on behalf of the California Department of Food and Agriculture (CDFA), is writing to notify you of a proposed project in order to coordinate with you and request any information about tribal cultural resources that may be present or affected. It is important to note that neither DGS nor CDFA has received a request from you for notification of projects under Assembly Bill 52 (AB52).

The CDFA currently operates the North Valley Animal Health Laboratory in Turlock. The facility was constructed in 1958 and is now outdated. As a result, CDFA proposes to build a new facility on 26 acres of undeveloped land at 830 Dianne Drive in west Turlock, west of State Highway 99 (see attached map). The proposed project would involve construction of a new laboratory building of approximately 35,000 square feet and a separate office space building for CDFA employees. The project would include laboratory equipment and casework, a mechanical loft, site work, utilities, walkways, curbs, gutters, signage, landscaping, irrigation, fencing, gates, trash enclosure, storage outbuilding, animal holding pens, site drainage, site lighting, communications (fire alarm, security, telecommunications/data), water tank, septic system, water retention system, and related items.

A search of the Sacred Lands Files at the Native American Heritage Commission (NAHC) did not identify previously recorded significant Native American resources in the project vicinity. However, the NAHC suggested that local tribes may have information that is not on file at the NAHC, and your contact information was provided on their List of Native American Contacts for the area as a traditionally and culturally affiliated California Native American tribal representative. We are requesting any information that you may have regarding tribal cultural resources (as defined by Public Resources Code 21074) within the project area so that this information can be incorporated into project planning and we can work with you to avoid impacts to tribal cultural resources. DGS is respectfully requesting input from you within 30 days of receipt of this letter.

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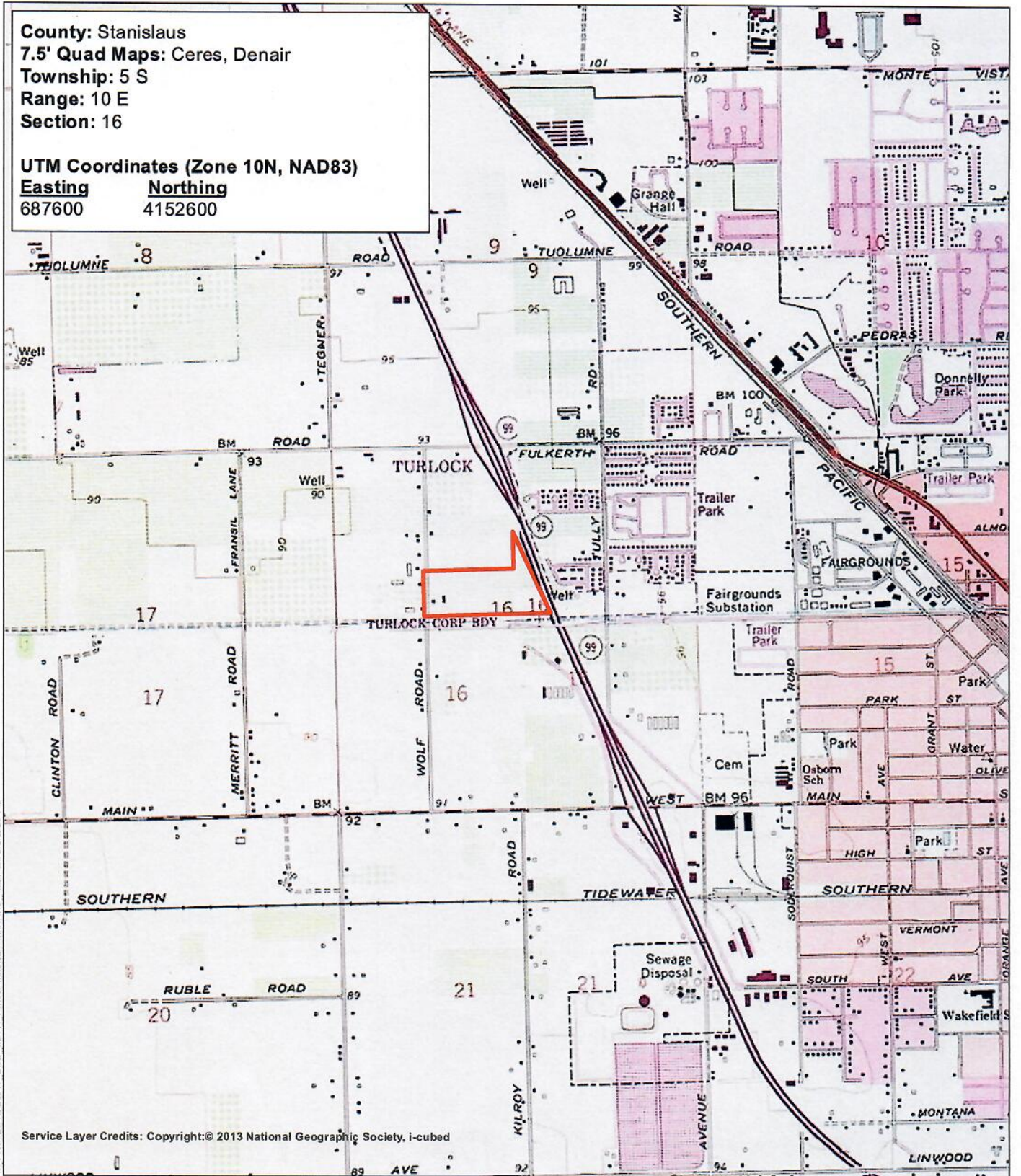
Sincerely,

