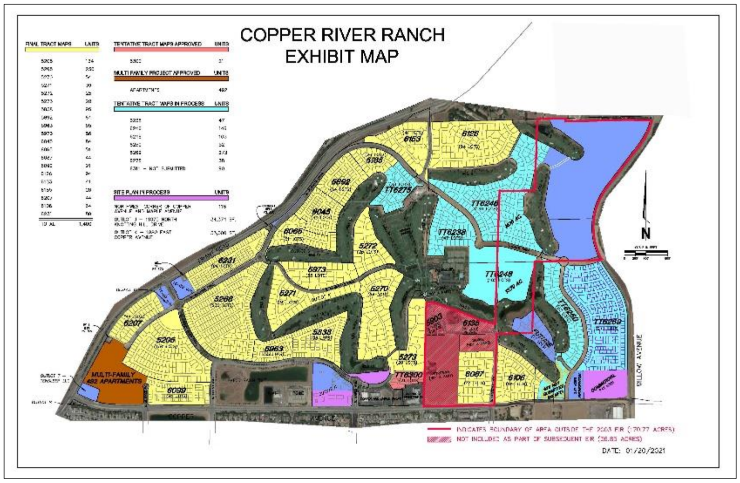
Exhibit L-2



SUBSEQUENT DRAFT EIR APPENDICES (VOL. 1 OF 2)

Copper River Ranch Project

SCH#2000021003

PREPARED FOR:

City of Fresno
Development and Resource Management Dept.
2600 Fresno Street
Fresno, CA 93721

PREPARED BY:

Crawford & Bowen Planning, Inc.
113 N. Church Street, Suite 302
Visalia, CA 93291

August 2021

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Appendix A

Notice of Preparation / Comment Letters

Notice of Preparation of a Draft Subsequent Environmental Impact Report

Date: July 31, 2020

To: Responsible Agencies, Interested Parties and Organizations

Subject: Notice of Preparation of a Subsequent Environmental Impact Report for the Copper River Ranch Project in Fresno, CA (State Clearinghouse #2000021003)

Lead Agency: City of Fresno

Contact: Israel Trejo
Supervising Planner
City of Fresno – Planning and Development Department
2600 Fresno Street, Room 3043
Fresno, CA 93721
(559) 621-8044
Israel.Trejo@fresno.gov

Notice is Hereby Given: The City of Fresno (City) is the Lead Agency on the below-described Copper River Ranch Project (Project) and has prepared a Notice of Preparation (NOP) of a Subsequent Environmental Impact Report (SEIR), pursuant to the California Environmental Quality Act (CEQA). The NOP is intended to disclose environmental information and to solicit the views of the public, interested parties, and/or agencies as to the scope and content of the environmental information which is germane to you or your agency's statutory responsibilities in connection with the proposed project. Specifically, the City is requesting that commenters provide comments on the NOP, identify additional environmental topics (and/or special studies) that they believe need to be explored in the forthcoming SEIR, and to identify other relevant environmental issues related to the scope and content of the forthcoming SEIR.

Project Title: Copper River Ranch Project

Project Environmental Background: The Copper River Ranch Project was originally approved in 2003 by the Fresno City Council, and the area was annexed into the Fresno City limits. The Project has been in a state of development since 2004 and today, there are commercial and single family uses on the project site. The City of Fresno prepared and certified an Environmental Impact Report (No. 10126) for the Copper River Ranch Project (State Clearinghouse #2000021003), adopted in 2003. That EIR analyzed the impacts of the following:

- 2,837 residential units on 706 acres
- 250,000 square feet of Mixed-use office/commercial (60 acres)

The original Copper River Ranch Project has been building out / developed since that time in general conformance to what was analyzed in the 2003 EIR. However, as development has occurred, there have been some minor changes with regard to subdivision layouts, number of units, and some minor changes to locations of commercial/office. In addition, there are adjacent areas that were not studied as part of the 2003 EIR for which the Project Applicant proposes to develop in the future. As such, those areas, as well as the changes that have occurred within the existing Copper River Ranch footprint, will be analyzed in the forthcoming SEIR.

Project Location: The existing Copper River Ranch development area consists of approximately 706.5 acres situated generally between Friant Road, Copper Avenue, Willow Avenue and Silaxo Road. The proposed new areas of development would occur on approximately 109 acres adjacent and east of the existing Copper River Ranch footprint in the area indicated by the red boundary line shown in Figure 3.

Project Description: The Project Applicant is proposing to modify the existing General Plan designations to reflect both the actual built out conditions of Copper River Ranch today and to identify any proposed land use designations and zone districts that are planned for the future. The list of proposed changes to the existing land use designations, zoning, and tentative tract maps is shown in the following tables:

Proposed Land Use Changes

Parcel No.	Acres	Existing Land Use Designation	Proposed Land Use Designation	Existing Zoning	Proposed Zoning
1	10.16	Med DR	Low DR	RS5	RS3
2	4.53	Gen Comm	Low DR	GC	RS3
3	1.17	Comm Comm	Low DR	CC	RS3
4**	2.07	Golf Course	Med Low DR	OS	RS3
5	16.21	Med DR	Low DR	RS5	RS3
6	6.11	Med DR	Low DR	RS5	RS3
7**	9.22	Med DR	Low DR	RS5	RS4
8**	28.46	Med Low DR	Low DR	RS4	RS3
9	7.23	Med High DR	Med DR	RM1	RS5
10	3.47	Med High DR	Comm Comm	RM1	CC
11	7.11	Comm Comm	Urban Neighbor	CC	RM2
19	1.06	Comm Comm	Urban Neighbor	CC	RM2
20	0.93	Med DR	Urban Neighbor	RS5	RM2
Total Acres:	**97.73**				

* See Figures 1 and 2 for parcel locations / ** Portions not within the original 2003 EIR study area.

<u>No</u> Proposed Land Use Changes

Parcel No.	Acres	Existing Land Use Designation	Existing Zoning
12	9.45	Comm Comm	CC
13	32.61	Med DR	RS5
14**	11.86	Med Low DR	RS4
15**	48.27	Med Low DR	RS4
16**	32.59	Med Low DR	RS4
17**	12.23	Med Low DR	RS4
Total Acres:	**147.01**		

* See Figures 1 and 2 for parcel locations / ** Portions not within the original 2003 EIR study area.

Scope of the Subsequent Environmental Impact Report: Although the overall unit count will remain similar to the 2003 Copper River Ranch EIR, because of the addition of new project areas, lapse in time from previous EIR, and updates to the CEQA Guidelines, the proposed Project will require a Subsequent EIR (SEIR). Therefore, pursuant to Section 15162, an SEIR will be prepared and processed. The SEIR will address the following CEQA Guidelines Appendix G topics: Aesthetics, Agriculture/Forest Resources, Air Quality, Biological Resources, Cultural Resources, Energy, Geology/Soils, Greenhouse Gases, Hazards/Hazardous Materials, Hydrology/Water Quality, Land Use/Planning, Mineral Resources, Noise, Population/Housing, Public Services, Recreation, Transportation, Tribal Cultural Resources, Utilities/Service Systems and Wildfire. The SEIR will also review Project alternatives as well as cumulative impacts. To support the analysis in the SEIR, the following technical studies will be prepared: Air Quality / Greenhouse Gases / Energy Study, Traffic Impact Study, Noise Assessment, Biological Analysis, and Cultural Analysis.

Document Availability and Public Review Timeline: Due to the time limits mandated by State law, your response to the NOP must be sent *no later than 30 days* after receipt of this notice. The review period for the IS/NOP will be from July 31, 2020 to August 31, 2020. Due to closures of public facilities in response to COVID-19, electronic copies of the NOP can be accessed on the City's website at: https://www.fresno.gov/darm/planning-development/plans-projects-under-review/. A copy of the NOP can also be obtained by email via the email address below.

Public Scoping Meeting: In addition to the opportunity to submit written comments, one online public scoping meeting will be held by the City to inform interested parties about the proposed project, and to provide agencies and the public with an opportunity to provide comments on the scope and content of the SEIR. This meeting will be held at 6:00 p.m. on August 20, 2020, via a Zoom online meeting. The web address for the online meeting is: https://zoom.us/j/98540845474

Submitting Comments: Comments and suggestions as to the appropriate scope of analysis of the SEIR are invited from all interested parties. Written comments or questions concerning the EIR for the proposed Project should be directed to the City's Project Planner at the following address by 5:00 p.m. on August 31, 2020. Please include the commenter's full name and address. Please submit comments to:

Israel Trejo
Supervising Planner
City of Fresno – Planning and Development Department
2600 Fresno Street, Room 3043
Fresno, CA 93721
(559) 621-8044
Israel.Trejo@fresno.gov

Figure 1 - Parcel Locations and General Plan Land Use Designations (1 of 2)

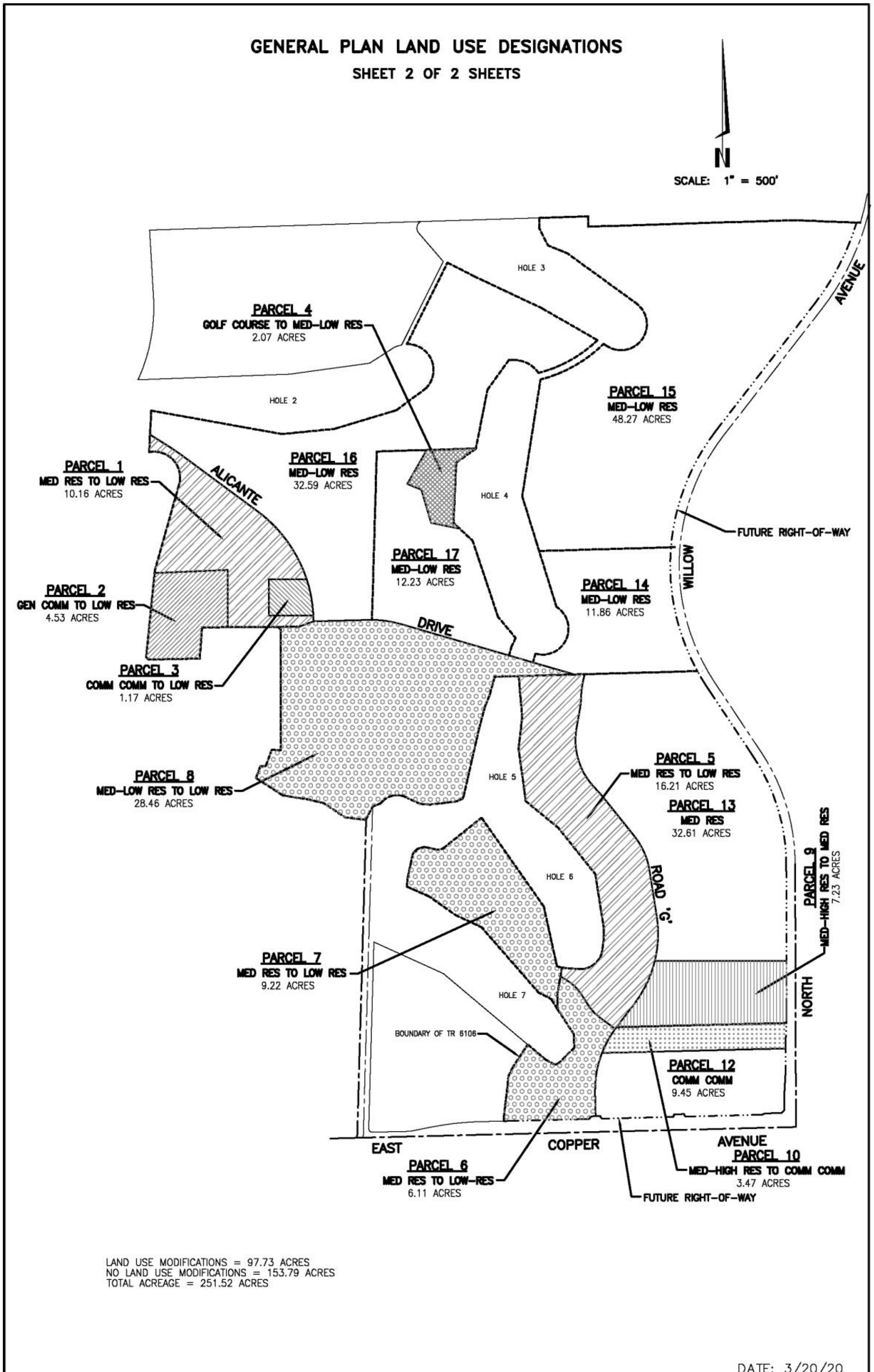


Figure 2 - Parcel Locations and General Plan Land Use Designations (2 of 2)

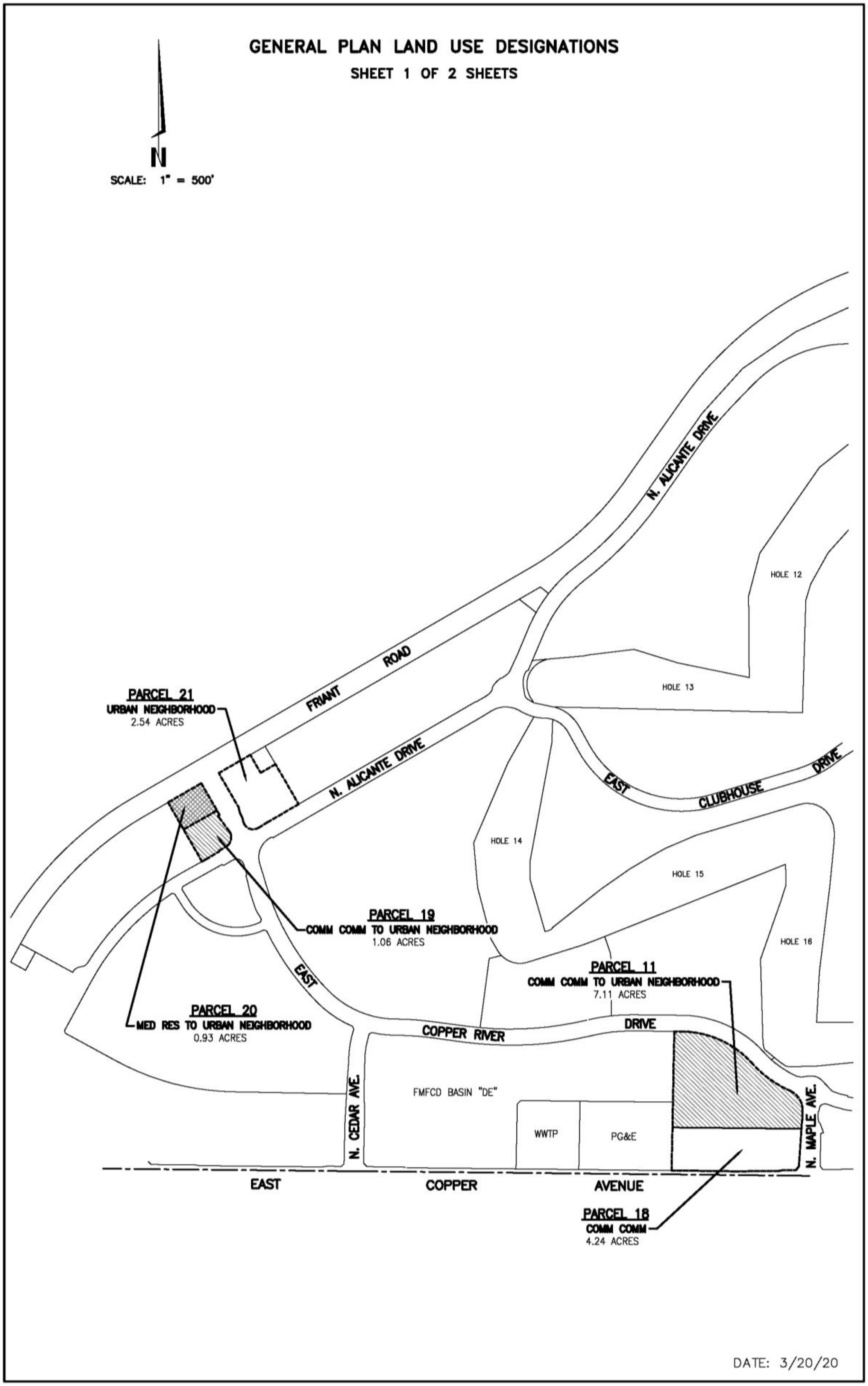
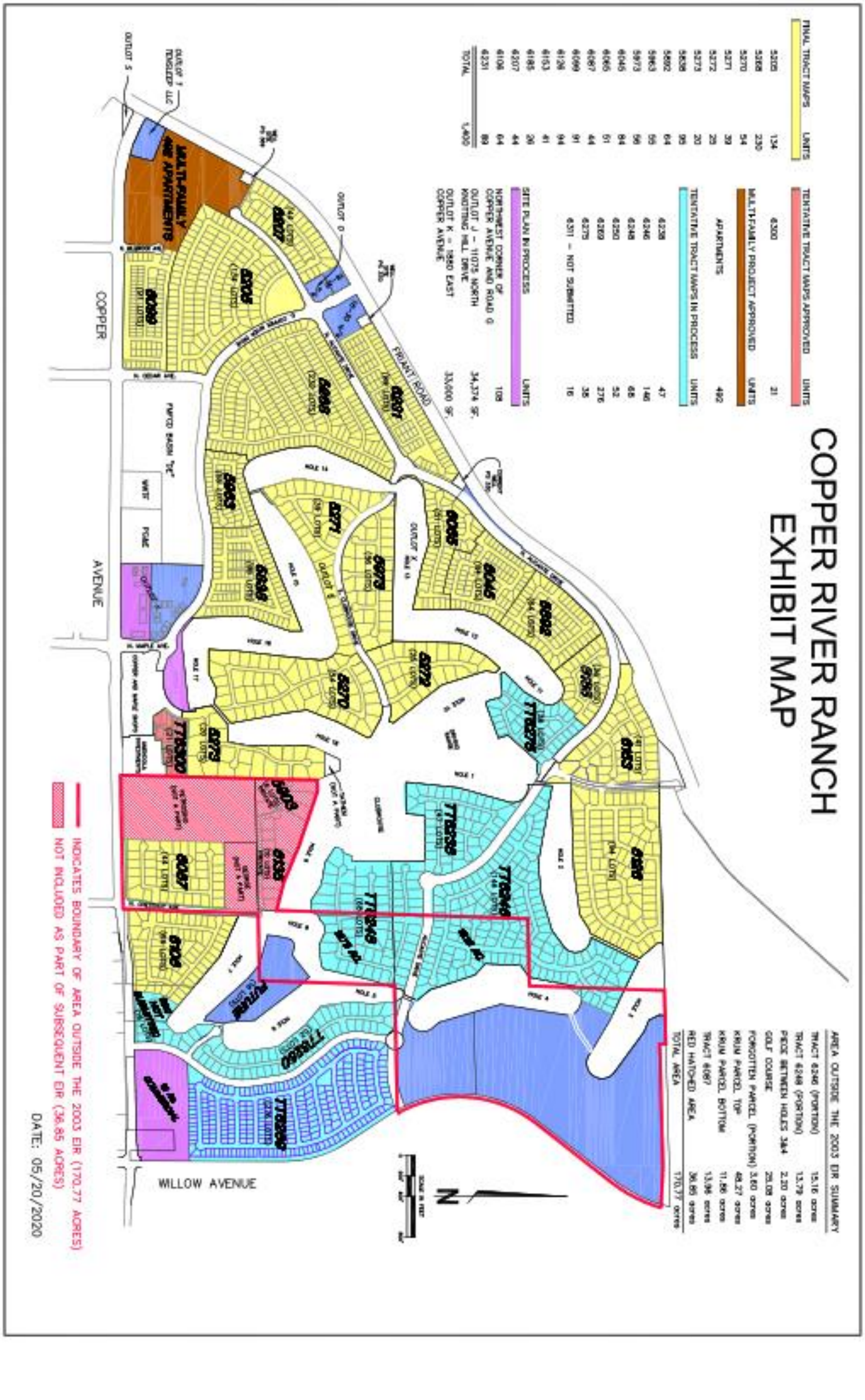


Figure 3 – Tract Maps and Project Boundaries



Attachments

NOP Comment Letters

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

August 4, 2020

Israel Trejo
City of Fresno
2600 Fresno Street, Room 3043
Fresno, CA 93721

Re: 2000021003, Copper River Ranch Project, Fresno County

Dear Mr. Trejo:

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.