*Dakota Smith*

Dakota Smith  
Senior Environmental Planner

**County:** Stanislaus  
**7.5' Quad Maps:** Ceres, Denair  
**Township:** 5 S  
**Range:** 10 E  
**Section:** 16

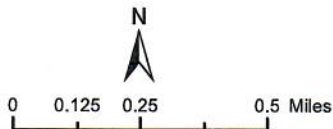
**UTM Coordinates (Zone 10N, NAD83)**  
**Easting**      **Northing**  
 687600          4152600



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**Project Area**

 Project Area



Turlock North Valley Animal Health Laboratory Replacement



June 24, 2020

William Leonard, Chairperson  
Southern Sierra Miwuk Nation  
P.O. Box 186  
Mariposa, CA, 95338

RE: CDFA Turlock North Valley Animal Health Laboratory Replacement Project

Dear Honorable Chairperson Leonard:

The Department of General Services (DGS), on behalf of the California Department of Food and Agriculture (CDFA), is writing to notify you of a proposed project in order to coordinate with you and request any information about tribal cultural resources that may be present or affected. It is important to note that neither DGS nor CDFA has received a request from you for notification of projects under Assembly Bill 52 (AB52).

The CDFA currently operates the North Valley Animal Health Laboratory in Turlock. The facility was constructed in 1958 and is now outdated. As a result, CDFA proposes to build a new facility on 26 acres of undeveloped land at 830 Dianne Drive in west Turlock, west of State Highway 99 (see attached map). The proposed project would involve construction of a new laboratory building of approximately 35,000 square feet and a separate office space building for CDFA employees. The project would include laboratory equipment and casework, a mechanical loft, site work, utilities, walkways, curbs, gutters, signage, landscaping, irrigation, fencing, gates, trash enclosure, storage outbuilding, animal holding pens, site drainage, site lighting, communications (fire alarm, security, telecommunications/data), water tank, septic system, water retention system, and related items.

A search of the Sacred Lands Files at the Native American Heritage Commission (NAHC) did not identify previously recorded significant Native American resources in the project vicinity. However, the NAHC suggested that local tribes may have information that is not on file at the NAHC, and your contact information was provided on their List of Native American Contacts for the area as a traditionally and culturally affiliated California Native American tribal representative. We are requesting any information that you may have regarding tribal cultural resources (as defined by Public Resources Code 21074) within the project area so that this information can be incorporated into project planning and we can work with you to avoid impacts to tribal cultural resources. DGS is respectfully requesting input from you within 30 days of receipt of this letter.

Your comments and concerns are important to us and we look forward to hearing from you. If you have any questions or comments regarding the project, I can be contacted via email at [Dakota.Smith@dgs.ca.gov](mailto:Dakota.Smith@dgs.ca.gov) or by phone at (916) 376-1604.

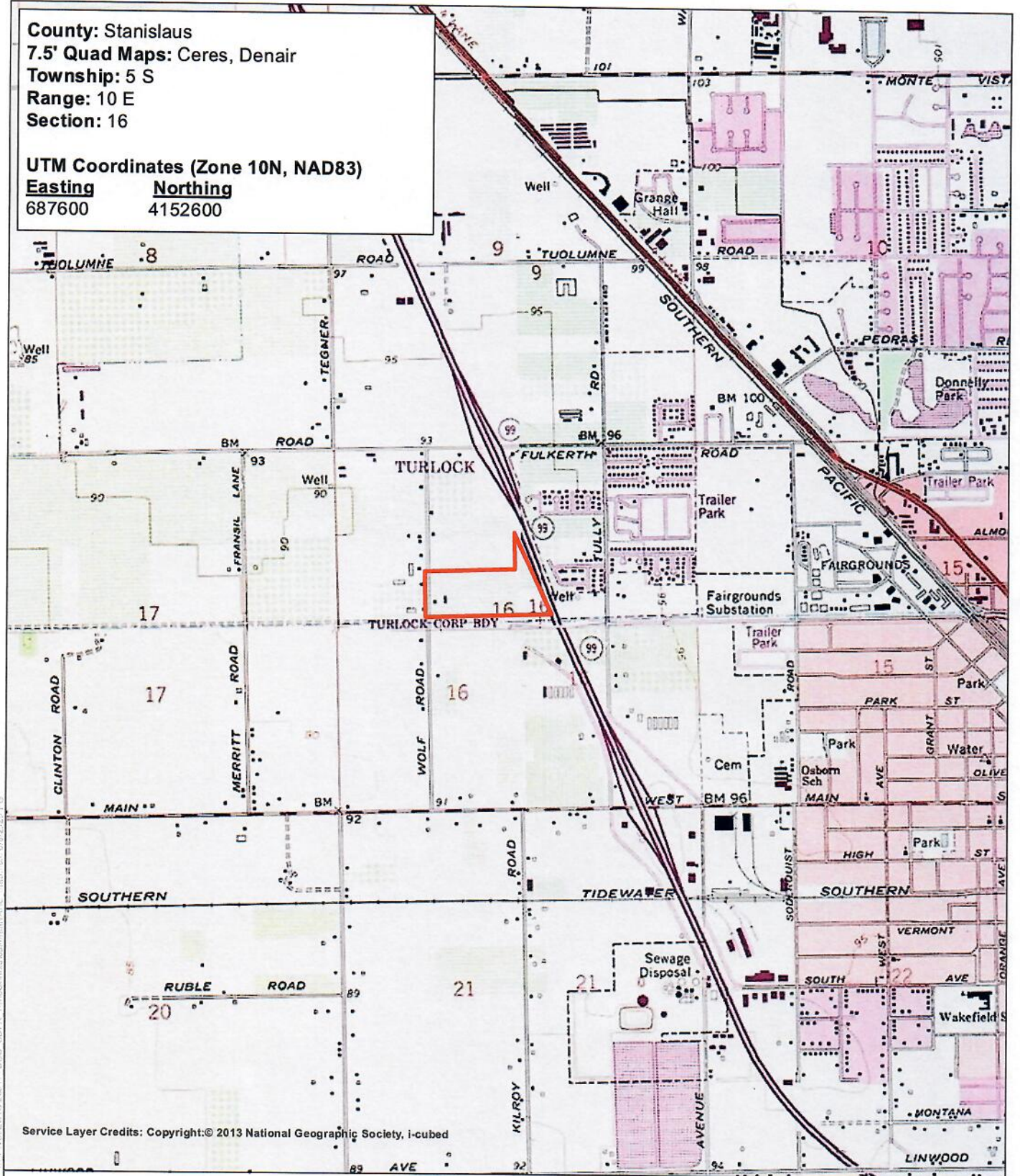
Sincerely,

*Dakota Smith*

Dakota Smith  
Senior Environmental Planner

County: Stanislaus  
7.5' Quad Maps: Ceres, Denair  
Township: 5 S  
Range: 10 E  
Section: 16

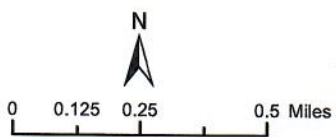
UTM Coordinates (Zone 10N, NAD83)  
Easting 687600  
Northing 4152600



Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed

Project Area

 Project Area



Turlock North Valley Animal Health Laboratory Replacement

**From:** Janis Offermann  
**To:** "canutes@verizon.net"  
**Cc:** "Smith, Dakota@DGS"; Tom Engels (tom@horizonh2o.com)  
**Subject:** RE: CDFA Turlock North Valley Animal Health Laboratory Replacement Project  
**Date:** Friday, July 24, 2020 3:32:00 PM  
**Attachments:** KPerez\_ AB52 letters\_06242020.pdf

---

Dear Chairperson Perez,

On behalf of the California Department of General Services, I am following up with you to make sure that you received the attached letter through the U.S. mail, in case you would like to request consultation on this project under AB52.

Please feel free to contact me if you have any questions about the project.  
Thank you for your time.

Janis Offermann  
Cultural Resources Practice Leader  
Horizon Water and Environment  
400 Capitol Mall, Suite 2500  
Sacramento, CA 95814  
530.220.4918 – mobile

**From:** [Janis Offermann](#)  
**To:** ["achuchumimt@yahoo.com"](mailto:achuchumimt@yahoo.com)  
**Cc:** ["Smith, Dakota@DGS"](mailto:Smith,Dakota@DGS); [Tom Engels \(tom@horizonh2o.com\)](mailto:TomEngels@horizonh2o.com)  
**Subject:** CDFA Turlock North Valley Animal Health Laboratory Replacement Project  
**Date:** Friday, July 24, 2020 3:34:00 PM  
**Attachments:** WLeonard\_ AB52 letters\_06242020.pdf

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Dear Chairperson Leonard,

On behalf of the California Department of General Services, I am following up with you to make sure that you received the attached letter through the U.S. mail, in case you would like to request consultation on this project under AB52.

Please feel free to contact me if you have any questions about the project.  
Thank you for your time.

Janis Offermann  
Cultural Resources Practice Leader  
Horizon Water and Environment  
400 Capitol Mall, Suite 2500  
Sacramento, CA 95814  
530.220.4918 – mobile

**From:** [Janis Offermann](#)  
**To:** "[huskanam@gmail.com](mailto:huskanam@gmail.com)"  
**Subject:** CDFA Turlock North Valley Animal Health Laboratory Replacement Project  
**Date:** Friday, July 24, 2020 3:31:00 PM  
**Attachments:** TPerez\_AB52 letters\_06242020.pdf

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Dear Mr. Perez

On behalf of the California Department of General Services, I am following up with you to make sure that you received the attached letter through the U.S. mail, in case you would like to request consultation on this project under AB52.

Please feel free to contact me if you have any questions about the project.

Thank you for your time.