AB 52

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, subds. (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

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.

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) 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.

Sincerely,

Nancy Gonzalez

Nancy Gonzalez-Lopez
Cultural Resources Analyst

cc: State Clearinghouse

California
Department of Conservation
Geologic Energy Management Division

Gavin Newsom, Governor
David Shabazian, Director
801 K Street, MS 18-05
Sacramento, CA 95814
T: (916) 445-9686

08/17/2020

Israel Trejo
2600 Fresno Street, Room 3043, Fresno, CA 93721, USA
Israel.Trejo@fresno.gov

Construction Site Well Review (CSWR) ID: 1012028

Assessor Parcel Number(s): 57907454S, 57939009S, 57939010S, 57907452, 57907449, 57907455, 57907457, 57907456, 57939013S, 57939020S, 57939021S, 57939012S, 57939006S, 57939016S, 57939018S, 57939017S, 57922034S, 57922033S, 57922032S, 57922031S, 57922030S, 57922029S, 57922035S, 57922036S, 57909019S, 57909020S, 57907401S

Property Owner(s): Crawford and Bowen Planning, Inc.

Project Location Address: NE Area of Friant Rd. & Copper Ave., Fresno, California, 93730

Project Title: Copper River Ranch Project - SCH #2000021003

Public Resources Code (PRC) § 3208.1 establishes well reabandonment responsibility when a previously plugged and abandoned well will be impacted by planned property development or construction activities. Local permitting agencies, property owners, and/or developers should be aware of, and fully understand, that significant and potentially dangerous issues may be associated with development near oil, gas, and geothermal wells.

The Division of Oil, Gas, and Geothermal Resources (Division) has received and reviewed the above referenced project dated 8/11/2020. To assist local permitting agencies, property owners, and developers in making wise land use decisions regarding potential development near oil, gas, or geothermal wells, the Division provides the following well evaluation.

The project is located in Fresno County, within the boundaries of the following fields:

Our records indicate there are 0 known oil or gas wells located within the project boundary as identified in the application.

- Number of wells Not Abandoned to Current Division Requirements as Prescribed by Law and Projected to Be Built Over or Have Future Access Impeded by this project: 0
- Number of wells Not Abandoned to Current Division Requirements as Prescribed by Law and Not Projected to Be Built Over or Have Future Access Impeded by this project: 0
- Number of wells Abandoned to Current Division Requirements as Prescribed by Law and Projected to Be Built Over or Have Future Access Impeded by this project: 0
- Number of wells Abandoned to Current Division Requirements as Prescribed by Law and Not Projected to Be Built Over or Have Future Access Impeded by this project: 0

As indicated in PRC § 3106, the Division has statutory authority over the drilling, operation,

California
Department of Conservation
Geologic Energy Management Division

Gavin Newsom, Governor
David Shabazian, Director
801 K Street, MS 18-05
Sacramento, CA 95814
T: (916) 445-9686

maintenance, and abandonment of oil, gas, and geothermal wells, and attendant facilities, to prevent, as far as possible, damage to life, health, property, and natural resources; damage to underground oil, gas, and geothermal deposits; and damage to underground and surface waters suitable for irrigation or domestic purposes. In addition to the Division's authority to order work on wells pursuant to PRC §§ 3208.1 and 3224, it has authority to issue civil and criminal penalties under PRC §§ 3236, 3236.5, and 3359 for violations within the Division's jurisdictional authority. The Division does not regulate grading, excavations, or other land use issues.

If during development activities, any wells are encountered that were not part of this review, the property owner is expected to immediately notify the Division's construction site well review engineer in the Inland district office, and file for Division review an amended site plan with well casing diagrams. The District office will send a follow-up well evaluation letter to the property owner and local permitting agency.

Should you have any questions, please contact me at (661) 326-6016 or via email at Victor.Medrano@conservation.ca.gov

Sincerely,

DocuSigned by:
Rohit Sharma
4F498F38AE3B48A...

Chris Jones
Acting District Deputy

August 18, 2020

LU0020982
2600

Israel Trejo, Supervising Planner
City of Fresno- Planning and Development Department
2600 Fresno Street, Room 3043
Fresno, CA 93721

Dear Mr. Trejo:

Subject: Notice of Preparation
Project: Subsequent Environmental Impact Report (State Clearinghouse #2000021003)
Location: Copper River Ranch

The Fresno County Department of Public Health, Environmental Health Division has completed a review of the Request for Comment for the proposed project and offers the following comments for consideration:

Hazards and Hazardous Materials

- If future applicants propose to use and/or store hazardous materials and/or hazardous wastes, they shall meet the requirements set forth in the California Health and Safety Code (HSC), Division 20, Chapter 6.95, and the California Code of Regulations (CCR), Title 22, Division 4.5. Any business that handles a hazardous material or hazardous waste may be required to submit a Hazardous Materials Business Plan pursuant to the California Health and Safety Code (HSC), Division 20, Chapter 6.95, Section 25507 (http://cers.calepa.ca.gov/). Contact the Fresno County Hazmat Compliance Program at (559) 600-3271 for more information.

- If any underground petroleum storage tank(s) are discovered during construction activities, the applicant/property owner shall apply for and secure an Underground Storage Tank Removal Permit from the Fresno County Department of Public Health, Environmental Health Division. Contact the Fresno County Hazmat Compliance Program at (559) 600-3271 for more information.

Hydrology and Water Quality

- As a measure to protect groundwater, all water wells (not intended for use) and septic systems within the property shall be properly destroyed by an appropriately licensed contractor. Contact the Fresno County Department of Public Health, Water Surveillance Program at (559) 600-3357 for more information.

Noise

- Appropriate measures should be incorporated into the construction phase of the project to minimize potentially significant short-term localized noise impacts to noise sensitive receivers caused by the operation of construction equipment. Construction specifications for the project should require that all construction equipment is maintained according to the manufacturers' specifications, and that noise generating construction equipment is equipped with mufflers. In addition, consideration should be given to limiting noise-generating construction activities to daytime hours.

- The proposed project has the potential to expose nearby residents to elevated noise levels through the use of outdoor sound amplification equipment and crowd noise during athletic and special events. Consideration should be given to the layout and design of the facilities to provide shielding of sound amplification and noise generating items from the surrounding neighbors.

If I can be of further assistance, please contact me at (559) 600-3271.

Reviewed By:

Kevin Tsuda

Kevin Tsuda, R.E.H.S.
Environmental Health Specialist
Environmental Health Division

KT

Mike Bains- Environmental Health Division (CT. 55.03)

Fresno Metropolitan Flood Control District
Capturing Stormwater since 1956

File 170.21
550. "DE", "DN"
310. "DE", "DN"

August 26, 2020

Israel Trejo
Supervising Planner
City of Fresno – Planning and Development Department
2600 Fresno Street, Room 3043
Fresno, CA 93721

Dear Mr. Trejo,

Fresno Metropolitan Flood Control District Comments for Notice of Preparation of a Subsequent Environmental Impact Report for the Copper River Ranch Project in Fresno, CA (SCH #2000021003)
Drainage Areas "DE" and "DN"

This letter is in response to the City's request for comments regarding the Notice of Preparation of a Subsequent Environmental Impact Report for the Copper River Ranch Project (Project).

The proposed project lies within the Fresno Metropolitan Flood Control District (FMFCD) boundary. FMFCD bears responsibility for storm water management within the Fresno-Clovis metropolitan area, including the area of the Project site. The community has developed and adopted a Storm Drainage and Flood Control Master Plan. In general, each property contributes its pro-rata share to the cost of the public drainage system. All properties are required to participate in the community system for everyone. It is this form of participation in the cost and/or construction of the drainage system that will mitigate the impact of development.

FMFCD has commented on the previously Draft Environmental Impact Report EIR No. 10126 and offers the following comments specific to the review of the subject mentioned Project:

The subject Project shall pay drainage fees pursuant to the Drainage Fee Ordinance prior to approval of any final maps and/or issuance of building permits at the rates in effect at the time of such approval. Please contact FMFCD for a final fee obligation prior to issuance of the construction permits within the Project area.

5469 E. Olive Avenue • Fresno, CA 93727 • (559) 456-3292 • FAX (559) 456-3194
www.fresnofloodcontrol.org

FMFCD staff has reviewed the land use changes as proposed by the Project with regards to possible impacts on the planned and/or existing public drainage systems. It has been determined that the land use is either staying the same or decreasing from what was originally planned. At this time FMFCD's system can accommodate the proposed land use changes. Lot coverage must be provided to FMFCD prior to submittal of improvements plans. Should the density of any area within the Project site be commensurate with a density higher than the system design, mitigation may be required.

The grading of proposed development within the Project site shall be designed such that there are not adverse impacts to the passage of said major storm through that development. Additionally, the development shall provide any surface flowage easements or covenants for any portions of the development area that cannot convey storm water to public right of way without crossing private property.

FMFCD will need to review and approve the final improvement plans for all development (i.e. grading, street improvement and storm drain facilities) within the boundaries of the proposed project to insure consistency with the future Storm Drainage Master Plan.

Permanent drainage service is available in those areas where Master Plan facilities exist provided the developer can verify to the satisfaction of the City and FMFCD that runoff can be safely conveyed to existing the Master Plan facilities. Permanent drainage service will not be available if the downstream Master Plan facilities are not constructed or operational and in this instance the District recommends the City require temporary drainage facilities until permanent drainage service is available. Prior to submitting any development proposal, it is recommended FMFCD be contacted for information regarding the status of the Master Plan drainage facilities and the availability of permanent drainage service.

FMFCD may require the developer to construct certain storm drain facilities as described in the Storm Drain Master Plan. The cost of construction of Master Plan facilities excluding dedication of storm drainage easements is eligible for credit against the drainage fee of the drainage area served by the facilities. A development agreement shall be executed with FMFCD to affect such credit. Reimbursement provisions, in accordance with the Drainage Fee Ordinance, will be included to the extent that developer's Master Plan costs for an individual drainage area exceed the fee of said area. Should the facilities cost for such individual development total less than the fee of said area, the difference shall be paid upon demand to the City or FMFCD.

In an effort to improve storm runoff quality, outdoor storage areas shall be constructed and maintained such that material that may generate contaminants will be prevented from contact with rainfall and runoff and thereby prevent the conveyance of contaminants in runoff into the storm drain system.

FMFCD encourages, but does not require that roof drains from non-residential development be constructed such that they are directed onto and through a landscaped grassy swale area to filter out pollutants from roof runoff.

Runoff from areas where industrial activities, product, or merchandise come into contact with and may contaminate storm water must be directed through landscaped areas or otherwise treated before discharging it off-site or into a storm drain. Roofs covering such areas are recommended. Cleaning of such areas by sweeping instead of washing is to be required unless such wash water can be directed to the sanitary sewer system. Storm drains receiving untreated runoff from such areas that directly connect to FMFCD's system will not be permitted. Loading docks, depressed areas, and areas servicing or fueling vehicles are specifically subject to these requirements. FMFCD's policy governing said industrial site NPDES program requirements are available. Contract FMFCD's Environmental Department for further information regarding these policies related to industrial site requirements.

Thank you for the opportunity to comment. Please keep our office informed on the development of this project. If you should have any questions or comments, please contact FMFCD at (559) 456-3292.

Very truly yours,

Denise Wade
Master Plan Special Projects Manager

DW/lrl

DEPARTMENT OF TRANSPORTATION
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Making Conservation
a California Way of Life

August 28, 2020

FRE-41-31.697
SCH200021003
Copper River Ranch Project

Israel Trejo, Supervising Planner
City of Fresno – Planning and Development Department
2600 Fresno Street, Room 3043
Fresno, CA 93721

Dear Mr. Trejo:

Caltrans has completed its review of the proposed General Plan changes and a Draft Traffic Impact Study Scope of Work for the Copper River Ranch expansion which includes a mix of residential and retail commercial land uses. The 130-acre project site is located on the existing northern edge of the City's limits between Friant Road, Copper Avenue, Chestnut Avenue, and Willow Avenue, approximately 3.5 miles northeast of the State Route (SR) 41 interchange at Friant Road, in the City of Fresno. We offer the following comments:

The project proposes to amend the existing General Plan designations (Medium Density Residential, Community Commercial, Medium High Density Residential, and Golf Course) and rezone a site (consisting of Low Density Residential, Medium Low Density Residential, Medium Density Residential, Community Commercial, and Urban Neighborhood) to a generally reduced density of residential development. The proposed changes include the development of approximately 466 single family residential lots. While Caltrans is supportive of mixed-use development that puts housing near employment centers, this project will build both housing and employment at the outskirts of established neighborhoods. For this reason, Caltrans agrees with the inclusion of an analysis of this project's impact on Vehicle Miles Traveled (VMT) and any potential mitigation strategies in the Traffic Impact Study (TIS).

Caltrans is aware that the lane configuration of Friant Road near SR 41 is reaching its useful limit. Additional demand of any significance may require Caltrans to slow the traffic meter at the southbound (SB) loop on-ramp, which would likely cause queuing on Friant Road. The TIS scope of work (SOW) does not attempt to address what types of impact the proposed development will have on the nearest State facilities. Likewise, improvements needed on Friant Road include the addition of bicycle facilities which would cross under SR 41. Therefore, the traffic analysis should consider how vehicles, cyclists, and pedestrians will interact. it is anticipated that project trips will regularly impact State facilities, and a more accurate indicator of current and future operation of the interchange is needed. **Caltrans recommends including the SR 41/Friant Road interchange in the TIS SOW**.

The TIS should include the fair-share impact of the project to the interchange of SR 41 at Friant Road. Caltrans understands a Copper River Ranch Impact Fee has been established. It is recommended the project contribute to this fee program, the City's Traffic Signal Mitigation Impact (TSMI) fee program, and Fresno County's Regional Traffic Mitigation Fee (RTMF) program.

If there are questions regarding these comments, contact me by email at Jamaica.Gentry@dot.ca.gov.

Sincerely,

JAMAICA GENTRY
Associate Transportation Planner
Transportation Planning - North

Appendix B

Air Quality / GHG / Energy Analysis Report

Air Quality and Greenhouse Gas/Energy Analysis Report
Copper River Ranch Project
City of Fresno, California

Prepared for:
Crawford & Bowen Planning, Inc.
113 N. Church Avenue
Visalia, CA 93291
559.840.4414
Contact: Travis Crawford,
Principal Environmental Planner

Prepared by:
Mitchell Air Quality Consulting
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559.246.3732
Contact: Dave Mitchell,
Senior Air Quality Scientist

January 7, 2021

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ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	micrograms per cubic meter
AB	Assembly Bill
AQMP	Air Quality Management Plan
ARB	California Air Resources Board
BAU	Business as Usual
CalEEMod	California Emissions Estimator Model
CAPCOA	California Air Pollution Control Officers Association
CEQA	California Environmental Quality Act
CO	carbon monoxide
CO_2	carbon dioxide
District	San Joaquin Valley Air Pollution Control District
DPM	diesel particulate matter
EMFAC	EMission FACtors Model
EPA	United States Environmental Protection Agency
Fresno COG	Fresno Council of Governments
GAMAQI	Guidance for Assessing and Mitigating Air Quality Impacts
GHG Rx	Greenhouse Gas Reduction Exchange
GHG(s)	greenhouse gas(es)
HAP	hazardous air pollutant
HRA	health risk assessment
IPCC	United Nations Intergovernmental Panel on Climate Change
MAQC	Mitchell Air Quality Consulting
$MMTCO_2e$	million metric tons of carbon dioxide equivalent
$MTCO_2e$	metric tons of carbon dioxide equivalent
NO_X	nitrogen oxides
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
ppb	parts per billion
ppm	parts per million
ROG	reactive organic gases
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SJVAPCD	San Joaquin Valley Air Pollution Control District
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_X	sulfur oxides
VOC	volatile organic compounds

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SECTION 1: EXECUTIVE SUMMARY

1.1—Purpose and Methods of Analysis

The following air quality and greenhouse gas (GHG) and energy analyses were prepared to evaluate whether the estimated criteria air pollutants, toxic air contaminants (TACs), and GHG emissions generated from the Copper River Ranch Project (project) would cause significant impacts to air resources in the project area. This assessment was conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000, et seq.). The methodology follows the Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI) prepared by the San Joaquin Valley Air Pollution Control District (SJVAPCD or District) for quantification of emissions and evaluation of potential impacts to air resources (SJVAPCD 2015a), and the SJVAPCD's Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA (SJVAPCD 2009). An energy analysis was prepared to satisfy the requirements of CEQA Guidelines Appendix F: Energy Conservation.