Janis Offermann

Cultural Resources Practice Leader

Horizon Water and Environment

400 Capitol Mall, Suite 2500

Sacramento, CA 95814

530.220.4918 – mobile



## **Appendix 3**

# **Central California Information Center Results**

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*Confidential – Not for Public Review*

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**Appendix 4**  
**California Department of Parks and Recreation**  
**Form 523 Primary Record**

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*Confidential – Not for Public Review*

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**APPENDIX G**  
***Noise Analysis Technical Appendix***

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This section of the appendix includes complex tables that are not accessible using an assistive device such as a screen reader. For assistance please contact the California Relay Service by dialing 711 or contact CDFA.



**Long-Term 24 Hour Continuous Noise Monitoring**  
Model Input Sheet



**Project:** 60645875 - CDFA Turlock Lab  
**Date:** Tuesday, December 01, 2020 to Wednesday, December 02, 2020  
**Site:** LT-01

Hour	Leq	Lmax	L50	L90
13:00	60.2	95.8	52.5	48.4
14:00	60.6	96.2	55.4	51.5
15:00	64.8	100.4	58.5	56.0
16:00	62.4	97.9	59.7	57.1
17:00	61.6	97.2	59.1	55.7
18:00	61.7	97.3	59.6	56.1
19:00	59.5	95.1	55.6	52.6
20:00	60.3	95.9	58.2	55.2
21:00	61.4	97.0	59.6	57.0
22:00	59.1	94.7	57.7	54.8
23:00	58.8	94.3	57.6	54.7
0:00	58.0	93.6	56.4	54.2
1:00	56.6	92.1	55.1	52.7
2:00	55.6	91.1	54.7	52.6
3:00	56.5	92.1	54.2	52.3
4:00	61.2	96.7	59.9	57.0
5:00	64.7	100.3	63.6	62.0
6:00	64.6	100.1	63.4	61.6
7:00	65.0	100.6	64.1	61.2
8:00	61.4	96.9	59.9	52.5
9:00	59.0	94.6	50.8	48.2
10:00	58.6	94.2	50.6	47.8
11:00	59.8	95.4	53.9	50.9
12:00	60.8	95.1	54.6	51.5

Averages				
	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	60.8	96.8	56.6	53.1
Nighttime (10 p.m. - 7 a.m.)	60.7	95.0	58.1	55.8

Uppermost-Level				
	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	65.0	100.6	64.1	61.2
Nighttime (10 p.m. - 7 a.m.)	64.7	100.3	63.6	62.0

Percentage of Energy	
Daytime	63%
Nighttime	37%

Calculated L <sub>dn</sub> , dBA
67.5

**Long-Term 24 Hour Continuous Noise Monitoring**  
Model Input Sheet



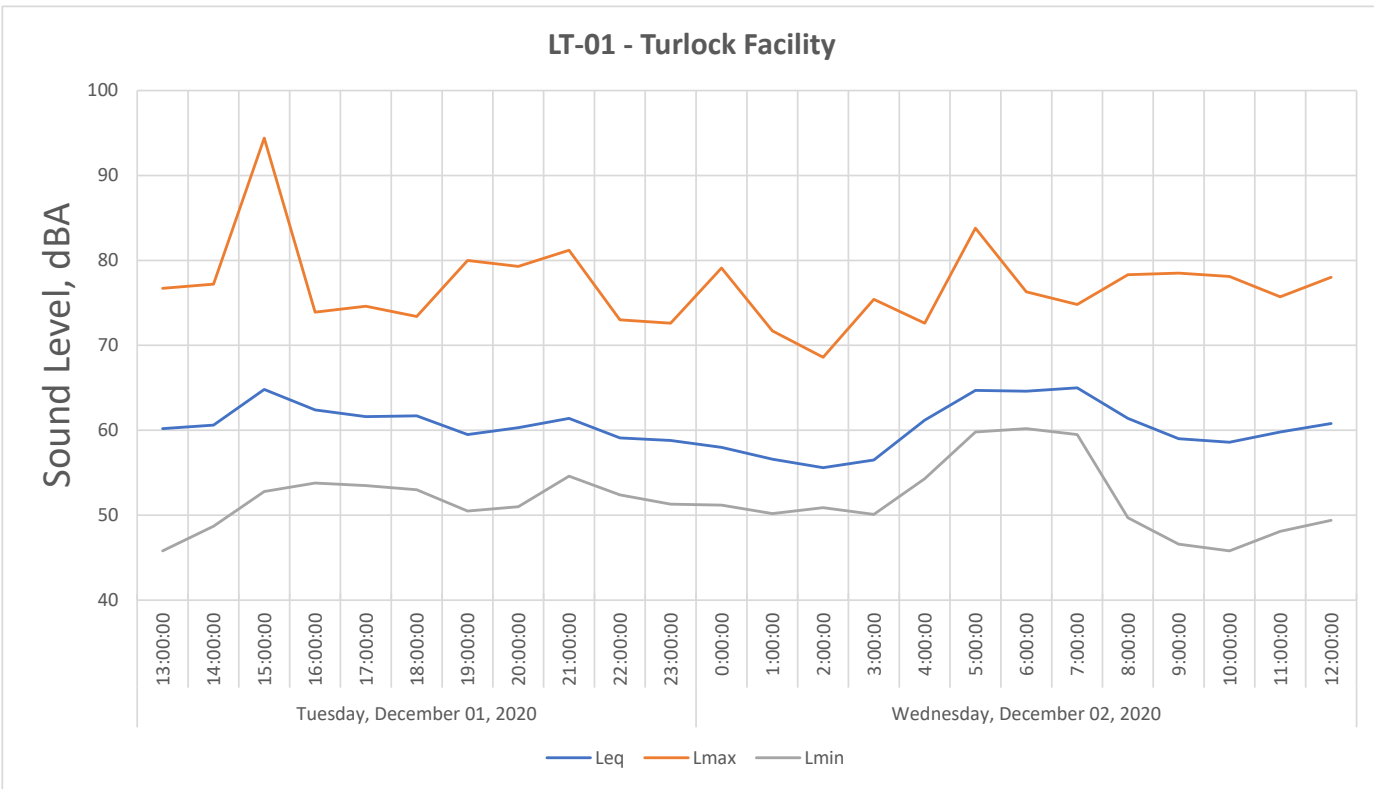
**Project:** 60645875 - CDFA Turlock Lab