1.2—Project Description

Originally approved in 2003, the Environmental Impact Report (EIR) No. 10126 prepared for the project analyzed the impacts of 2,837 residential units on 706 acres, 249,113 square feet (approximately 60 acres) of mixed-use office/commercial land uses, a 2.61-acre City Park, and a 3.30-acre Wastewater Treatment Plant in the general area bounded by Friant Road, Silaxo Avenue alignment, Willow Avenue, and Copper Avenue.

The project has been in a state of development since its approval, but there have been changes with respect to subdivision layouts, number of units, and locations of office/commercial land uses. Moreover, the project proposes to develop adjacent areas (approximately 130 acres) not previously analyzed. At buildout, the project with the expanded boundaries proposes to develop approximately 2,406 single-family residential units and 849 multi-family residential units for a total of 3,255 residential units. At buildout, the project with the expanded boundaries proposed to develop approximately 254,423 square feet of mixed-use office/commercial land uses, a 2.61-acre City Park, and a 3.30-acre Wastewater Treatment Plant. As a result of the expanded boundaries and proposed land uses, the project with the expanded boundaries is projected to yield approximately 418 additional residential units, and 5,310 square feet of additional mixed-use commercial/office land uses.

The environmental baseline for air quality includes all completed development within the Copper River Ranch plan area that was occupied at the time the Notice of Preparation was issued. In all, 1,159 single-family residences have been completed. Not included in the baseline are remaining units in eight single-family subdivisions that have been partially built out, and a 492-unit apartment complex at East Copper Avenue and North Friant Road that was already under construction at the time the Notice of Preparation (NOP) was issued. In addition, commercial development at the northeast corner of East Copper Avenue and North Maple Avenue has been partially built out. Another category of development not in the baseline and requiring analysis comprises projects with approved tentative maps or site plans that require no additional discretionary approvals from the

City. These projects all required land use entitlements to proceed and could be constructed without approval of the revised project and the Supplemental Environmental Impact Report (SEIR).

In total, there are 241 units in subdivisions remaining to be constructed in areas with approved final maps, 21 units in an approved tentative map, and 641 dwelling units in areas with tentative tract maps in process. The final category comprises areas in which no tract map or site plan has been submitted. Parcels yet to have a tentative tract submitted could include an estimated 344 dwelling units. A total of 1,247 single-family dwelling units and 849 multi-family units are included in the analysis. As for commercial developments, site plans and conditional use permits (CUPs) have been approved for neighborhood shopping centers at the northeast corner of North Friant Road and East Copper Avenue and the northeast corner of East Copper Avenue and North Maple Avenue. These projects require no additional discretionary approvals by the City. The area designated for commercial development at the northwest of East Copper Avenue and North Willow Avenue currently has no development plans in process. All undeveloped and partially developed commercially designated parcels, including those that are fully entitled, are include in the analysis to determine the impact on air quality and climate change compared with existing conditions at the time the NOP was issued.

The project proposes changes in land use and zoning on a number of parcels to reflect both the actual built-out conditions of Copper River Ranch today and to identify any proposed land use designations and zone districts that are planned for the future. The changes result in an overall net decrease in development density allowed by the existing General Plan designations and a relatively small increase in the number of dwelling units that can constructed within the expanded plan area. See the SEIR Project Description for a complete list and location of the proposed changes.

The project's regional vicinity location is shown in Figure 1; an aerial view of the local vicinity is provided in Figure 2; and the project site map for the entire site is provided in Figure 3.

1.3—Summary of Analysis Results

The following is a summary of the analysis results. As shown below, the project would result in significant impacts for air quality impacts and less than significant for the GHG impact criteria analyzed.

Impact AIR-1: The project would conflict with or obstruct implementation of the applicable air quality plan. **Significant impact.**

Impact AIR-2: The project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors). **Significant impact.**

Impact AIR-3: The project would not expose sensitive receptors to substantial pollutant concentrations. **Less than significant impact.**

Impact AIR-4: The project would not create objectionable odors affecting a substantial number of people. **Less than significant impact.**

Impact GHG-1: The project would not generate direct or indirect greenhouse gas emissions that would result in a significant impact on the environment. **Less than significant impact.**

Impact GHG-2: The project would not conflict with any applicable plan, policy or regulation of an agency adopted to reduce the emissions of greenhouse gases. **Less than significant impact**.

Impact ENERGY-1: The project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation. **Less than significant impact.**

Impact ENERGY-2: The project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. **Less than significant impact.**

1.4—Standard Conditions and Mitigation Measures Applied to the Project

The project will comply with regulations that reduce air quality impacts including Regulation VIII—Fugitive PM_{10} Prohibitions, Rule 9510—Indirect Source Review, and Rule 4901 Residential Woodburning. These regulations are enforced by the San Joaquin Valley Air Pollution Control District (SJVAPCD). No mitigation or standard condition is required to ensure compliance.

The following mitigation measure is included to reduce regional criteria pollutant emissions:

MM AIR-2 The air quality mitigation measures adopted in the Copper River Ranch 2002 DEIR shall apply to new projects within the plan area, except for those measures that have been superseded by more stringent regulations or are part of City of Fresno Development Code.

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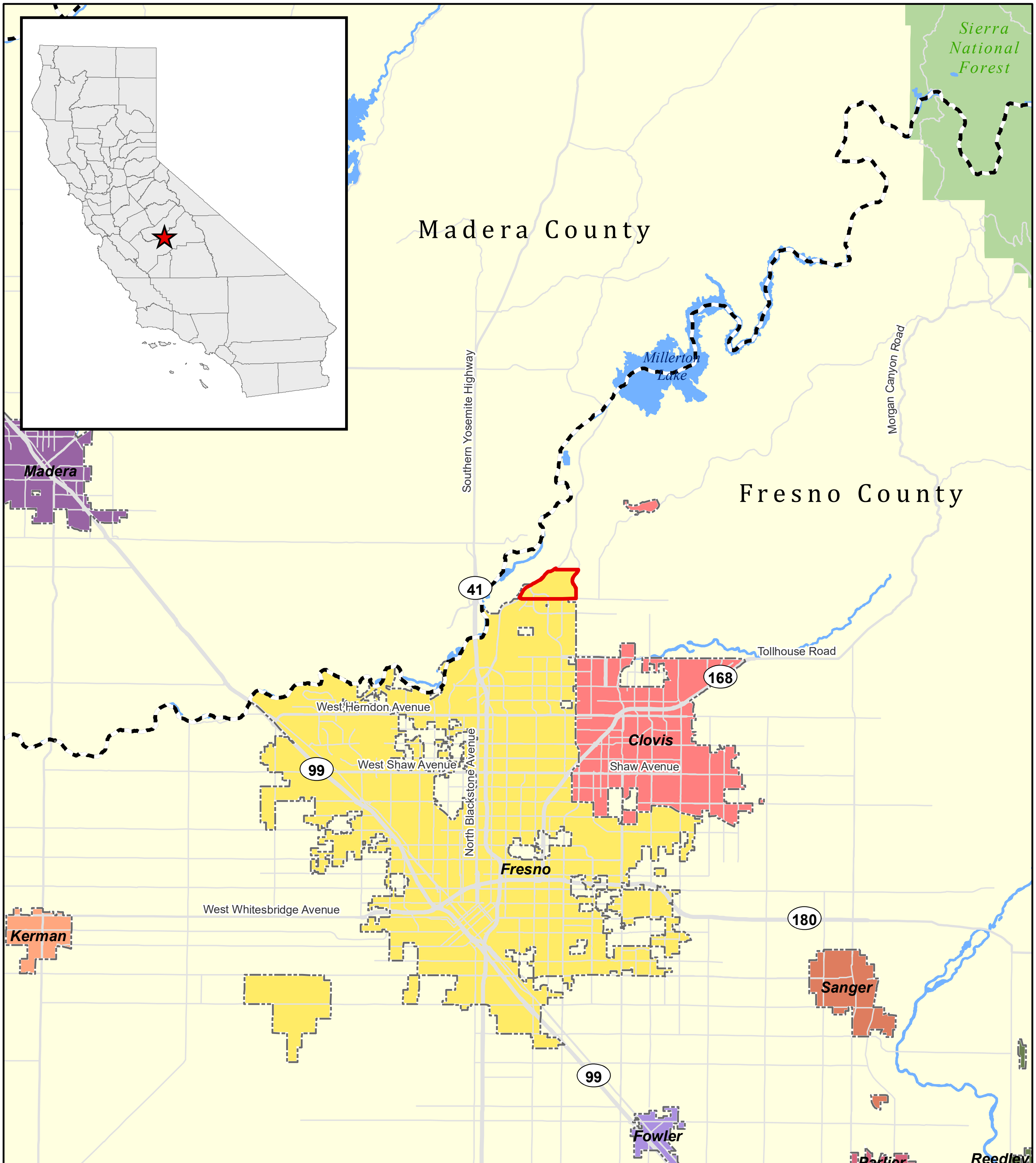

LEGEND

- Project Location
- Incorporated Area
- County Boundary

Sources: California State GeoPortal; Open StreetMap. Map date: November 6, 2020.

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Miles

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CRAWFORD & BOWEN PLANNING, INC.
AIR QUALITY AND GREENHOUSE GAS/ENERGY ANALYSIS REPORT
COPPER RIVER RANCH PROJECT SEIR

Figure 1. Regional Location Map

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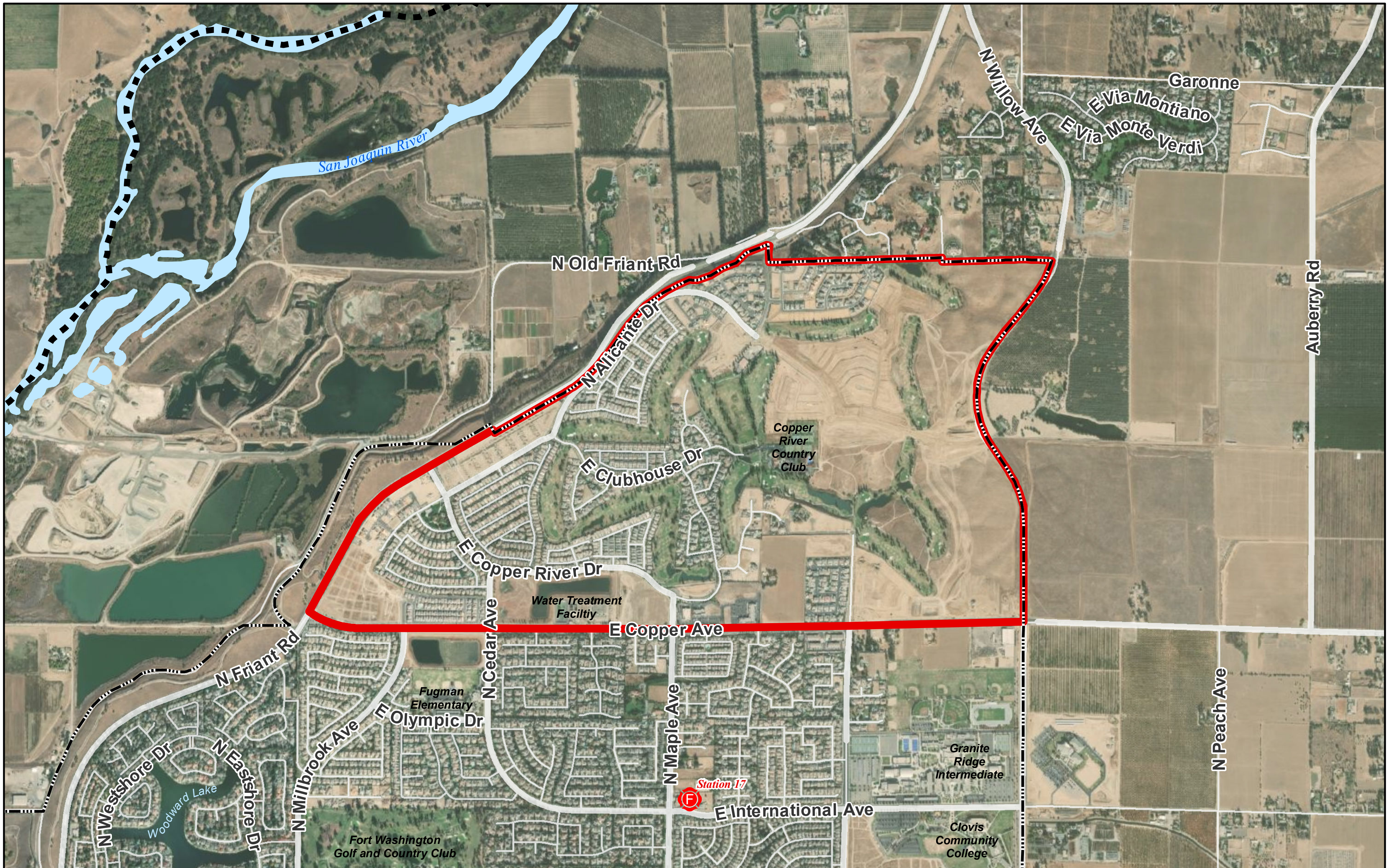

LEGEND

Project Boundary

Fresno City Boundary

Fresno County Boundary

Sources: Fresno County GIS; California State Geoportal; Google Maps. Map date: November 6, 2020.

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AIR QUALITY AND GREENHOUSE GAS/ENERGY ANALYSIS REPORT
COPPER RIVER RANCH PROJECT SEIR

Figure 2. Vicinity Map

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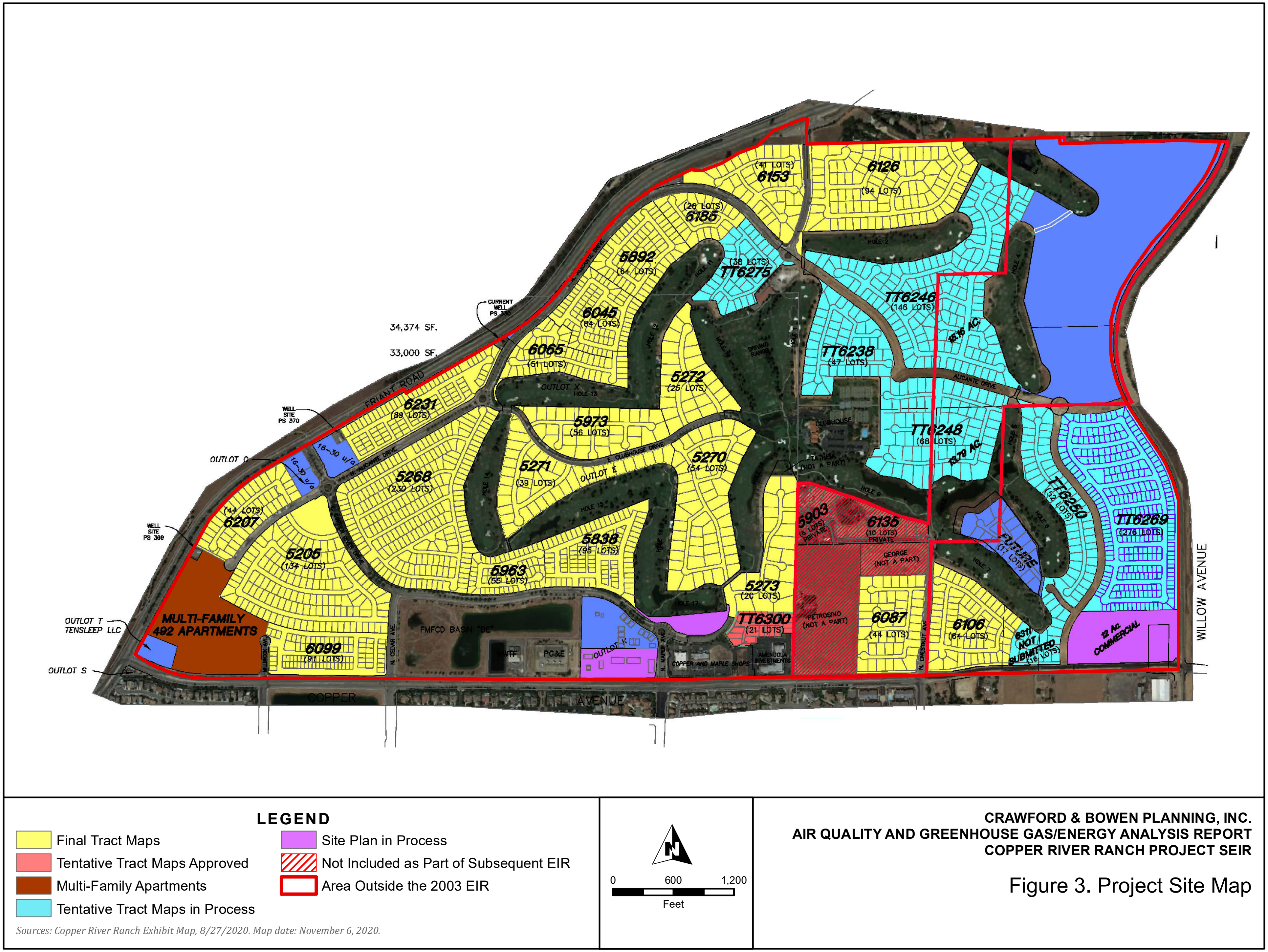

Sources: Copper River Ranch Exhibit Map, 8/27/2020. Map date: November 6, 2020.

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AIR QUALITY AND GREENHOUSE GAS/ENERGY ANALYSIS REPORT
COPPER RIVER RANCH PROJECT SEIR

Figure 3. Project Site Map

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SECTION 2: AIR QUALITY SETTING

2.1—Environmental Setting

Air quality impacts are both local and regional. Regional and local air quality is impacted by topography, dominant airflows, atmospheric inversions, location, and season. The project is located in the San Joaquin Valley Air Basin (Air Basin), which experiences some of the most challenging environmental conditions for air quality in the nation. The following section describes these conditions as they pertain to the Air Basin. The information in this section is primarily from the SJVAPCD's GAMAQI (SJVAPCD 2015a).

2.1.1 - San Joaquin Valley Air Basin

Topography

The topography of a region is important for air quality because mountains can block airflow that would help disperse pollutants, and can channel air from upwind areas that transports pollutants to downwind areas. The SJVAPCD covers the entirety of the Air Basin. The Air Basin is generally shaped like a bowl. It is open in the north and is surrounded by mountain ranges on all other sides. The Sierra Nevada mountains are along the eastern boundary (8,000 to 14,000 feet in elevation), the Coast Ranges are along the western boundary (3,000 feet in elevation), and the Tehachapi Mountains are along the southern boundary (6,000 to 8,000 feet in elevation).

Climate

The climate is important for air quality because of differences in the atmosphere's ability to trap pollutants close to the ground, which creates adverse air quality; inversely, the atmosphere's ability to rapidly disperse pollutants over a wide area prevents high concentrations from accumulating under different climatic conditions. The Air Basin has an "inland Mediterranean" climate and is characterized by long, hot, dry summers and short, foggy winters. Sunlight can be a catalyst in the formation of some air pollutants (such as ozone); the Air Basin averages over 260 sunny days per year.

Inversion layers are significant in determining pollutant concentrations. Concentration levels can be related to the amount of mixing space below the inversion. Temperature inversions that occur on the summer days are usually encountered 2,000 to 2,500 feet above the valley floor. In winter months, overnight inversions occur 500 to 1,500 feet above the valley floor.

Dominant airflows provide the driving mechanism for transport and dispersion of air pollution. The mountains surrounding the Air Basin form natural horizontal barriers to the dispersion of air contaminants. The wind generally flows south-southeast through the valley, through the Tehachapi Pass and into the Mojave Desert Air Basin portion of Kern County. As the wind moves through the Air Basin, it mixes with the air pollution generated locally, generally transporting air pollutants from the north to the south in the summer and in a reverse flow in the winter.

The winds and unstable air conditions experienced during the passage of winter storms result in periods of low pollutant concentrations and excellent visibility. Between winter storms, high pressure and light winds allow cold moist air to pool on the San Joaquin Valley floor. This creates strong, low-level temperature inversions and very stable air conditions, which can lead to Tule fog. Wintertime conditions favorable to fog formation are also conditions favorable to high concentrations of $PM_{2.5}$ and PM_{10}.

2.2—Regulatory Setting

Air pollutants are regulated to protect human health and for secondary effects such as visibility and building soiling. The Clean Air Act of 1970 tasks the United States Environmental Protection Agency (EPA) with setting air quality standards. The State of California also sets air quality standards, which are in some cases more stringent than federal standards, in addition to addressing additional pollutants. The following section describes these federal and state standards and the health effects of the regulated pollutants.

2.2.1 - Clean Air Act

Congress established much of the basic structure of the Clean Air Act (CAA) in 1970, and made major revisions in 1977 and 1990. Six common air pollutants (also known as criteria pollutants) are addressed in the CAA: particulate matter, ground-level ozone, carbon monoxide, sulfur oxides, nitrogen oxides, and lead. The EPA labels these pollutants as criteria air pollutants because they are regulated by developing human health-based and/or environmentally based criteria (science-based guidelines), which sets permissible levels. The set of limits based on human health are called primary standards. Another set of limits intended to prevent environmental and property damage are called secondary standards (EPA 2014). The federal standards are called National Ambient Air Quality Standards (NAAQS). The air quality standards provide benchmarks for determining whether air quality is healthy at specific locations and whether development activities will cause or contribute to a violation of the standards. The criteria pollutants are:

- Ozone
- Nitrogen dioxide (NO_2)
- Lead
- Particulate matter (PM_{10} and $PM_{2.5}$)
- Carbon monoxide (CO)
- Sulfur dioxide

The federal standards were set to protect public health, including that of sensitive individuals; thus, the EPA is tasked with updating the standards as more medical research is available regarding the health effects of the criteria pollutants. Primary federal standards are the levels of air quality necessary, with an adequate margin of safety, to protect the public health (ARB 2016).

2.2.2 - California Clean Air Act

The California Legislature enacted the California Clean Air Act (CCAA) in 1988 to address air quality issues of concern not adequately addressed by the federal CAA at the time. California's air quality problems were and continue to be some of the most severe in the nation, and required additional actions beyond the federal mandates. The California Air Resources Board (ARB) administers California Ambient Air Quality Standards (CAAQS) for the 10 air pollutants designated in the CCAA. The 10 state air pollutants are the six federal standards listed above as well visibility-reducing particulates, hydrogen sulfide, sulfates, and vinyl chloride. The EPA authorized California to adopt its own regulations for motor vehicles and other sources that are more stringent than similar federal regulations implementing the CAA. Generally, the planning requirements of the CCAA are less stringent than the federal CAA; therefore, consistency with the CAA will also demonstrate consistency with the CCAA.

2.2.3 - Toxic Air Contaminants

A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. There are no ambient air quality standards for TAC emissions. TACs are regulated in terms of health risks to individuals and populations exposed to the pollutants. The 1990 Clean Air Act Amendments significantly expanded the EPA's authority to regulate hazardous air pollutants (HAP). Section 112 of the Clean Air Act lists 187 hazardous air pollutants to be regulated by source category. Authority to regulate these pollutants was delegated to individual states. ARB and local air districts regulate TACs and HAPs in California.

2.2.4 - Air Pollutant Description and Health Effects

The federal and state ambient air quality standards, relevant effects, properties, and sources of the pollutants are summarized in Table 1.

Table 1: Description of Air Pollutants

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Ozone	1 Hour	0.09 ppm	—	Irritate respiratory system; reduce lung function; breathing pattern changes; reduction of breathing capacity; inflame and damage cells that line the lungs; make lungs more susceptible to infection; aggravate asthma; aggravate other chronic lung diseases; cause permanent lung damage; some immunological changes; increased mortality risk; vegetation and property damage.	Ozone is a photochemical pollutant as it is not emitted directly into the atmosphere, but is formed by a complex series of chemical reactions between volatile organic compounds (VOC), NO_X, and sunlight. Ozone is a regional pollutant that is generated over a large area and is transported and spread by the wind.	Ozone is a secondary pollutant; thus, it is not emitted directly into the lower level of the atmosphere. The primary sources of ozone precursors (VOC and NO_X) are mobile sources (on-road and off-road vehicle exhaust).
	8 Hour	0.070 ppm	0.070 ppm[f]			
Carbon monoxide (CO)	1 Hour	20 ppm	35 ppm	Ranges depending on exposure: slight headaches; nausea; aggravation of angina pectoris (chest pain) and other aspects of coronary heart disease; decreased exercise tolerance in persons with peripheral vascular disease and lung disease; impairment of central nervous system functions; possible increased risk to fetuses; death.	CO is a colorless, odorless, toxic gas. CO is somewhat soluble in water; therefore, rainfall and fog can suppress CO conditions. CO enters the body through the lungs, dissolves in the blood, replaces oxygen as an attachment to hemoglobin, and reduces available oxygen in the blood.	CO is produced by incomplete combustion of carbon-containing fuels (e.g., gasoline, diesel fuel, and biomass). Sources include motor vehicle exhaust, industrial processes (metals processing and chemical manufacturing), residential wood burning, and natural sources.
	8 Hour	9.0 ppm	9 ppm			
Nitrogen dioxide[b] (NO_2)	1 Hour	0.18 ppm	0.100 ppm	Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; contribution to atmospheric discoloration; increased visits to hospital for respiratory illnesses.	During combustion of fossil fuels, oxygen reacts with nitrogen to produce nitrogen oxides—NO_X (NO, NO_2, NO_3, N_2O, N_2O_3, N_2O_4, and N_2O_5). NO_X is a precursor to ozone, PM_{10}, and $PM_{2.5}$ formation. NO_X can react with compounds to form nitric acid and related small particles and result in PM-related health effects.	NO_X is produced in motor vehicle internal combustion engines and fossil fuel-fired electric utility and industrial boilers. Nitrogen dioxide (NO_2) forms quickly from NO_X emissions. NO_2 concentrations near major roads can be 30 to 100 percent higher than those at monitoring stations.
	Annual	0.030 ppm	0.053 ppm			

Table 1 (cont.): Description of Air Pollutants

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Sulfur dioxide[c] (SO_2)	1 Hour	0.25 ppm	0.075 ppm	Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma. Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient sulfur dioxide levels. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor.	Sulfur dioxide is a colorless, pungent gas. At levels greater than 0.5 ppm, the gas has a strong odor, similar to rotten eggs. Sulfur oxides (SO_X) include sulfur dioxide and sulfur trioxide. Sulfuric acid is formed from sulfur dioxide, which can lead to acid deposition and can harm natural resources and materials. Although sulfur dioxide concentrations have been reduced to levels well below state and federal standards, further reductions are desirable because sulfur dioxide is a precursor to sulfate and PM_{10}.	Human-caused sources include fossil-fuel combustion, mineral ore processing, and chemical manufacturing. Volcanic emissions are a natural source of sulfur dioxide. The gas can also be produced in the air by dimethylsulfide and hydrogen sulfide. Sulfur dioxide is removed from the air by dissolution in water, chemical reactions, and transfer to soils and ice caps. The sulfur dioxide levels in the State are well below the maximum standards.
	3 Hour	—	0.5 ppm			
	24 Hour	0.04 ppm	0.14 (for certain areas)			
	Annual	—	0.030 ppm (for certain areas)			
Particulate matter (PM_{10})	24 Hour	50 $\mu g/m^3$	150 $\mu g/m^3$	• Short-term exposure (hours/days): irritation of the eyes, nose, throat; coughing; phlegm; chest tightness; shortness of breath; aggravates existing lung disease, causing asthma attacks and acute bronchitis; those with heart disease can suffer heart attacks and arrhythmias. • Long-term exposure: reduced lung function; chronic bronchitis; changes in lung morphology; death.	Suspended particulate matter is a mixture of small particles that consist of dry solid fragments, droplets of water, or solid cores with liquid coatings. The particles vary in shape, size, and composition. PM_{10} refers to particulate matter that is between 2.5 and 10 microns in diameter (1 micron is one-millionth of a meter). $PM_{2.5}$ refers to particulate matter that is 2.5 microns or less in diameter, about one-thirtieth the size of the average human hair.	Stationary sources include fuel or wood combustion for electrical utilities, residential space heating, and industrial processes; construction and demolition; metals, minerals, and petrochemicals; wood products processing; mills and elevators used in agriculture; erosion from tilled lands; waste disposal; and recycling. Mobile or transportation-related sources are from vehicle exhaust and road dust. Secondary particles form from reactions in the atmosphere.
	Mean	20 $\mu g/m^3$	—			
Particulate matter ($PM_{2.5}$)	24 Hour	—	35 $\mu g/m^3$			
	Annual	12 $\mu g/m^3$	12.0 $\mu g/m^3$			
Visibility-reducing particles	8 Hour	See note below[d]				

Table 1 (cont.): Description of Air Pollutants

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Sulfates	24 Hour	25 µg/m³	—	(a) Decrease in ventilatory function; (b) aggravation of asthmatic symptoms; (c) aggravation of cardio-pulmonary disease; (d) vegetation damage; (e) degradation of visibility; (f) property damage.	The sulfate ion is a polyatomic anion with the empirical formula SO_4^{2-}. Sulfates occur in combination with metal and/or hydrogen ions. Many sulfates are soluble in water.	Sulfates are particulates formed through the photochemical oxidation of sulfur dioxide. In California, the main source of sulfur compounds is combustion of gasoline and diesel fuel.
Lead[e]	30-day	1.5 µg/m³	—	Lead accumulates in bones, soft tissue, and blood and can affect the kidneys, liver, and nervous system. It can cause impairment of blood formation and nerve conduction, behavior disorders, mental retardation, neurological impairment, learning deficiencies, and low IQ.	Lead is a solid heavy metal that can exist in air pollution as an aerosol particle component. Leaded gasoline was used in motor vehicles until around 1970. Lead concentrations have not exceeded state or federal standards at any monitoring station since 1982.	Lead ore crushing, lead-ore smelting, and battery manufacturing are currently the largest sources of lead in the atmosphere in the United States. Other sources include dust from soils contaminated with lead-based paint, solid waste disposal, and crustal physical weathering.
	Quarter	—	1.5 µg/m³			
	Rolling 3-month average	—	0.15 µg/m³			
Vinyl chloride[e]	24 Hour	0.01 ppm	—	Short-term exposure to high levels of vinyl chloride in the air causes central nervous system effects, such as dizziness, drowsiness, and headaches. Epidemiological studies of occupationally exposed workers have linked vinyl chloride exposure to development of a rare cancer, liver angiosarcoma, and have suggested a relationship between exposure and lung and brain cancers.	Vinyl chloride, or chloroethene, is a chlorinated hydrocarbon and a colorless gas with a mild, sweet odor. In 1990, ARB identified vinyl chloride as a toxic air contaminant and estimated a cancer unit risk factor.	Most vinyl chloride is used to make polyvinyl chloride plastic and vinyl products, including pipes, wire and cable coatings, and packaging materials. It can be formed when plastics containing these substances are left to decompose in solid waste landfills. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites.
Hydrogen sulfide	1 Hour	0.03 ppm	—	High levels of hydrogen sulfide can cause immediate respiratory arrest. It can irritate the eyes and respiratory tract and cause	Hydrogen sulfide (H_2S) is a flammable, colorless, poisonous gas that smells like rotten eggs.	Manure, storage tanks, ponds, anaerobic lagoons, and land application sites are the primary sources of hydrogen sulfide.

Table 1 (cont.): Description of Air Pollutants

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
				headache, nausea, vomiting, and cough. Long exposure can cause pulmonary edema.		Anthropogenic sources include the combustion of sulfur-containing fuels (oil and coal).
Volatile organic compounds (VOC)		There are no state or federal standards for VOCs because they are not classified as criteria pollutants.		Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations because of interference with oxygen uptake. In general, concentrations of VOCs are suspected to cause eye, nose, and throat irritation; headaches; loss of coordination; nausea; and damage to the liver, the kidneys, and the central nervous system. Many VOCs have been classified as toxic air contaminants.	Reactive organic gases (ROG), or VOCs, are defined as any compound of carbon—excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate—that participates in atmospheric photochemical reactions. Although there are slight differences in the definition of ROG and VOCs, the two terms are often used interchangeably.	Indoor sources of VOCs include paints, solvents, aerosol sprays, cleansers, tobacco smoke, etc. Outdoor sources of VOCs are from combustion and fuel evaporation. A reduction in VOC emissions reduces certain chemical reactions that contribute to the formulation of ozone. VOCs are transformed into organic aerosols in the atmosphere, which contribute to higher PM_{10} and lower visibility.
Diesel particulate matter (DPM)		There are no ambient air quality standards for DPM.		Some short-term (acute) effects of DPM exposure include eye, nose, throat, and lung irritation, coughs, headaches, light-headedness, and nausea. Studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems. Human studies on the carcinogenicity of DPM demonstrate an increased risk of lung cancer, although the increased risk cannot be clearly attributed to diesel exhaust exposure.	DPM is a source of $PM_{2.5}$—diesel particles are typically 2.5 microns and smaller. Diesel exhaust is a complex mixture of thousands of particles and gases that is produced when an engine burns diesel fuel. Organic compounds account for 80 percent of the total particulate matter mass, which consists of compounds such as hydrocarbons and their derivatives, and polycyclic aromatic hydrocarbons and their derivatives. Fifteen polycyclic aromatic hydrocarbons are confirmed carcinogens, a number of which are found in diesel exhaust.	Diesel exhaust is a major source of ambient particulate matter pollution in urban environments. Typically, the main source of DPM is from combustion of diesel fuel in diesel-powered engines. Such engines are in on-road vehicles such as diesel trucks, off-road construction vehicles, diesel electrical generators, and various pieces of stationary construction equipment.

Table 1 (cont.): Description of Air Pollutants

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources

Notes:

ppm = parts per million (concentration) µg/m^3 = micrograms per cubic meter Annual = Annual Arithmetic Mean 30-day = 30-day average Quarter = Calendar quarter

[a] Federal standard refers to the primary national ambient air quality standard, or the levels of air quality necessary, with an adequate margin of safety to protect the public health. All standards listed are primary standards except for 3 Hour SO_2, which is a secondary standard. A secondary standard is the level of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[b] To attain the 1-hour NO_2 national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb) (0.100 ppm).

[c] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[d] Visibility-reducing particles: In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are “extinction of 0.23 per kilometer” and “extinction of 0.07 per kilometer” for the statewide and Lake Tahoe Air Basin standards, respectively.

[e] The ARB has identified lead and vinyl chloride as “toxic air contaminants” with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[f] The EPA Administrator approved a revised 8-hour ozone standard of 0.07 ppb on October 1, 2015. The new standard went into effect 60 days after publication of the Final Rule in the Federal Register. The Final Rule was published in the Federal Register on October 26, 2015 and became effective on December 28, 2015.

Source of effects, properties, and sources: South Coast Air Quality Management District 2007; California Environmental Protection Agency 2002; California Air Resources Board 2009a; U.S. Environmental Protection Agency 2003, 2010, 2011, 2012, 2018a, 2019, and 2020; National Toxicology Program 2016.

Source of standards: California Air Resources Board 2013a.

Several pollutants listed in Table 1 are not addressed in this analysis. Analysis of lead, hydrogen sulfide, sulfates, and vinyl chloride are not included in this report because no new sources of these pollutant emissions are anticipated with the project. Visibility-reducing particles are not explicitly addressed in this analysis because particulate matter is addressed as PM_{10} and $PM_{2.5}$.

Toxic Air Contaminants Health Effects

A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. There are no ambient air quality standards for TAC emissions. TACs are regulated in terms of health risks to individuals and populations exposed to the pollutants. The 1990 Clean Air Act Amendments significantly expanded the EPA's authority to regulate hazardous air pollutants. Section 112 of the Clean Air Act lists 187 hazardous air pollutants to be regulated by source category. Authority to regulate these pollutants was delegated to individual states. ARB and local air districts regulate TACs and hazardous air pollutants in California.

Exposures to TACs emissions can have both chronic long-term (over a year or longer) and acute short-term (over a period of hours) health impacts. The TACs of greatest concern are those that cause serious health problems or affect many people. Health problems can include cancer, respiratory irritation, nervous system problems, and birth defects. Some health problems occur very soon after a person inhales a TAC. These immediate effects may be minor, such as watery eyes, or they may be serious, such as life-threatening lung damage. Other health problems may not appear until many months or years after a person's first exposure to the TAC. Cancer is one example of a delayed health problem.

A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. The California Almanac of Emissions and Air Quality—2009 Edition (ARB 2009b) presents the relevant concentration and cancer risk data for the ten TACs that pose the most substantial health risk in California based on available data. The ten TACs are acetaldehyde, benzene, 1.3-butadiene, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter (DPM).