**Date:** Tuesday, December 01, 2020 to Wednesday, December 02, 2020

**Site:** LT-01

Hour	Leq	Lmax	L50	L90		Averages			
						Leq	Lmax	L50	L90
13:00	60.2	95.8	52.5	48.4					
14:00	60.6	96.2	55.4	51.5	Daytime (7 a.m. - 7 p.m.)	61.8	96.8	56.6	53.1
15:00	64.8	100.4	58.5	56.0	Evening (7 p.m. - 9 p.m.)	60.5	96.0	57.8	54.9
16:00	62.4	97.9	59.7	57.1	Nighttime (9 p.m. - 7 a.m.)	60.7	95.0	58.1	55.8
17:00	61.6	97.2	59.1	55.7					
18:00	61.7	97.3	59.6	56.1					
19:00	59.5	95.1	55.6	52.6					
20:00	60.3	95.9	58.2	55.2					
21:00	61.4	97.0	59.6	57.0					
22:00	59.1	94.7	57.7	54.8	Daytime (7 a.m. - 7 p.m.)	65.0	100.6	64.1	61.2
23:00	58.8	94.3	57.6	54.7	Evening (7 p.m. - 9 p.m.)	61.4	97.0	59.6	57.0
0:00	58.0	93.6	56.4	54.2	Nighttime (9 p.m. - 7 a.m.)	64.7	100.3	63.6	62.0
1:00	56.6	92.1	55.1	52.7					
2:00	55.6	91.1	54.7	52.6					
3:00	56.5	92.1	54.2	52.3					
4:00	61.2	96.7	59.9	57.0					
5:00	64.7	100.3	63.6	62.0					
6:00	64.6	100.1	63.4	61.6					
7:00	65.0	100.6	64.1	61.2					
8:00	61.4	96.9	59.9	52.5					
9:00	59.0	94.6	50.8	48.2					
10:00	58.6	94.2	50.6	47.8					
11:00	59.8	95.4	53.9	50.9					
12:00	60.8	95.1	54.6	51.5					
						Uppermost-Level			
						Leq	Lmax	L50	L90
						65.0	100.6	64.1	61.2
						61.4	97.0	59.6	57.0
						64.7	100.3	63.6	62.0
						Percentage of Energy			
						Daytime	56%		
						Evening	10%		
						Nighttime	33%		
						Calculated CNEL, dBA			
						67.5			

Date	Time	Leq	Lmax	Lmin	
Tuesday, December 01, 2020	13:00:00	60.2	76.7	45.8	
	14:00:00	60.6	77.2	48.7	
	15:00:00	64.8	94.4	52.8	
	16:00:00	62.4	73.9	53.8	
	17:00:00	61.6	74.6	53.5	
	18:00:00	61.7	73.4	53	
	19:00:00	59.5	80	50.5	
	20:00:00	60.3	79.3	51	
	21:00:00	61.4	81.2	54.6	
	22:00:00	59.1	73	52.4	
	23:00:00	58.8	72.6	51.3	
	Wednesday, December 02, 2020	0:00:00	58	79.1	51.2
		1:00:00	56.6	71.7	50.2
2:00:00		55.6	68.6	50.9	
3:00:00		56.5	75.4	50.1	
4:00:00		61.2	72.6	54.3	
5:00:00		64.7	83.8	59.8	
6:00:00		64.6	76.3	60.2	
7:00:00		65	74.8	59.5	
8:00:00		61.4	78.3	49.7	
9:00:00		59	78.5	46.6	
10:00:00		58.6	78.1	45.8	
11:00:00		59.8	75.7	48.1	
12:00:00	60.8	78	49.4		



**Project-Generated Construction Source Noise Prediction Model**

60645875 - CDFA Turlock Lab



Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L <sub>eq</sub> dBA)	Assumptions:	Reference Emission	Usage
				Noise Levels (L <sub>max</sub> ) at 50 feet <sup>1</sup>	Factor <sup>1</sup>
Threshold*	519	60	Compressor (air)	80	0.4
	50	85	Dozer	85	0.4
			Backhoe	80	0.4
			Front End Loader	80	0.4
			Tractor	84	0.4