Some studies indicate that DPM poses the greatest health risk among the TACs listed above. A 10-year research program (ARB 1998) demonstrated that DPM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to DPM poses a chronic health risk. In addition to increased risk of lung cancer, exposure to diesel exhaust can have other health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause a cough, headaches, lightheadedness, and nausea. Diesel exhaust is a major source of fine particulate pollution as well, and studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems.

DPM differs from other TACs in that it is not a single substance, but a complex mixture of hundreds of substances. Although DPM is emitted by diesel-fueled, internal combustion engines, the composition of the emissions varies, depending on: engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Unlike the other TACs, however, no ambient monitoring data are available for DPM because no routine measurement method currently exists. The ARB has made preliminary concentration estimates based on a DPM exposure method. This method uses the ARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of DPM.

Health risks attributable to the top 10 TACs listed above are available from the ARB as part of its California Almanac of Emissions and Air Quality. As shown therein for data collected at the First Street air monitoring station in Fresno, cancer risks attributable to all of the listed TACs above with the exception of DPM have declined about 70 percent from the mid-1990s to 2007. Risks associated with DPM emissions are provided only for the year 2000 and have not been updated in the Almanac. Although more recent editions of the Almanac do not provide estimated risk, they do provide emission inventories for DPM for later years. The 2013 Almanac provides emission inventory trends for DPM from 2000 through 2035. The same Almanac reports that DPM emissions were reduced in the SJVAB from 16 tons per day in 2000 to 11 tons per day in 2010, a 31 percent decrease. DPM emissions in the San Joaquin Valley are projected to decrease to 6 tons per day by 2015, a 62 percent reduction from year 2000 levels. ARB predicts a reduction to three tons per day by 2035, which would be an 81 percent reduction from year 2000 levels. Continued implementation of the ARB's Diesel Risk Reduction Plan is expected to provide continued reductions in DPM through 2020 and beyond through regulations on this source (ARB 2013b).

Asbestos

Asbestos is the name given to a number of naturally occurring fibrous silicate minerals that have been mined for their useful properties such as thermal insulation, chemical and thermal stability, and high tensile strength. The three most common types of asbestos are chrysotile, amosite, and crocidolite. Chrysotile, also known as white asbestos, is the most common type of asbestos found in buildings. Chrysotile makes up approximately 90 to 95 percent of all asbestos contained in buildings in the United States. Exposure to asbestos is a health threat; exposure to asbestos fibers may result in health issues such as lung cancer, mesothelioma (a rare cancer of the thin membranes lining the lungs, chest, and abdominal cavity), and asbestosis (a non-cancerous lung disease that causes scarring of the lungs). Exposure to asbestos can occur during demolition or remodeling of buildings that were constructed prior to the 1977 ban on asbestos for use in buildings. Exposure to naturally occurring asbestos can occur during soil-disturbing activities in areas with deposits present. No naturally occurring asbestos is located near the project site.

2.3—Existing Air Quality Conditions

The local air quality can be evaluated by reviewing relevant air pollution concentrations near the project area. Table 2 summarizes 2017 through 2019 published monitoring data, which is the most recent three-year period available. Data were obtained from the closest air monitoring station with data available. The table displays data from the Clovis-North Villa monitoring station (located approximately 5.5 miles south of the project site). The monitoring station is the closest to the project site for each pollutant. The data show that during the past few years, the project area has exceeded the standards for ozone (state and national), PM_{10} (state), and $PM_{2.5}$ (national). The data in the table reflect the concentration of the pollutants in the air, measured using air monitoring equipment. This differs from emissions, which are calculations of a pollutant being emitted over a certain period. No recent monitoring data for Fresno County or the San Joaquin Valley Air Basin were available for CO or SO_2. Generally, no monitoring is conducted for pollutants that are no longer likely to exceed ambient air quality standards.

Table 2: Air Quality Monitoring Summary

Air Pollutant	Averaging Time	Item	2017	2018	2019
Ozone[1]	1 Hour	Max 1 Hour (ppm)	**0.138**	**0.121**	**0.103**
		Days > State Standard (0.09 ppm)	13	13	6
Ozone[1]	8 Hour	Max 8 Hour (ppm)	**0.100**	**0.094**	**0.079**
		Days > State Standard (0.07 ppm)	50	49	30
		Days > National Standard (0.070 ppm)	47	43	10
Carbon monoxide (CO)	8 Hour	Max 8 Hour (ppm)	ND	ND	ND
		Days > State Standard (9.0 ppm)	ND	ND	ND
		Days > National Standard (9 ppm)	ND	ND	ND
Nitrogen dioxide (NO_2)[1]	Annual	Annual Average (ppm)	0.010	0.090	0.080
	1 Hour	Max 1 Hour (ppm)	0.0588	0.0645	0.0572
		Days > State Standard (0.18 ppm)	0	0	0
Sulfur dioxide (SO_2)	Annual	Annual Average (ppm)	ND	ND	ND
	24 Hour	Max 24 Hour (ppm)	ND	ND	ND
		Days > State Standard (0.04 ppm)	ND	ND	ND
Inhalable coarse particles (PM_{10})[1]	Annual	Annual Average (µg/m^3)	**36.2**	**39.4**	**32.6**
	24 hour	24 Hour (µg/m^3)	**103.2**	**114.6**	**150.9**
		Days > State Standard (50 µg/m^3)	ID	90.4	65.9
		Days > National Standard (150 µg/m^3)	0	0	0
Fine particulate matter ($PM_{2.5}$)[1]	Annual	Annual Average (12 µg/m^3)	**13.2**	**14.7**	**10.2**
	24 Hour	24 Hour (µg/m^3)	**69.5**	**82.3**	**39.1**
		Days > National Standard (35 µg/m^3)	19.2	27.1	10.0

Notes:
> = exceed ppm = parts per million µg/m^3 = micrograms per cubic meter
ID = insufficient data ND = no data max = maximum
Bold = exceedance
State Standard = California Ambient Air Quality Standard
National Standard = National Ambient Air Quality Standard
[1] Clovis-North Villa Monitoring Station
Source: California Air Resources Board 2020a.

The health impacts of the various air pollutants of concern can be presented in a number of ways. The clearest of these is comparable with the state and federal ozone standards. If concentrations are below the standard, it is safe to say that no significant health impact would occur to anyone. When concentrations exceed the standard, impacts will vary based on the amount by which the standard is exceeded. The EPA developed the Air Quality Index (AQI) as an easy-to-understand measure of health impacts compared with concentrations in the air. Table 3 provides a description of the health impacts of ozone at different concentrations.

Table 3: Air Quality Index and Health Effects from Ozone

Air Quality Index/ 8-hour Ozone Concentration	Health Effects Description
AQI 51–100—Moderate	**Sensitive Groups:** Children and people with asthma are the groups most at risk.
Concentration 55–70 ppb	**Health Effects Statements:** Unusually sensitive individuals may experience respiratory symptoms.
	Cautionary Statements: Unusually sensitive people should consider limiting prolonged outdoor exertion.
AQI 101–150—Unhealthy for Sensitive Groups	**Sensitive Groups:** Children and people with asthma are the groups most at risk.
Concentration 71–85 ppb	**Health Effects Statements:** Increasing likelihood of respiratory symptoms and breathing discomfort in active children and adults and people with respiratory disease, such as asthma.
	Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.
AQI 151–200—Unhealthy	**Sensitive Groups:** Children and people with asthma are the groups most at risk.
Concentration 86–105 ppb	**Health Effects Statements:** Greater likelihood of respiratory symptoms and breathing difficulty in active children and adults and people with respiratory disease, such as asthma; possible respiratory effects in general population.
	Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.
AQI 201–300—Very Unhealthy	**Sensitive Groups:** Children and people with asthma are the groups most at risk.
Concentration 106–200 ppb	**Health Effects Statements:** Increasingly severe symptoms and impaired breathing likely in active children and adults and people with respiratory disease, such as asthma; increasing likelihood of respiratory effects in general population.
	Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion.

Source: Air Now 2016.

The AQI for the 8-hour ozone standard is based on the current NAAQS of 70 parts per billion (ppb). Based on the AQI scale for the 8-hour ozone standard, the project area experienced no days in the last three years that would be categorized as very unhealthy (AQI 201–250), and as many as 117 days that were unhealthy (AQI 151–200) or unhealthy for sensitive groups (AQI 101–150), violating the 70-ppb standard as measured at the Clovis -North Villa monitoring station. The highest reading was 100 parts per billion (ppb) in 2017 (AQI 187), compared with the 105-ppb cutoff point for unhealthy (AQI 200). The most days over the standard were 47 days in 2017.

The other nonattainment pollutant of concern is $PM_{2.5}$. An AQI of 100 or lower is considered moderate and would be triggered by a 24-hour average concentration of 12.1 to 35.4 μg/m^3. An AQI of 101 to 105 or 35.5-55.4 μg/m^3 is considered unhealthful for sensitive groups. When concentrations reach this amount, it is considered an exceedance of the federal $PM_{2.5}$ standard. The monitoring station nearest the project exceeded the standard on approximately 49 days in the three-year period spanning from 2017 to 2019. People with respiratory or heart disease, the elderly and children are the groups most at risk. Unusually sensitive people should consider reducing prolonged or heavy exertion. The AQI of 151 to 200 is classified as unhealthy for everyone. This AQI classification is triggered when $PM_{2.5}$ concentration ranges from 55.4 to 150.4 μg/m^3. At this concentration, there is increasing likelihood of respiratory symptoms in sensitive individuals, aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease, and in the elderly. People with respiratory or heart disease, the elderly, and children should limit prolonged exertion. Everyone else should reduce prolonged or heavy exertion. The highest concentration recorded at the Clovis-North Villa monitoring station in the last three years was 82.3 μg/m^3 (AQI 165) in 2018. At this concentration, increased aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease and the elderly, and increased respiratory effects in general population would occur. People with respiratory or heart disease, the elderly, and children should avoid prolonged exertion; everyone else should limit prolonged exertion when the AQI exceeds this level. The relationship of the AQI to health effects in shown Table 4.

Table 4: Air Quality Index and Health Effects of Particulate Pollution

Air Quality Index/ $PM_{2.5}$ Concentration	Health Effects Description
AQI 51–100—Moderate Concentration 12.1–35.4 μg/m^3	**Sensitive Groups:** Some people who may be unusually sensitive to particle.
	Health Effects Statements: Unusually sensitive people should consider reducing prolonged or heavy exertion.
	Cautionary Statements: Unusually sensitive people: Consider reducing prolonged or heavy exertion. Watch for symptoms such as coughing or shortness of breath. These are signs to take it easier.
AQI 101–150—Unhealthy for Sensitive Groups Concentration 35.5–55.4 μg/m^2	**Sensitive Groups:** Sensitive groups include people with heart or lung disease, older adults, children, and teenagers.
	Health Effects Statements: Increasing likelihood of respiratory symptoms in sensitive individuals, aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease, and the elderly.

Table 4 (cont.): Air Quality Index and Health Effects of Particulate Pollution

Air Quality Index/ $PM_{2.5}$ Concentration	Health Effects Description
	If you have heart disease: Symptoms such as palpitations, shortness of breath, or unusual fatigue may indicate a serious problem. If you have any of these, contact your health care provider.
AQI 151–200—Unhealthy	**Sensitive Groups:** Everyone
Concentration 55.5–150.4 µg/m^3	**Health Effects Statements:** Increased aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease and the elderly; increased respiratory effects in general population.
	Cautionary Statements: Sensitive groups: Avoid prolonged or heavy exertion. Consider moving activities indoors or rescheduling. Everyone else: Reduce prolonged or heavy exertion. Take more breaks during outdoor activities.
AQI 201–300—Very Unhealthy	**Sensitive Groups:** Everyone
Concentration 150.5–250.4 µg/m^3	**Health Effects Statements:** Significant aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease and the elderly; significant increase in respiratory effects in general population.
	Cautionary Statements: Sensitive groups: Avoid all physical activity outdoors. Move activities indoors or reschedule to a time when air quality is better. Everyone else: Avoid prolonged or heavy exertion. Consider moving activities indoors or rescheduling to a time when air quality is better.
Source: Air Now 2016.	

2.3.1 - Attainment Status

The EPA and the ARB designate air basins where ambient air quality standards are exceeded as “nonattainment” areas. If standards are met, the area is designated an “attainment” area. If there is inadequate or inconclusive data to make a definitive attainment designation, they are considered “unclassified.” National nonattainment areas are further designated marginal, moderate, serious, severe, or extreme as a function of deviation from standards.

Each standard has a different definition, or “form” of what constitutes attainment, based on specific air quality statistics. For example, the federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the federal annual $PM_{2.5}$ standard is met if the three-year average of the annual average $PM_{2.5}$ concentration is less than or equal to the standard.

The current attainment designations for the Air Basin are shown in Table 5. The Air Basin is designated nonattainment for ozone, PM_{10}, and $PM_{2.5}$.

Table 5: San Joaquin Valley Air Basin Attainment Status

Pollutant	State Status	National Status
Ozone—One Hour	Nonattainment/Severe	No Standard
Ozone—Eight Hour	Nonattainment	Nonattainment/Extreme
Carbon monoxide	Attainment/Unclassified	Merced, Madera, and Kings Counties are unclassified; others are in Attainment
Nitrogen dioxide	Attainment	Attainment/Unclassified
Sulfur dioxide	Attainment	Attainment/Unclassified
PM_{10}	Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Nonattainment
Lead	Attainment	No Designation/Classification

Source of State status: California Air Resources Board (ARB 2013c).
Source of National status: U.S. Environmental Protection Agency (EPA 2016a).
Source of additional status information (SJVAPCD 2017a).

2.4—Air Quality Plans and Regulations

Air pollutants are regulated at the national, state, and air basin or county level, and each agency has a different level of regulatory responsibility: the EPA regulates at the national level, the ARB at the state level, and the SJVAPCD at the air basin level.

The EPA is responsible for national and interstate air pollution issues and policies. The EPA sets national vehicle and stationary source emission standards, oversees approval of all State Implementation Plans, provides research and guidance for air pollution programs, and sets National Ambient Air Quality Standards—also known as the federal standards described earlier.

A State Implementation Plan (SIP) is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain federal standards. The SIP for the State of California is administered by the ARB, which has overall responsibility for statewide air quality maintenance and air pollution prevention. California's SIP incorporates individual federal attainment plans for regional air districts; specifically, an air district prepares their federal attainment plan, which is sent to ARB to be approved and incorporated into the California State Implementation Plan. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms. The ARB then submits the SIP to the EPA for approval. After reviewing submitted SIPs, the EPA proposes to approve or disapprove all or part of each plan. The public has an opportunity to comment on the EPA's proposed action. The EPA considers public input before taking final action on a state's plan. If the EPA approves all or part of a SIP, those control measures are enforceable in federal court. If a state fails to submit an approvable plan or if the EPA disapproves a plan, the EPA is required to develop a federal implementation plan (FIP). The SIP approval process often takes several years. The most recent federally approved attainment plans for the SJVAPCD are the 2007 8-Hour Ozone Attainment Plan and the 2012 $PM_{2.5}$ Plan for the 2006 $PM_{2.5}$ standard.

Areas designated nonattainment must develop air quality plans and regulations to achieve standards by specified dates, depending on the severity of the exceedances. For much of the country, implementation of federal motor vehicle standards and compliance with federal permitting requirements for industrial sources are adequate to attain air quality standards on schedule. For many areas of California, however, additional state and local regulation is required to achieve the standards. Regulations adopted by California are described below.

2.4.1 - California Regulations

Low-Emission Vehicle Program

The ARB first adopted Low-Emission Vehicle (LEV) program standards in 1990. These first LEV standards ran from 1994 through 2003. LEV II regulations, running from 2004 through 2010, represent continuing progress in emission reductions. As the State’s passenger vehicle fleet continues to grow and more sport utility vehicles and pickup trucks are used as passenger cars rather than work vehicles, the more stringent LEV II standards were adopted to provide reductions necessary for California to meet federally mandated clean air goals outlined in the 1994 State Implementation Plan. In 2012, ARB adopted the LEV III amendments to California’s LEV regulations. These amendments, also known as the Advanced Clean Car Program include more stringent emission standards for model years 2017 through 2025 for both criteria pollutants and GHGs for new passenger vehicles (ARB 2012a).

On-Road Heavy-Duty Vehicle Program

The ARB has adopted standards for emissions from various types of new on-road heavy-duty vehicles. Section 1956.8, Title 13, California Code of Regulations contains California’s emission standards for on-road heavy-duty engines and vehicles, as well as test procedures. ARB has also adopted programs to reduce emissions from in-use heavy-duty vehicles including the Heavy-Duty Diesel Vehicle Idling Reduction Program, the Heavy-Duty Diesel In-Use Compliance Program, the Public Bus Fleet Rule and Engine Standards, and the School Bus Program and others (ARB 2013b).

The regulation applies to nearly all privately and federally owned diesel-fueled trucks and buses and to privately and publicly owned school buses with a gross vehicle weight rating (GVWR) greater than 14,000 pounds. The regulation provides a variety of flexibility options tailored to fleets operating low-use vehicles, fleets operating in selected vocations like agricultural and construction, and small fleets of three or fewer trucks (ARB 2015b).

ARB Truck and Bus Regulation

The latest amendments to the Truck and Bus regulation became effective on December 31, 2014. The amended regulation requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Newer heavier trucks and buses must meet PM filter requirements beginning January 1, 2012. Lighter and older heavier trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent.

The regulation applies to nearly all privately and federally owned diesel-fueled trucks and buses and to privately and publicly owned school buses with a gross vehicle weight rating (GVWR) greater than

14,000 pounds. The regulation provides a variety of flexibility options tailored to fleets operating low-use vehicles, fleets operating in selected vocations like agricultural and construction, and small fleets of three or fewer trucks (ARB 2015a).

Advanced Clean Truck Regulation

The Advanced Clean Trucks regulation was approved on June 25, 2020 and has two main components, a manufacturers ZEV sales requirement and a one-time reporting requirement for large entities and fleets. Promoting the development and use of advanced clean trucks will help ARB achieve its emission reduction strategies as outlined in the SIP, Sustainable Freight Action Plan, Senate Bill (SB) 350, and Assembly Bill (AB) 32.

The proposed regulation has two components: a manufacturer sales requirement and a reporting requirement.

- Zero-emission truck sales: Manufacturers who certify Class 2b-8 chassis or complete vehicles with combustion engines would be required to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. By 2035, zero-emission truck/chassis sales would need to be 55% of Class 2b–3 truck sales, 75% of Class 4–8 straight truck sales, and 40% of truck tractor sales.
- Company and fleet reporting: Large employers—including retailers, manufacturers, brokers, and others—would be required to report information about shipments and shuttle services. Fleet owners (those with 50 or more trucks) would be required to report about their existing fleet operations. This information would help identify future strategies to ensure that fleets purchase available zero-emission trucks and place them in service where suitable to meet their needs (ARB 2020b).

ARB Regulation for In-Use Off-Road Diesel Vehicles

On July 26, 2007, the ARB adopted a regulation to reduce DPM and nitrous oxide (NO_X) emissions from in-use (existing) off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. The regulation limits idling to no more than five consecutive minutes, requires reporting and labeling, and requires disclosure of the regulation upon vehicle sale. The ARB is enforcing that part of the rule with fines up to $10,000 per day for each vehicle in violation. Performance requirements of the rule are based on a fleet's average NO_X emissions, which can be met by replacing older vehicles with newer, cleaner vehicles or by applying exhaust retrofits. The regulation was amended in 2010 to delay the original timeline of the performance requirements, making the first compliance deadline January 1, 2014 for large fleets (over 5,000 horsepower), 2017 for medium fleets (2,501–5,000 horsepower), and 2019 for small fleets (2,500 horsepower or less).

ARB Regulation for Consumer Products

The ARB Consumer Products Regulation was last amended in January 2015. The ARB regulates the VOC content of a wide variety of consumer products sold and manufactured in California. The purpose of the regulation is to reduce the emission of ozone precursors, TACs, and GHG emissions in products that are used by homes and businesses. The regulated products include but are not limited to solvents, adhesives, air fresheners, soaps, aromatic compounds, windshield cleaners, charcoal lighter, dry cleaning fluids, floor polishes, and general cleaners and degreasers (ARB 2015b)

ARB Airborne Toxic Control Measure for Asbestos

In July 2001, the ARB approved an Air Toxic Control Measure for construction, grading, quarrying, and surface mining operations to minimize emissions of naturally occurring asbestos. The regulation requires application of best management practices to control fugitive dust in areas known to have naturally occurring asbestos and requires notification to the local air district prior to commencement of ground-disturbing activities. The measure establishes specific testing, notification and engineering controls prior to grading, quarrying, or surface mining in construction zones where naturally occurring asbestos is located on projects of any size. There are additional notification and engineering controls at work sites larger than one acre in size. These projects require the submittal of a “Dust Mitigation Plan” and approval by the air district prior to the start of a project.

Construction sometimes requires the demolition of existing buildings where construction occurs. The project includes no demolition. Asbestos is also found in a natural state, known as naturally occurring asbestos. Exposure and disturbance of rock and soil that naturally contain asbestos can result in the release of fibers into the air and consequent exposure to the public. Asbestos most commonly occurs in ultramafic rock that has undergone partial or complete alteration to serpentine rock (serpentinite) and often contains chrysotile asbestos. In addition, another form of asbestos, tremolite, can be found associated with ultramafic rock, particularly near faults. Sources of asbestos emissions include unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present.

The ARB has an Air Toxic Control Measure for construction, grading, quarrying, and surface mining operations, requiring the implementation of mitigation measures to minimize emissions of asbestos-laden dust. The measure applies to road construction and maintenance, construction and grading operations, and quarries and surface mines when the activity occurs in an area where naturally occurring asbestos is likely to be found. Areas are subject to the regulation if they are identified on maps published by the Department of Conservation as ultramafic rock units or if the Air Pollution Control Officer or owner/operator has knowledge of the presence of ultramafic rock, serpentine, or naturally occurring asbestos on the site. The measure also applies if ultramafic rock, serpentine, or asbestos is discovered during any operation or activity. Review of the Department of Conservation maps indicates that no ultramafic rock has been found near the north Fresno area.

Diesel Risk Reduction Plan

The ARB’s Diesel Risk Reduction Plan has led to the adoption of new state regulatory standards for all new on-road, off-road, and stationary diesel-fueled engines and vehicles to reduce DPM emissions by about 90 percent overall from year 2000 levels. The projected emission benefits associated with the full implementation of this plan, including federal measures, are reductions in DPM emissions and associated cancer risks of 75 percent by 2010, and 85 percent by 2020 (ARB 2000).

2.4.2 - San Joaquin Valley Air Pollution Control District

The District is responsible for controlling emissions primarily from stationary sources. The District, in coordination with the eight countywide transportation agencies, is also responsible for developing, updating, and implementing air quality attainment plans for the Air Basin. The District also has roles under CEQA.

Ozone Plans

The Air Basin is designated nonattainment of state and federal health-based air quality standards for ozone. To meet Clean Air Act requirements for the one-hour ozone standard, the District adopted an Extreme Ozone Attainment Demonstration Plan in 2004, with an attainment date of 2010. Although the EPA revoked the federal 1-hour ozone standard effective June 15, 2005 and replaced it with an 8-hour standard, the requirement to submit a plan for that standard remained in effect for the San Joaquin Valley.

The planning requirements for the 1-hour plan remain in effect until replaced by a federal 8-hour ozone attainment plan. On March 8, 2010, the EPA approved the 2004 Extreme Ozone Attainment Demonstration Plan, including revisions to the plan, effective April 7, 2010. However, the Air Basin failed to attain the standard in 2010 and was subject to a $29 million Clean Air Act penalty. The penalty is being collected through an additional $12 motor vehicle registration surcharge for each passenger vehicle registered in the Air Basin that will be applied to pollution reduction programs in the region. The District also instituted a more robust ozone episodic program to reduce emissions on days with the potential to exceed the ozone standards. On July 18, 2016, the EPA published in the Federal Register a final action determining that the San Joaquin Valley has attained the 1-hour ozone national ambient air quality standard. This determination is based on the most recent three-year period (2012-2014) of sufficient, quality-assured, and certified data. The penalty fees remain in place pending submittal of a demonstration that the San Joaquin Valley will maintain the 1-hour standard for 10 years (EPA 2016b).

The EPA originally classified the Air Basin as serious nonattainment for the 1997 federal 8-hour ozone standard with an attainment date of 2013. On April 30, 2007, the District's Governing Board adopted the 2007 Ozone Plan, which contained analysis showing a 2013 attainment target to be infeasible. The 2007 Ozone Plan details the plan for achieving attainment on schedule with an "extreme nonattainment" deadline of 2024. At its adoption of the 2007 Ozone Plan, the District also requested a reclassification to extreme nonattainment. ARB approved the plan in June 2007, and the EPA approved the request for reclassification to extreme nonattainment on April 15, 2010.

The 2007 Ozone Plan contains measures to reduce ozone and particulate matter precursor emissions to bring the Basin into attainment with the federal 8-hour ozone standard. The 2007 Ozone Plan calls for a 75 percent reduction of NO_X and a 25 percent reduction of reactive organic gases (ROG). Figure 4 displays the anticipated NO_X reductions attributed in the 2007 Ozone Plan (Source: 2007 Ozone Plan). The plan, with innovative measures and a "dual path" strategy, assures expeditious attainment of the federal 8-hour ozone standard for all Air Basin residents. The District Governing Board adopted the 2007 Ozone Plan on April 30, 2007. The ARB approved the plan on June 14, 2007. The 2007 Ozone Plan requires yet to be determined "Advanced Technology" to achieve additional reductions after 2021, in order to attain the standard at all monitoring stations in the Air Basin by 2024 as allowed for areas designated extreme nonattainment by the federal Clean Air Act.

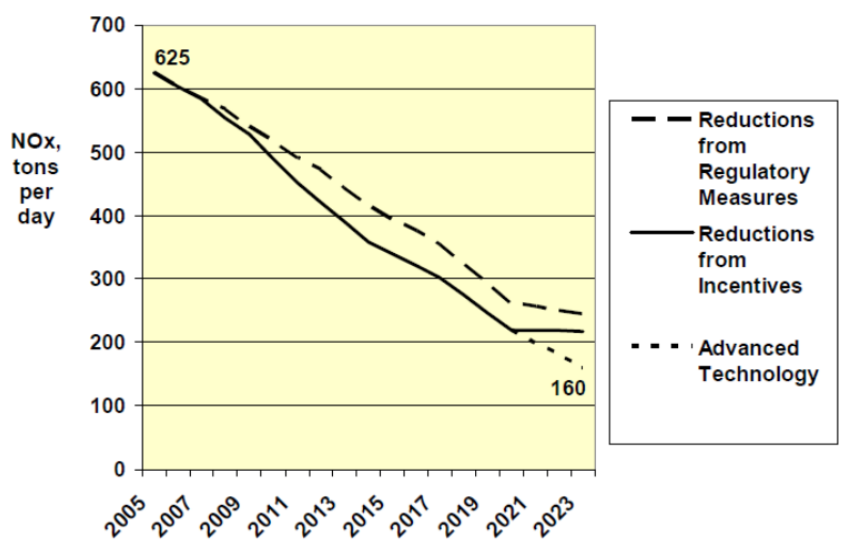
The Air Basin is designated an extreme ozone nonattainment area for the EPA's 2008 8-hour ozone standard of 75 ppb. The District's Governing Board approved the 2016 Plan for the 2008 8-Hour

Ozone Standard on June 16, 2016. The ARB approved the attainment demonstration plan for the San Joaquin Valley on July 21, 2016 and transmitted the plan to EPA on August 24, 2016. The comprehensive strategy in this plan will reduce NO_X emissions by over 60 percent between 2012 and 2031, and will bring the San Joaquin Valley into attainment of the EPA's 2008 8-hour ozone standard as expeditiously as practicable, no later than December 31, 2031. The 2016 Ozone Plan predicts attainment of the 2008 standard by 2031 (SJVAPCD 2018a). To ensure that the plan is approvable with the necessary contingencies, the plan includes a "Black Box" that will require implementation of new advanced technologies and controls prior to the 2031 deadline.

The EPA Administrator signed the Final Rule revising the 8-hour ozone standard to 70 ppm on October 1, 2015. The new standard will require the SJVAPCD to prepare a new attainment to achieve the more stringent emission level within 20 years from the effective date of designation (EPA 2018b).

State ozone standards do not have an attainment deadline but require implementation of all feasible measures to achieve attainment at the earliest date possible. This is achieved through compliance with the federal deadlines and control measure requirements.

Figure 4: San Joaquin Valley NO_X Emissions Forecast



Particulate Matter Plans

The Air Basin was designated nonattainment of state and federal health-based air quality standards for PM_{10}. The Air Basin is also designated nonattainment of state and federal standards for $PM_{2.5}$.

To meet Clean Air Act requirements for the PM_{10} standard, the District adopted a PM_{10} Attainment Demonstration Plan (Amended 2003 PM_{10} Plan and 2006 PM_{10} Plan), which has an attainment date of 2010. The District adopted the 2007 PM_{10} Maintenance Plan in September 2007 to assure the San Joaquin Valley's continued attainment of the EPA's PM_{10} standard. The EPA designated the valley as an attainment/maintenance area for PM_{10} on September 25, 2008. Although the San Joaquin Valley has exceeded the standard since then, those days were considered exceptional events that are not considered a violation of the standard for attainment purposes.

The 2008 $PM_{2.5}$ Plan builds upon the comprehensive strategy adopted in the 2007 Ozone Plan to bring the Air Basin into attainment of the 1997 national standards for $PM_{2.5}$. The EPA has identified NO_X and SO_2 as precursors that must be addressed in air quality plans for the 1997 $PM_{2.5}$ standards. The 2008 $PM_{2.5}$ Plan is a continuation of the District's strategy to improve the air quality in the Air Basin. The EPA issued final approval of the 2008 $PM_{2.5}$ Plan on November 9, 2011, which became effective on January 9, 2012. The EPA approved the emissions inventory, the reasonably available control measures/reasonably available control technology demonstration, reasonable further progress demonstration, attainment demonstration and associated air quality modeling, and the transportation conformity motor vehicle emissions budgets. The EPA also granted California's request to extend the attainment deadline for the San Joaquin Valley to April 5, 2015 and approved commitments to measures and reductions by the District and the ARB. Finally, it disapproved the State Implementation Plan's contingency provisions and issued a protective finding for transportation conformity determinations.

In December 2012, the District adopted the 2012 $PM_{2.5}$ Plan to bring the San Joaquin Valley into attainment of the EPA's 2006 24-hour $PM_{2.5}$ standard of 35 $\mu g/m^3$. The ARB approved the District's 2012 $PM_{2.5}$ Plan for the 2006 standard at a public hearing on January 24, 2013 (SJVAPCD 2012). This plan seeks to bring the Valley into attainment with the standard by 2019, with the expectation that most areas will achieve attainment before that time.

The 2015 Plan for the 1997 $PM_{2.5}$ Standard approved by the District Governing Board on April 16, 2015—will bring the Valley into attainment of the EPA's 1997 $PM_{2.5}$ standard as expeditiously as practicable, but no later than December 31, 2020. The plan was required to request reclassification to Serious nonattainment and to extend the attainment date from 2018 to 2020 (SJVAPCD 2015b).

The 2016 Moderate Area Plan for the 2012 $PM_{2.5}$ Standard was adopted on September 15, 2016. This plan includes an attainment impracticability demonstration and request for reclassification of the Valley from Moderate nonattainment to Serious nonattainment (SJVAPCD 2017b).

The SJVAPCD adopted the 2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards on November 15, 2018. This plan provides a combined strategy to address the EPA federal 1997 annual $PM_{2.5}$ standard of 15 $\mu g/m^3$ and 24-hour $PM_{2.5}$ standard of 65 $\mu g/m^3$; the 2006 24-hour $PM_{2.5}$ standard of 35 $\mu g/m^3$; and the 2012 annual $PM_{2.5}$ standard of 12 $\mu g/m^3$. This plan demonstrates attainment of the federal $PM_{2.5}$ standards as expeditiously as practicable (SJVAPCD 2018b).

SJVAPCD Rules and Regulations

The SJVAPCD rules and regulations that may apply to projects that will occur during buildout of the project include but are not limited to the following:

Rule 4102—Nuisance. The purpose of this rule is to protect the health and safety of the public, and applies to any source operation that emits or may emit air contaminants or other materials. This rule is enforced on a complaint basis.

Rule 4601—Architectural Coatings. The purpose of this rule is to limit Volatile Organic Compounds (VOC) emissions from architectural coatings. Emissions are reduced by limits on VOC content and providing requirements on coatings storage, cleanup, and labeling. Only compliant components are available for purchase in the San Joaquin Valley.

Rule 4641—Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations. The purpose of this rule is to limit VOC emissions from asphalt paving and maintenance operations. If asphalt paving will be used, then the paving operations will be subject to Rule 4641. This regulation is enforced on the asphalt provider.

Rule 4901—Wood-Burning Fireplaces and Wood-Burning Heaters. The purposes of this rule are to limit emissions of carbon monoxide and particulate matter from wood-burning fireplaces, wood-burning heaters, and outdoor wood-burning devices, and to establish a public education program to reduce wood-burning emissions. All development that includes wood-burning devices are subject to this rule.

Rule 4902—Residential Water Heaters. In 2009, the District amended Rule 4902 to strengthen the rule by lowering the limit to 10 nanograms per joule (ng/J) for new or replacement water heaters, and to a limit of 14 ng/J for instantaneous water heaters. Retailer compliance dates ranged from 2010 to 2012, depending on the unit type.

Regulation VIII—Fugitive PM_{10} Prohibitions. Rules 8011–8081 are designed to reduce PM_{10} emissions (predominantly dust/dirt) generated by human activity, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and trackout, etc. All development projects that involve soil disturbance are subject to at least one provision of the Regulation VIII series of rules.

Rule 9510—Indirect Source Review. This rule reduces the impact of NO_X and PM_{10} emissions from growth within the Air Basin. The rule places application and emission reduction requirements on development projects meeting applicability criteria in order to reduce emissions through on-site mitigation, off-site District-administered projects, or a combination of the two. This project is subject to Rule 9510.

CEQA

The District has three roles under CEQA:

1. **Lead Agency:** Responsible for preparing environmental analyses for its own projects (adoption of rules, regulations, or plans) or permit projects filed with the District where the District has primary approval authority over the project.
2. **Responsible Agency:** The discretionary authority of a responsible agency is more limited than a lead agency; having responsibility for mitigating or avoiding only the environmental effects of those parts of the project which it decides to approve, carry out, or finance. The District defers to the lead agency for preparation of environmental documents for land use projects that also have discretionary air quality permits, unless no document is prepared by the lead agency and potentially significant impacts related to the permit are possible. The District regularly submits comments on documents prepared by lead agencies to ensure that District concerns are addressed.
3. **Commenting Agency:** The District reviews and comments on air quality analyses prepared by other public agencies (such as the project).

The District also provides guidance and thresholds for CEQA air quality and GHG analyses. The result of this guidance, as well as state regulations to control air pollution, is an overall improvement in the Air Basin. In particular, the District's 2015 GAMAQI states the following:

1. The District's Air Quality Attainment Plans include measures to promote air quality elements in county and city general plans as one of the primary indirect source programs. The general plan is the primary long-range planning document used by cities and counties to direct development. Since air districts have no authority over land use decisions, it is up to cities and counties to ensure that their general plans help achieve air quality goals. Section 65302.1 of the California Government Code requires cities and counties in the San Joaquin Valley to amend appropriate elements of their general plans to include data, analysis, comprehensive goals, policies, and feasible implementation strategies to improve air quality in their next housing element revisions.

2. The Air Quality Guidelines for General Plans (AQGGP), adopted by the District in 1994 and amended in 2005, is a guidance document containing goals and policy examples that cities and counties may want to incorporate into their General Plans to satisfy Section 65302.1. When adopted in a general plan and implemented, the suggestions in the AQGGP can reduce vehicle trips and miles traveled and improve air quality. The specific suggestions in the AQGGP are voluntary. The District strongly encourages cities and counties to use their land use and transportation planning authority to help achieve air quality goals by adopting the suggested policies and programs.

2.4.3 - Local

The Fresno General Plan was adopted on December 18, 2014 (City of Fresno 2014a). The City's applicable air quality goals and policies from the Air Quality section are listed below.