Ground Type Soft  
Ground Factor 0.50

Predicted Noise Level <sup>2</sup>	L <sub>eq</sub> dBA at 50 feet <sup>2</sup>
Compressor (air)	76.0
Dozer	81.0
Backhoe	76.0
Front End Loader	76.0
Tractor	80.0

**Combined Predicted Noise Level (L<sub>eq</sub> dBA at 50 feet)**

85.4

Sources:

<sup>1</sup> Obtained from the FHWA Roadway Construction Noise Model, Janua

<sup>2</sup> Based on the following from the Federal Transit Noise and Vibration I

$$L_{eq}(\text{equip}) = E.L. + 10 \cdot \log(U.F.) - 20 \cdot \log(D/50) - 10 \cdot G \cdot \log(D/50)$$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

\*Project specific threshold



**Project-Generated Construction Source Noise Prediction Model**

60645875 - CDFA Turlock Lab



Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L <sub>eq</sub> dBA)	Assumptions:	Reference Emission	Usage
				Noise Levels (L <sub>max</sub> ) at 50 feet <sup>1</sup>	Factor <sup>1</sup>
Threshold*	628	60	Excavator	85	0.4
	50	87	Grader	85	0.4
			Dozer	85	0.4
			Backhoe	80	0.4
			Front End Loader	80	0.4
			Tractor	84	0.4

Ground Type Soft  
Ground Factor 0.50

Predicted Noise Level <sup>2</sup>	L <sub>eq</sub> dBA at 50 feet <sup>2</sup>
Excavator	81.0
Grader	81.0
Dozer	81.0
Backhoe	76.0
Front End Loader	76.0
Tractor	80.0

**Combined Predicted Noise Level (L<sub>eq</sub> dBA at 50 feet)**

87.5

Sources:

<sup>1</sup> Obtained from the FHWA Roadway Construction Noise Model, Janua

<sup>2</sup> Based on the following from the Federal Transit Noise and Vibration I

$$L_{eq}(\text{equip}) = E.L. + 10 \cdot \log(U.F.) - 20 \cdot \log(D/50) - 10 \cdot G \cdot \log(D/50)$$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

\*Project specific threshold

**Project-Generated Construction Source Noise Prediction Model**

60645875 - CDFA Turlock Lab



Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L <sub>eq</sub> dBA)	Assumptions:	Reference Emission	Usage
				Noise Levels (L <sub>max</sub> ) at 50 feet <sup>1</sup>	Factor <sup>1</sup>
Threshold*	535	60	Crane	85	0.16
	50	86	Man Lift	85	0.2
			Generator	82	0.5
			Backhoe	80	0.4
			Front End Loader	80	0.4
			Tractor	84	0.4
			Welder / Torch	73	0.05
			Ground Type	Soft	
			Ground Factor	0.50	
			<b>Predicted Noise Level <sup>2</sup></b>	<b>L<sub>eq</sub> dBA at 50 feet<sup>2</sup></b>	
			Crane	77.0	
			Man Lift	78.0	
			Generator	79.0	
			Backhoe	76.0	
			Front End Loader	76.0	
			Tractor	80.0	
			Welder / Torch	60.0	
			<b>Combined Predicted Noise Level (L<sub>eq</sub> dBA at 50 feet)</b>		
					85.7

Sources:

<sup>1</sup> Obtained from the FHWA Roadway Construction Noise Model, Janua

<sup>2</sup> Based on the following from the Federal Transit Noise and Vibration I

$$L_{eq}(\text{equip}) = E.L. + 10 \cdot \log(U.F.) - 20 \cdot \log(D/50) - 10 \cdot G \cdot \log(D/50)$$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

\*Project specific threshold

**Project-Generated Construction Source Noise Prediction Model**

60645875 - CDFA Turlock Lab



Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L <sub>eq</sub> dBA)	Assumptions:	Reference Emission	Usage
				Noise Levels (L <sub>max</sub> ) at 50 feet <sup>1</sup>	Factor <sup>1</sup>
Threshold*	651	60	Concrete Mixer Truck	85	0.4
	50	88	Paver	85	0.5
			Pavement Scarafier	85	0.2
			Roller	85	0.2
			Backhoe	80	0.4
			Front End Loader	80	0.4
			Tractor	84	0.4
			Compactor (ground)	80	0.2

Ground Type Soft  
Ground Factor 0.50

Predicted Noise Level <sup>2</sup>	L <sub>eq</sub> dBA at 50 feet <sup>2</sup>
Concrete Mixer Truck	81.0
Paver	82.0
Pavement Scarafier	78.0
Roller	78.0
Backhoe	76.0
Front End Loader	76.0
Tractor	80.0
Compactor (ground)	73.0

**Combined Predicted Noise Level (L<sub>eq</sub> dBA at 50 feet)**

87.9

Sources:

<sup>1</sup> Obtained from the FHWA Roadway Construction Noise Model, Janua

<sup>2</sup> Based on the following from the Federal Transit Noise and Vibration I

$$L_{eq}(\text{equip}) = E.L. + 10 \cdot \log(U.F.) - 20 \cdot \log(D/50) - 10 \cdot G \cdot \log(D/50)$$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

\*Project specific threshold

**Project-Generated Construction Source Noise Prediction Model**

60645875 - CDFA Turlock Lab



Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L <sub>eq</sub> dBA)	Assumptions:	Reference Emission	Usage
				Noise Levels (L <sub>max</sub> ) at 50 feet <sup>1</sup>	Factor <sup>1</sup>
Threshold*	598	60	Paver	85	0.5
	50	87	Concrete Mixer Truck	85	0.4
			Man Lift	85	0.2
			Compactor (ground)	80	0.2
			Concrete Mixer Truck	85	0.4

Ground Type Soft  
Ground Factor 0.50

Predicted Noise Level <sup>2</sup>	L <sub>eq</sub> dBA at 50 feet <sup>2</sup>
Paver	82.0
Concrete Mixer Truck	81.0
Man Lift	78.0
Compactor (ground)	73.0
Concrete Mixer Truck	81.0

**Combined Predicted Noise Level (L<sub>eq</sub> dBA at 50 feet)**

86.9

Sources:

<sup>1</sup> Obtained from the FHWA Roadway Construction Noise Model, Janua

<sup>2</sup> Based on the following from the Federal Transit Noise and Vibration I

$$L_{eq}(\text{equip}) = E.L. + 10 \cdot \log(U.F.) - 20 \cdot \log(D/50) - 10 \cdot G \cdot \log(D/50)$$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

\*Project specific threshold

**Traffic Noise Prediction Model, (FHWA RD-77-108)**  
**Model Input Sheet**



**Project Name :** 645875 - CDFA Turlock Lab  
**Project Number :** 60645875  
**Modeling Condition :** Construction Trips  
**Ground Type :** Hard  
**Metric (L<sub>eq</sub>, L<sub>dn</sub>, CNEL) :** Leq

**K Factor :** NA  
**Traffic Desc. (Peak or ADT) :** Peak

Segment	Roadway	Segment		Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	Offset (dB)
		From	To										
1	State Route 99	West Main Street	Fulkerth Road	12200	65	50	97	2	1	87	0	13	
2	Dianne Drive	Fulkerth Road	West Canal Drive	50	35	50	97	2	1	87	0	13	

**Traffic Noise Prediction Model, (FHWA RD-77-108)**  
**Predicted Noise Levels**



**Project Name :** 645875 - CDFA Turlock Lab  
**Project Number :** 60645875  
**Modeling Condition :** Construction Trips  
**Metric (Leq, Ldn, CNEL) :** Leq

Segment	Roadway	Segment		Noise Levels, dB Leq				Distance to Traffic Noise Contours, Feet				
		From	To	Auto	MT	HT	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	State Route 99	West Main Street	Fulkerth Road	82.8	72.0	72.5	83.5	1114	3524	11143	35238	111432
2	Dianne Drive	Fulkerth Road	West Canal Drive	51.1	44.0	46.2	52.9	1	3	10	31	98

**Traffic Noise Prediction Model, (FHWA RD-77-108)**  
**Model Input Sheet**



**Project Name :** 645875 - CDFA Turlock Lab  
**Project Number :** 60645875  
**Modeling Condition :** Existing + Construction Trips  
**Ground Type :** Hard  
**Metric (L<sub>eq</sub>, L<sub>dn</sub>, CNEL) :** Leq

**K Factor :** NA  
**Traffic Desc. (Peak or ADT) :** Peak

Segment	Roadway	Segment		Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	Offset (dB)
		From	To										
1	State Route 99	West Main Street	Fulkerth Road	12291	65	50	97	2	1	87	0	13	
2	Dianne Drive	Fulkerth Road	West Canal Drive	141	35	50	97	2	1	87	0	13	

**Traffic Noise Prediction Model, (FHWA RD-77-108)**  
**Predicted Noise Levels**



**Project Name :** 645875 - CDFA Turlock Lab  
**Project Number :** 60645875  
**Modeling Condition :** Existing + Construction Trips  
**Metric (Leq, Ldn, CNEL) :** Leq

Segment	Roadway	Segment		Noise Levels, dB Leq				Distance to Traffic Noise Contours, Feet				
		From	To	Auto	MT	HT	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	State Route 99	West Main Street	Fulkerth Road	82.8	72.1	72.5	83.5	1123	3550	11226	35501	112263
2	Dianne Drive	Fulkerth Road	West Canal Drive	55.7	48.5	50.7	57.4	3	9	28	88	277



**Traffic Noise Prediction Model, (FHWA RD-77-108)**  
**Model Input Sheet**



**Project Name :** 645875 - CDFA Turlock Lab  
**Project Number :** 60645875  
**Modeling Condition :** Operational Trips  
**Ground Type :** Hard  
**Metric (L<sub>eq</sub>, L<sub>dn</sub>, CNEL) :** Ldn

**K Factor :** NA  
**Traffic Desc. (Peak or ADT) :** ADT

Segment	Roadway	Segment		Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	Offset (dB)
		From	To										
1	State Route 99	West Main Street	Fulkerth Road	123700	65	50	97	2	1	87	0	13	
2	Dianne Drive	Fulkerth Road	West Canal Drive	500	35	50	97	2	1	87	0	13	

**Traffic Noise Prediction Model, (FHWA RD-77-108)**  
**Predicted Noise Levels**



**Project Name :** 645875 - CDFA Turlock Lab  
**Project Number :** 60645875  
**Modeling Condition :** Operational Trips  
**Metric (Leq, Ldn, CNEL) :** Ldn