City of Fresno Air Quality Goals and Policies

The General Plan lists the following policies that are supportive of improved air quality:

- **Objective RC-4.** In cooperation with other jurisdictions and agencies in the San Joaquin Valley Air Basin, take necessary actions to achieve and maintain compliance with State and federal air quality standards for criteria pollutants.
- **RC-4-a Support Regional Efforts.** Support and lead, where appropriate, regional, State and federal programs and actions for the improvement of air quality, especially the SJVAPCD's efforts to monitor and control air pollutants from both stationary and mobile sources and implement Reasonably Available Control Measures in the Ozone Attainment Plan.
- **RC-4-b Conditions of Approval.** Develop and incorporate air quality maintenance requirements, compatible with Air Quality Attainment and Maintenance Plans, as conditions of approval for General Plan amendments, community plans, Specific Plans, neighborhood plans, Concept Plans, and development proposals.
- **RC-4-c Evaluate Impacts with Models**. Continue to require the use of computer models used by SJVAPCD to evaluate the air quality impacts of plans and projects that require such environmental review by the City.
- **RC-4-d Forward Information.** Forward information regarding proposed General Plan amendments, community plans, Specific Plans, neighborhood plans, Concept Plans, and

development proposals that require air quality evaluation, and amendments to development regulations to the SJVAPCD for their review of potential air quality and health impacts.

- **RC-4-k Electric Vehicle Charging.** Develop standards to facilitate electric vehicle charging infrastructure in both new and existing public and private buildings, in order to accommodate these vehicles as the technology becomes more widespread.

2.4.4 - Existing Sources of Toxic Emissions

No existing sources were identified that exceed ARB recommendations in its Air Quality Land Use Handbook for siting sensitive land uses impact the project.

2.4.5 - ARB Air Quality Land Use Handbook

Table 6 lists the following ARB advisory recommendations that address the issue of siting "sensitive land uses" near specific sources of air pollution (ARB 2005):

- High traffic freeways and roads
- Distribution centers
- Rail yards
- Ports
- Refineries
- Chrome plating facilities
- Dry cleaners
- Large gas dispensing facilities

The analysis examines the area around the site to determine if potential sources of TAC emissions may impact the project, based on the ARB recommended screening distances.

Table 6: Recommendations on Siting New Sensitive Land Uses

Source Category	Advisory Recommendations
Freeways and High-Traffic Roads	Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.
Distribution Centers	Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or the ARB on the status of pending analyses of health risks.
Refineries	Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.

Table 6 (cont.): Recommendations on Siting New Sensitive Land Uses

Source Category	Advisory Recommendations
Dry Cleaners Using Perchloroethylene	Avoid siting new sensitive land uses within 300 feet of any dry-cleaning operation. For operations with two or more machines, provide 500 feet. For operations with three or more machines, consult with the local air district. Do not site new sensitive land uses in the same building with perchloroethylene dry cleaning operations.
Gasoline Dispensing Facilities	Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50-foot separation is recommended for typical gas dispensing facilities.
Note: These recommendations are advisory. Land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues.	

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SECTION 3: CLIMATE CHANGE SETTING

3.1—Climate Change

Climate change is a change in the average weather of the earth that is measured by alterations in wind patterns, storms, precipitation, and temperature. These changes are assessed using historical records of temperature changes occurring in the past, such as during previous ice ages. Many of the concerns regarding climate change use this data to extrapolate a level of statistical significance, specifically focusing on temperature records from the last 150 years (the Industrial Age) that differ from previous climate changes in rate and magnitude.

The United Nations Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. In its Fourth Assessment Report, the IPCC predicted that the global mean temperature change from 1990 to 2100, given six scenarios, could range from 1.1 degrees Celsius (°C) to 6.4°C. Regardless of analytical methodology, global average temperatures and sea levels are expected to rise under all scenarios (IPCC 2007a). The report also concluded that "[w]arming of the climate system is unequivocal," and that "[m]ost of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations."

An individual project cannot generate enough GHG emissions to cause a discernible change in global climate. However, the project participates in the potential for global climate change by its incremental contribution of GHGs—and when combined with the cumulative increase of all other sources of GHGs—constitute potential influences on global climate change.

3.1.1 - Consequences of Climate Change in California

In California, climate change may result in consequences such as the following (from CCCC 2006 and Moser et al. 2009):

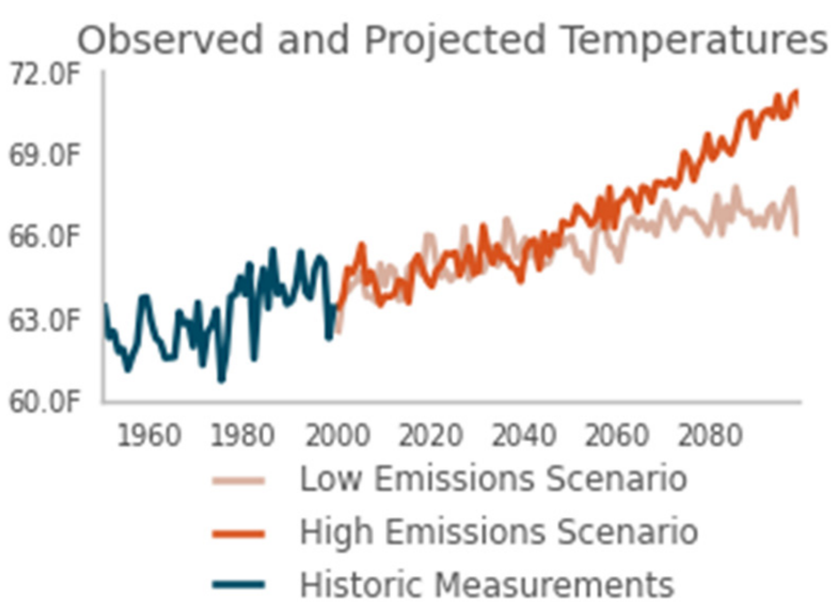
- **A reduction in the quality and supply of water from the Sierra snowpack.** If heat-trapping emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. This can lead to challenges in securing adequate water supplies. It can also lead to a potential reduction in hydropower.
- **Increased risk of large wildfires.** If rain increases as temperatures rise, wildfires in the grasslands and chaparral ecosystems of southern California are estimated to increase by approximately 30 percent toward the end of the 21st century because more winter rain will stimulate the growth of more plant "fuel" available to burn in the fall. In contrast, a hotter, drier climate could promote up to 90 percent more northern California fires by the end of the century by drying out and increasing the flammability of forest vegetation.
- **Reductions in the quality and quantity of certain agricultural products.** The crops and products likely to be adversely affected include wine grapes, fruit, nuts, and milk.

- **Exacerbation of air quality problems.** If temperatures rise to the medium warming range, there could be 75 to 85 percent more days with weather conducive to ozone formation in Los Angeles and the San Joaquin Valley, relative to today's conditions. This is more than twice the increase expected if rising temperatures remain in the lower warming range. This increase in air quality problems could result in an increase in asthma and other health-related problems.
- **A rise in sea levels resulting in the displacement of coastal businesses and residences.** During the past century, sea levels along California's coast have risen about seven inches. If emissions continue unabated and temperatures rise into the higher anticipated warming range, sea level is expected to rise an additional 22 to 35 inches by the end of the century. Elevations of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats.
- **An increase in temperature and extreme weather events.** Climate change is expected to lead to increases in the frequency, intensity, and duration of extreme heat events and heat waves in California. More heat waves can exacerbate chronic disease or heat-related illness.
- **A decrease in the health and productivity of California's forests.** Climate change can cause an increase in wildfires, an enhanced insect population, and establishment of non-native species.

Consequences of Climate Change in the Fresno Area

Figure 5 displays a chart of measured historical and projected annual average temperatures in the project area. As shown in the figure, temperatures are expected to rise in the low and high GHG emissions scenarios. The results indicate that temperatures are predicted to increase by 3.7 degrees Fahrenheit (°F) under the low emission scenario and 6.5°F under the high emissions scenario (CalAdapt 2019).

Figure 5: Observed and Projected Temperatures for Climate Change in the Project Area



Source: CalAdapt 2019

Water Supply

The City of Fresno Department of Public Utilities would provide water for the project. The City relies on groundwater and treated surface water for potable water supplies. The availability of surface water and the rate of groundwater recharge could decline if climate change were to result in reduced snowpack in the Sierra Nevada.

Wildfires

The project site is within an urbanizing area with limited fuels that would be subject to a wildfire. Foothill and mountain areas located to the north and east of the Fresno area subject to wildfire. The potential for increased temperatures and drought conditions due to climate change would result in increased risk from wildfire in those areas.

Human Health Effects of GHG Emissions

GHG emissions from development projects would not result in concentrations that would directly impact public health. However, the cumulative effects of GHG emissions on climate change have the potential to cause adverse effects to human health.

In its report, Global Climate Change Impacts in the U.S. (2009), the U.S. Global Change Research Program has analyzed the degree to which impacts on human health are expected to impact the United States.

Potential effects of climate change on public health include:

- Direct Temperature Effects: Climate change may directly affect human health through increases in average temperatures, which are predicted to increase the incidence of heat waves and hot extremes.
- Extreme Events: Climate change may affect the frequency and severity of extreme weather events, such as hurricanes and extreme heat and floods, which can be destructive to human health and well-being.
- Climate-Sensitive Diseases: Climate change may increase the risk of some infectious diseases, particularly those diseases that appear in warm areas and are spread by mosquitoes and other insects, such as malaria, dengue fever, yellow fever, and encephalitis.
- Air Quality: Respiratory disorders may be exacerbated by warming-induced increases in the frequency of smog (ground-level ozone) events and particulate air pollution (EPA 2009a).

Although there could be health effects resulting from changes in the climate and the consequences that can occur, inhalation of GHGs at levels currently in the atmosphere would not result in adverse health effects, with the exception of ozone and aerosols (particulate matter). The potential health effects of ozone and particulate matter are discussed in criteria pollutant analyses. At very high indoor concentrations (not at levels existing outside), carbon dioxide, methane, sulfur hexafluoride, and some chlorofluorocarbons can cause suffocation as the gases can displace oxygen (CDC 2010 and OSHA 2003).

3.2—Greenhouse Gases

Gases that trap heat in the atmosphere are referred to as GHGs. The effect is analogous to the way a greenhouse retains heat. Common GHGs include water vapor, carbon dioxide, methane, NO_X, chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, ozone, and aerosols. Natural processes and human activities emit GHGs. The presence of GHGs in the atmosphere affects the earth's temperature. It is believed that emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

Climate change is driven by forcings and feedbacks. Radiative forcing is the difference between the incoming energy and outgoing energy in the climate system. Positive forcing tends to warm the surface while negative forcing tends to cool it. Radiative forcing values are typically expressed in watts per square meter. A feedback is a climate process that can strengthen or weaken a forcing. For example, when ice or snow melts, it reveals darker land underneath which absorbs more radiation and causes more warming. The global warming potential is the potential of a gas or aerosol to trap heat in the atmosphere. The global warming potential of a gas is essentially a measurement of the radiative forcing of a GHG compared with the reference gas, CO_2.

Individual GHG compounds have varying global warming potential and atmospheric lifetimes. CO_2, the reference gas for global warming potential, has a global warming potential of one. The global warming potential of a GHG is a measure of how much a given mass of a GHG is estimated to contribute to global warming. To describe how much global warming a given type and amount of GHG may cause, the carbon dioxide equivalent is used. The calculation of the carbon dioxide equivalent is a consistent methodology for comparing GHG emissions since it normalizes various GHG emissions to a consistent reference gas, CO_2. For example, CH_4's warming potential of 25 indicates that CH_4 has 25 times greater warming effect than CO_2 on a molecule-per-molecule basis. A carbon dioxide equivalent is the mass emissions of an individual GHG multiplied by its global warming potential. GHGs defined by Assembly Bill (AB) 32 (see the Climate Change Regulatory Environment section for a description) include CO_2, CH_4, NO_X, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. They are described in Table 7. A seventh GHG, nitrogen trifluoride, was added to Health and Safety Code section 38505(g)(7) as a GHG of concern. The global warming potential amounts are from IPCC Fourth Assessment Report (AR4). The AR4 GWP amounts are incorporated into the CalEEMod 2016.3.2 used in this analysis. Although the newer IPCC Fifth Assessment Report (AR5) includes new global warming potential amounts, ARB continues to use AR4 rates for inventory purposes, including the 2018 inventory released on October 19, 2020, to ensure consistency with past inventories. Until such time as ARB updates its Scoping Plan inventories to utilize AR5 GWPs, it is appropriate to continue using AR4 GWPs for CEQA analyses, which are based on Scoping Plan consistency.

Table 7: Description of Greenhouse Gases

Greenhouse Gas	Description and Physical Properties	Sources
Nitrous oxide	Nitrous oxide (laughing gas) is a colorless GHG. It has a lifetime of 114 years. Its global warming potential is 298.	Microbial processes in soil and water, fuel combustion, and industrial processes.

Table 7 (cont.): Description of Greenhouse Gases

Greenhouse Gas	Description and Physical Properties	Sources
Methane	Methane is a flammable gas and is the main component of natural gas. It has a lifetime of 12 years. Its global warming potential is 25.	Methane is extracted from geological deposits (natural gas fields). Other sources are landfills, fermentation of manure, and decay of organic matter.
Carbon dioxide	Carbon dioxide (CO_2) is an odorless, colorless, natural GHG. Carbon dioxide's global warming potential is 1. The concentration in 2005 was 379 parts per million (ppm), which is an increase of about 1.4 ppm per year since 1960.	Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood.
Chlorofluorocarbons	These are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. They are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). Global warming potentials range from 124 to 14,800.	Chlorofluorocarbons were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone. The Montreal Protocol on Substances that Deplete the Ozone Layer prohibited their production in 1987.
Perfluorocarbons	Perfluorocarbons have stable molecular structures and only break down by ultraviolet rays about 60 kilometers above Earth's surface. Because of this, they have long lifetimes, between 10,000 and 50,000 years. Global warming potentials range from 7,390 to 12,200.	Two main sources of perfluorocarbons are primary aluminum production and semiconductor manufacturing.
Sulfur hexafluoride	Sulfur hexafluoride (SF_6) is an inorganic, odorless, colorless, and nontoxic, nonflammable gas. It has a lifetime of 3,200 years. It has a high global warming potential of 22,800.	This gas is man-made and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas.
Nitrogen trifluoride	Nitrogen trifluoride (NF_3) was added to Health and Safety Code section 38505(g)(7) as a GHG of concern. It has a high global warming potential of 17,200.	This gas is used in electronics manufacture for semiconductors and liquid crystal displays.
Sources: Compiled from a variety of sources, primarily Intergovernmental Panel on Climate Change 2007a and 2007b.		

The State has begun addressing pollutants referred to as short-lived climate pollutants. Senate Bill (SB) 605, approved by the governor on September 14, 2014 required the ARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants by January 1, 2016. ARB was required to complete an emission inventory of these pollutants, identify research needs, identify existing and potential new control measures that offer co-benefits, and coordinated with other state agencies and districts to develop measures. The Short-Lived Climate Pollutant Strategy was approved by the ARB on March 24, 2017. The strategy calls for reductions of 50 percent from black carbon, 40 percent from methane, and 40 percent from HFCs from the 2030 Business as Usual (BAU) inventory for these pollutants (ARB 2017b).

The short-lived climate pollutants include three main components: black carbon, fluorinated gases, and methane. Fluorinated gases and methane are described in Table 7 and are already included in the California GHG inventory. Black carbon has not been included in past GHG inventories; however, ARB will include it in its comprehensive strategy (ARB 2015c).

Ozone is another short-lived climate pollutant that will be part of the strategy. Ozone affects evaporation rates, cloud formation, and precipitation levels. Ozone is not directly emitted, so its precursor emissions, volatile organic compounds (VOC) and oxides of nitrogen (NO_X) on a regional scale and CH_4 on a hemispheric scale will be subject of the strategy (ARB 2015c).

Black carbon is a component of fine particulate matter. Black carbon is formed by incomplete combustion of fossil fuels, biofuels, and biomass. Sources of black carbon within a jurisdiction may include exhaust from diesel trucks, vehicles, and equipment, as well as smoke from biogenic combustion. Biogenic combustion sources of black carbon include the burning of biofuels used for transportation, the burning of biomass for electricity generation and heating, prescribed burning of agricultural residue, and natural and unnatural wildfires. Black carbon is not a gas but an aerosol—particles or liquid droplets suspended in air. Black carbon only remains in the atmosphere for days to weeks, whereas other GHGs can remain in the atmosphere for years. Black carbon can be deposited on snow, where it absorbs sunlight, reduces sunlight reflectivity, and hastens snowmelt. Direct effects include absorbing incoming and outgoing radiation; indirectly, black carbon can also affect cloud reflectivity, precipitation, and surface dimming (cooling).

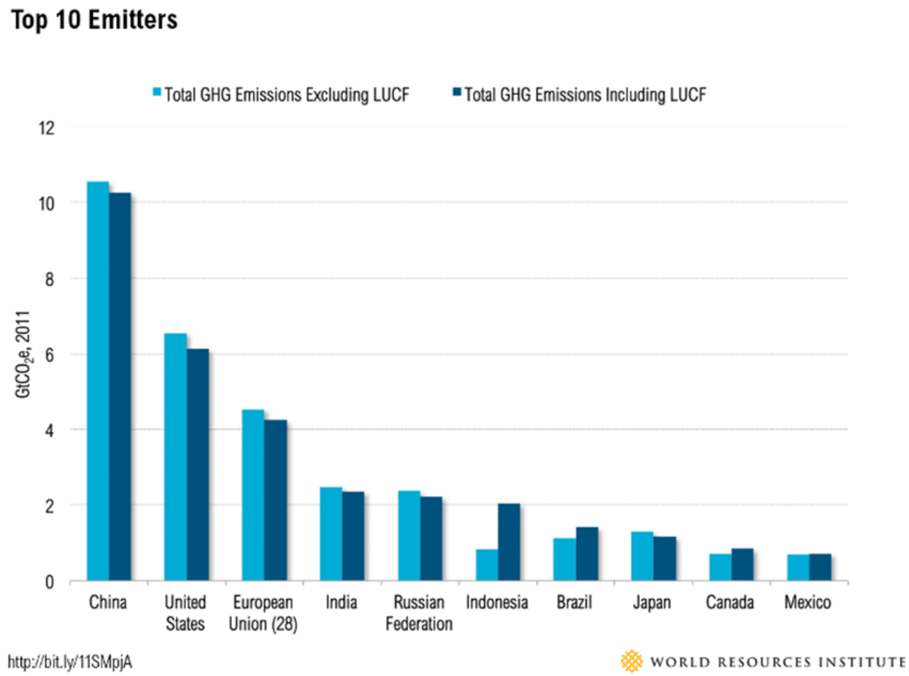
Global warming potentials for black carbon were not defined by the IPCC in its Fourth Assessment Report. The ARB has identified a global warming potential of 3,200 using a 20-year time horizon and 900 using a 100-year time horizon from the IPCC Fifth Assessment. Sources of black carbon are already regulated by ARB, and air district criteria pollutant and toxic regulations that control fine particulate emissions from diesel engines and other combustion sources (ARB 2015d). Additional controls on the sources of black carbon specifically for their GHG impacts beyond those required for toxic and fine particulates are not likely to be needed.