Segment	Roadway	Segment		Noise Levels, dB Ldn				Distance to Traffic Noise Contours, Feet				
		From	To	Auto	MT	HT	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	State Route 99	West Main Street	Fulkerth Road	82.4	71.7	72.1	83.1	1022	3230	10216	32305	102157
2	Dianne Drive	Fulkerth Road	West Canal Drive	50.7	43.5	45.7	52.5	1	3	9	28	89

**Traffic Noise Prediction Model, (FHWA RD-77-108)**  
**Model Input Sheet**



**Project Name :** 645875 - CDFA Turlock Lab  
**Project Number :** 60645875  
**Modeling Condition :** Operational Trips  
**Ground Type :** Hard  
**Metric (L<sub>eq</sub>, L<sub>dn</sub>, CNEL) :** Ldn

**K Factor :** NA  
**Traffic Desc. (Peak or ADT) :** ADT

Segment	Roadway	Segment		Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	Offset (dB)
		From	To										
1	State Route 99	West Main Street	Fulkerth Road	123798	65	50	97	2	1	87	0	13	
2	Dianne Drive	Fulkerth Road	West Canal Drive	598	35	50	97	2	1	87	0	13	

**Traffic Noise Prediction Model, (FHWA RD-77-108)**  
**Predicted Noise Levels**



**Project Name :** 645875 - CDFA Turlock Lab  
**Project Number :** 60645875  
**Modeling Condition :** Operational Trips  
**Metric (Leq, Ldn, CNEL) :** Ldn

Segment	Roadway	Segment		Noise Levels, dB Ldn				Distance to Traffic Noise Contours, Feet				
		From	To	Auto	MT	HT	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	State Route 99	West Main Street	Fulkerth Road	82.4	71.7	72.1	83.1	1022	3233	10224	32330	102238
2	Dianne Drive	Fulkerth Road	West Canal Drive	51.5	44.3	46.5	53.3	1	3	11	34	106

**Project-Generated Parking Lot Noise Prediction Model**  
60645875 - CDFA Turlock Lab



Ref SEL: 71

Metric: Leq

<b>Description</b>	<b># of Stalls</b>	<b>Trip Multiplier</b>	<b>Trips /Period</b>	<b>Lp @ 50'</b>	<b>Distance to Rec.</b>	<b>Shielding Offset</b>	<b>Lp at Rec.</b>
West	100	1	82	54.5	100		49

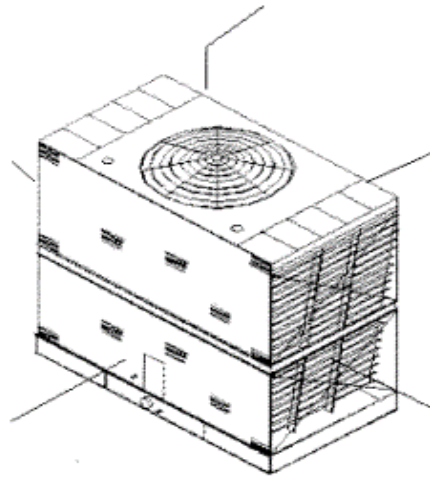
Source: FTA 2018, Equation 4-14, Table 4-14.

**No. of Fans: (1) 7.5 ft. Diameter Fan Per Cell**  
**Fan Type: Standard**  
**Motor HP: 20 HP per fan**

Octave band and A-weighted sound pressure levels (Lp) are expressed in decibels (dB) reference 0.0002 microbar. Sound power levels (Lw) are expressed in decibels (dB) reference one picowatt. Octave band 1 has a center frequency of 63 Hertz.

Air Inlet Lp Sound Pressure (dB)		
Octave Band	Distance	
	5 ft	50 ft
1	61	46
2	70	53
3	73	61
4	78	61
5	79	64
6	78	64
7	71	57
8	66	54
A-wgtd	83	69

End Lp Sound Pressure (dB)		
Octave Band	Distance	
	5 ft	50 ft
1	68	56
2	68	60
3	73	63
4	73	59
5	75	65
6	72	61
7	65	54
8	59	53
A-wgtd	78	68



Top Lp Sound Pressure (dB)		
Octave Band	Distance	
	5 ft	50 ft
1	60	51
2	78	57
3	85	63
4	79	65
5	81	68
6	82	68
7	79	65
8	75	66
A-wgtd	87	74

End Lp Sound Pressure (dB)		
Octave Band	Distance	
	5 ft	50 ft
1	68	56
2	68	60
3	73	63
4	73	59
5	75	65
6	72	61
7	65	54
8	59	53
A-wgtd	78	68

Air Inlet Lp Sound Pressure (dB)		
Octave Band	Distance	
	5 ft	50 ft
1	61	46
2	70	53
3	73	61
4	76	61
5	79	64
6	78	64
7	71	57
8	66	54
A-wgtd	83	69

Sound Power (dB)		
Octave Band	Center Frequency (Hertz)	Lw
1	63	85
2	125	90
3	250	94
4	500	94
5	1000	97
6	2000	96
7	4000	92
8	8000	92