Water vapor is also considered a GHG. Water vapor is an important component of our climate system and is not regulated. Increasing water vapor leads to warmer temperatures, which causes more water vapor to be absorbed into the air. Warming and water absorption increase in a spiraling cycle. Water vapor feedback can also amplify the warming effect of other GHGs, such that the warming brought about by increased carbon dioxide allows more water vapor to enter the atmosphere (NASA 2015b).

3.2.1 - Emissions Inventories

An emissions inventory is a database that lists, by source, the amount of air pollutants discharged into the atmosphere of a geographic area during a given time period. Emissions worldwide were approximately 43,286 million metric tons of carbon dioxide equivalents ($MMTCO_2e$) in 2012. As shown in Figure 6, China was the largest GHG emitter with over 10 billion metric tons of CO_2e, and the United States was the second-largest GHG emitter with over 6 billion metric tons of CO_2e (WRI 2014).

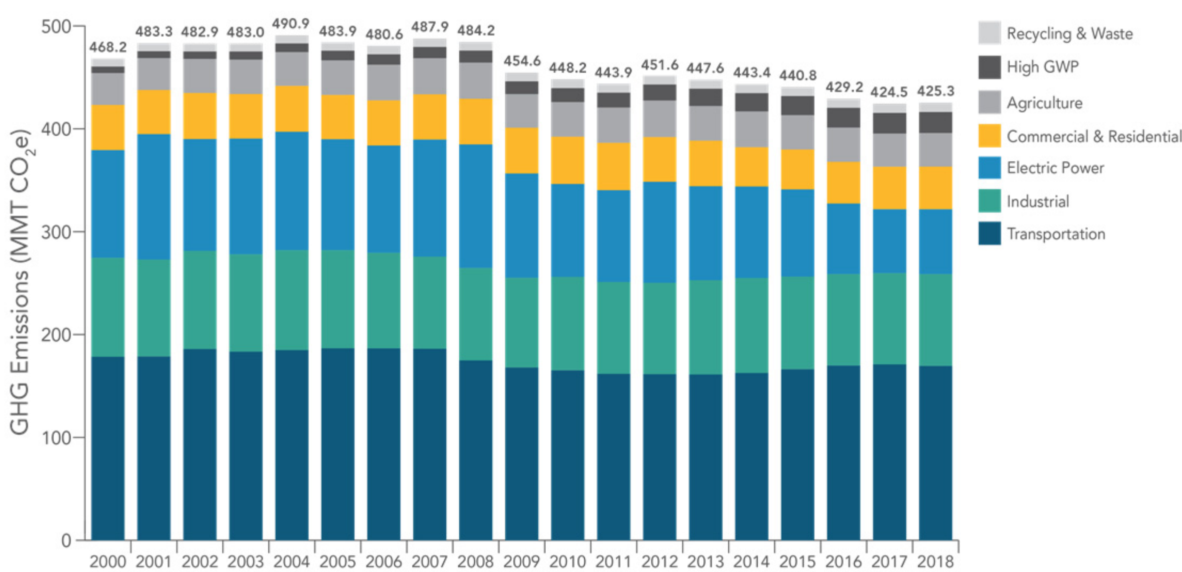
Figure 6: Greenhouse Gas Emissions by Geographic Area



Source: WRI 2014.

Figure 7 shows the contributors of GHG emissions in California between years 2000 and 2018 by Scoping Plan category. The main contributor was transportation. The second highest sector was industrial, which includes sources from refineries, general fuel use, oil and gas extraction, cement plants, and cogeneration heat output. ARB reported that California's GHG emissions inventory was 425.3 $MMTCO_2e$ in 2018 (ARB 2018a).

Figure 7: Greenhouse Gas Emission Trends by Scoping Plan Category in California



Source: ARB 2020c.

3.3—Regulatory Environment

3.3.1 - International

International organizations, such as the ones discussed below, have made substantial efforts to reduce GHGs. Preventing human-induced climate change will require the participation of all nations in solutions to address the issue.

Intergovernmental Panel on Climate Change. In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change. The panel was tasked with assessing the scientific, technical, and socioeconomic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

United Nations Framework Convention on Climate Change (Convention). On March 21, 1994, the United States joined a number of countries around the world in signing the Convention. Under the Convention, governments gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

Kyoto Protocol. The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing GHG emissions at average of five percent against 1990 levels over the five-year period from 2008–2012. The Convention (as discussed above) encouraged industrialized countries to stabilize emissions; however, the Protocol commits them to do so. Developed countries have contributed more emissions over the last 150 years; therefore, the Protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities."

In 2001, President George W. Bush indicated that he would not submit the treaty to the U.S. Senate for ratification, which effectively ended American involvement in the Kyoto Protocol. In December 2009, international leaders met in Copenhagen to address the future of international climate change commitments post-Kyoto. No binding agreement was reached in Copenhagen; however, the Committee identified the long-term goal of limiting the maximum global average temperature increase to no more than 2°C above pre-industrial levels, subject to a review in 2015. The UN Climate Change Committee held additional meetings in Durban, South Africa in November 2011; Doha, Qatar in November 2012; and Warsaw, Poland in November 2013. The meetings are gradually gaining consensus among participants on individual climate change issues.

On September 23, 2014, more than 100 heads of state and government, along with leaders from the private sector and civil society met at the Climate Summit in New York hosted by the United Nations. At the Summit, heads of government, business, and civil society announced actions in areas that would have the greatest impact on reducing emissions, including: climate finance, energy, transport, industry, agriculture, cities, forests, and building resilience.

Paris Agreement. Parties to the United Nations Framework Convention on Climate Change (UNFCCC) reached a landmark agreement on December 12, 2015 in Paris, charting a fundamentally new course in the two-decade-old global climate effort. Culminating in a 4-year negotiating round, the new treaty ends the strict differentiation between developed and developing countries that characterized earlier efforts, replacing it with a common framework that commits all countries to put forward their best efforts and to strengthen those efforts in the years ahead. This includes, for the first time, requirements that all parties report regularly on their emissions and implementation efforts, and undergo international review.

The agreement and a companion decision by parties were the key outcomes of the conference, known as the 21st session of the UNFCCC Conference of the Parties, or COP 21. Together, the Paris Agreement and the accompanying COP decision:

- Reaffirm the goal of limiting global temperature increase well below 2 degrees Celsius, while urging efforts to limit the increase to 1.5 degrees;
- Establish binding commitments by all parties to make "nationally determined contributions" (NDCs), and to pursue domestic measures aimed at achieving them;
- Commit all countries to report regularly on their emissions and "progress made in implementing and achieving" their NDCs, and to undergo international review;
- Commit all countries to submit new NDCs every five years, with the clear expectation that they will "represent a progression" beyond previous ones;
- Reaffirm the binding obligations of developed countries under the UNFCCC to support the efforts of developing countries, while for the first time encouraging voluntary contributions by developing countries too;
- Extend the current goal of mobilizing $100 billion a year in support by 2020 through 2025, with a new, higher goal to be set for the period after 2025;
- Extend a mechanism to address "loss and damage" resulting from climate change, which explicitly will not "involve or provide a basis for any liability or compensation;"
- Require parties engaging in international emissions trading to avoid "double counting;" and
- Call for a new mechanism, similar to the Clean Development Mechanism under the Kyoto Protocol, enabling emission reductions in one country to be counted toward another country's NDC (C2ES 2015a).

On June 1, 2017, President Trump announced the decision for the United States to withdraw from the Paris Climate Accord (White House 2017). The earliest possible effective withdrawal date by the United States cannot be before November 4, 2020. California remains committed to combating climate change through programs designed to reduce GHGs. Based on the results of the 2020 election, it is probable that President-Elect Biden will rejoin the Paris Climate Accord once in office.

3.3.2 - Federal Regulations

Prior to the last decade, there were no concrete federal regulations of GHGs or major planning for climate change adaptation. Since then, federal activity has increased. The following are actions regarding the federal government, GHGs, and fuel efficiency.

Greenhouse Gas Endangerment. *Massachusetts v. EPA* (Supreme Court Case 05-1120) was argued before the United States Supreme Court on November 29, 2006, in which it was petitioned that the EPA regulate four GHGs, including carbon dioxide, under Section 202(a)(1) of the Clean Air Act. A decision was made on April 2, 2007, in which the Supreme Court found that GHGs are air pollutants covered by the Clean Air Act. The Court held that the Administrator must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the Clean Air Act:

- Endangerment Finding: The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases—carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride—in the atmosphere threaten the public health and welfare of current and future generations.
- Cause or Contribute Finding: The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution, which threatens public health and welfare.

These findings do not impose requirements on industry or other entities. However, this was a prerequisite for implementing GHG emissions standards for vehicles, as discussed in the section "Clean Vehicles" below. After a lengthy legal challenge, the United States Supreme Court declined to review an Appeals Court ruling upholding the EPA Administrator findings (EPA 2009c).

Clean Vehicles. Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, the EPA and the Department of Transportation's National Highway Safety Administration announced a joint final rule establishing a national program that would reduce GHG emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program applies to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile, equivalent to 35.5 miles per gallon; that is, if the automobile industry were to meet this CO_2 level solely through fuel economy improvements. Together, these standards would cut CO_2 emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012–2016). The EPA and the National Highway Safety Administration issued final rules on a second-phase joint rulemaking, establishing national standards for light-duty vehicles for model years 2017 through 2025 in August 2012 (EPA 2012). The new standards for model years

2017 through 2025 apply to passenger cars, light-duty trucks, and medium duty passenger vehicles. The final standards are projected to result in an average industry fleetwide level of 163 grams/mile of CO_2 in model year 2025, which is equivalent to 54.5 miles per gallon if achieved exclusively through fuel economy improvements.

The EPA and the U.S. Department of Transportation issued final rules for the first national standards to reduce GHG emissions and improve fuel efficiency of heavy-duty trucks and buses on September 15, 2011, which became effective November 14, 2011. For combination tractors, the agencies are proposing engine and vehicle standards that began in the 2014 model year and achieve up to a 20-percent reduction in CO_2 emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10-percent reduction for gasoline vehicles, and a 15-percent reduction for diesel vehicles by 2018 model year (12 and 17 percent respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the engine and vehicle standards would achieve up to a 10-percent reduction in fuel consumption and CO_2 emissions from the 2014 to 2018 model years.

Mandatory Reporting of Greenhouse Gases. The Consolidated Appropriations Act of 2008, passed in December 2007, requires the establishment of mandatory GHG reporting requirements. On September 22, 2009, the EPA issued the Final Mandatory Reporting of Greenhouse Gases Rule, which became effective January 1, 2010. The rule requires reporting of GHG emissions from large sources and suppliers in the United States, and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions are required to submit annual reports to the EPA.

New Source Review. The EPA issued a final rule on May 13, 2010 that establishes thresholds for GHGs, which will define when permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities. This final rule "tailors" the requirements of these Clean Air Act permitting programs to limit which facilities will be required to obtain Prevention of Significant Deterioration and Title V permits. In the preamble to the revisions to the federal code of regulations, the EPA states:

> This rulemaking is necessary because without it the Prevention of Significant Deterioration and Title V requirements would apply, as of January 2, 2011, at the 100 or 250 tons per year levels provided under the Clean Air Act, greatly increasing the number of required permits, imposing undue costs on small sources, overwhelming the resources of permitting authorities, and severely impairing the functioning of the programs. EPA is relieving these resource burdens by phasing in the applicability of these programs to greenhouse gas sources, starting with the largest greenhouse gas emitters. This rule establishes two initial steps of the phase-in. The rule also commits the agency to take certain actions on future steps addressing smaller sources, but excludes certain smaller sources from Prevention of Significant Deterioration and Title V permitting for greenhouse gas emissions until at least April 30, 2016.

The EPA estimates that facilities responsible for nearly 70 percent of the national GHG emissions from stationary sources will be subject to permitting requirements under this rule. This includes the nation's largest GHG emitters—power plants, refineries, and cement production facilities.

Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units. As required by a settlement agreement, the EPA proposed new performance standards for emissions of carbon dioxide for new, affected, fossil fuel-fired electric utility generating units on March 27, 2012. New sources greater than 25 megawatts would be required to meet an output based standard of 1,000 pounds of carbon dioxide per megawatt-hour, based on the performance of widely used natural gas combined cycle technology. President Trump signed the Executive Order on Energy Independence (E.O. 13783), which calls for a review of the Clean Power Plan. On October 16, 2017, the EPA issued the proposed rule Repeal of Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units an Energy Independence (EPA 2017).

Cap-and-Trade. Cap-and-Trade refers to a policy tool where emissions are limited to a certain amount and can be traded, or provides flexibility on how the emitter can comply. There is no federal GHG Cap-and-Trade program currently; however, some states have joined to create initiatives to provide a mechanism for Cap-and-Trade.

The Regional Greenhouse Gas Initiative is an effort to reduce GHGs among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. Each state caps carbon dioxide emissions from power plants, auctions carbon dioxide emission allowances, and invests the proceeds in strategic energy programs that further reduce emissions, save consumers money, create jobs, and build a clean energy economy. The Initiative began in 2008.

The Western Climate Initiative partner jurisdictions have developed a comprehensive initiative to reduce regional GHG emissions to 15 percent below 2005 levels by 2020. The partners are California, British Columbia, Manitoba, Ontario, and Quebec. Currently only California and Quebec are participating in the Cap-and-Trade program (C2ES 2015).

3.3.3 - California

Legislative Actions to Reduce GHGs

The State of California legislature has enacted a series of bills that constitute the most aggressive program to reduce GHGs of any state in the nation. Some legislation such as the landmark AB 32 California Global Warming Solutions Act of 2006 was specifically enacted to address GHG emissions. Other legislation such as Title 24 and Title 20 energy standards were originally adopted for other purposes such as energy and water conservation, but also provide GHG reductions. This section describes the major provisions of the legislation.

AB 32. The California State Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires that GHGs emitted in California be reduced to 1990 levels by the year 2020. "Greenhouse gases" as defined under AB 32 include carbon dioxide, methane, NO_X, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Since AB 32 was enacted, a seventh chemical, nitrogen trifluoride, has also been added to the list of GHGs. The ARB is the state agency charged with monitoring and regulating sources of GHGs. AB 32 states the following:

> Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

The ARB approved the 1990 GHG emissions level of 427 $MMTCO_2e$ on December 6, 2007 (ARB 2007). Therefore, to meet the State's target, emissions generated in California in 2020 are required to be equal to or less than 427 $MMTCO_2e$. Emissions in 2020 in a BAU scenario were estimated to be 596 $MMTCO_2e$, which do not account for reductions from AB 32 regulations (ARB 2008a). At that rate, a 28 percent reduction was required to achieve the 427 $MMTCO_2e$ 1990 inventory. In October 2010, ARB adopted an updated BAU inventory forecast for 2020 of 545 $MMTCO_2e$, which requires a 21.7 percent reduction from BAU to achieve 1990 levels (ARB 2010a).

Progress in Achieving AB 32 Targets

The State has made steady progress in implementing AB 32 and achieving targets included in Executive Order S-3-05. The progress is evident in updated emission inventories prepared by ARB, which showed that the State inventory dropped below 1990 levels for the first time in 2016 (ARB 2018b). The GHG State inventories for 2017 and 2018 also remain below the 2020 target. The 2017 Scoping Plan Update includes projections indicating that the State will meet or exceed the 2020 target with adopted regulations (ARB 2017c).

ARB 2008 Scoping Plan. The ARB's Climate Change Scoping Plan (Scoping Plan) contains measures designed to reduce the State's emissions to 1990 levels by the year 2020 to comply with AB 32 (ARB 2008). The Scoping Plan identifies recommended measures for multiple GHG emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target—each sector has a different emission reduction target. Most of the measures target the transportation and electricity sectors. The Scoping Plan is fully implemented and as described above achieved the target four years early. As stated in the Scoping Plan, the key elements of the strategy include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets;

- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

Cap-and-Trade Program. The Cap-and-Trade Program is a key element of the Scoping Plan. It sets a statewide limit on sources responsible for 85 percent of California's GHG emissions, and establishes a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy. The program is designed to provide covered entities the flexibility to seek out and implement the lowest cost options to reduce emissions. The program conducted its first auction in November 2012. Compliance obligations began for power plants and large industrial sources in January 2013. Other significant milestones include linkage to Quebec's Cap-and-Trade system in January 2014 and starting the compliance obligation for distributors of transportation fuels, natural gas, and other fuels in January 2015 (ARB 2015d).

The Cap-and-Trade Program provides a firm cap, ensuring that the 2020 statewide emission limit will not be exceeded. An inherent feature of the Cap-and-Trade program is that it does not guarantee GHG emissions reductions in any discrete location or by any particular source. Rather, GHG emissions reductions are guaranteed only on an accumulative basis. As summarized by ARB in the First Update:

> The Cap-and-Trade Regulation gives companies the flexibility to trade allowances with others or take steps to cost-effectively reduce emissions at their own facilities. Companies that emit more have to turn in more allowances or other compliance instruments. Companies that can cut their GHG emissions have to turn in fewer allowances. But as the cap declines, aggregate emissions must be reduced. In other words, a covered entity theoretically could increase its GHG emissions every year and still comply with the Cap-and-Trade Program if there is a reduction in GHG emissions from other covered entities. Such a focus on aggregate GHG emissions is considered appropriate because climate change is a global phenomenon, and the effects of GHG emissions are considered cumulative (ARB 2014b).

The Cap-and-Trade Program works with other direct regulatory measures and provides an economic incentive to reduce emissions. If California's direct regulatory measures reduce GHG emissions more than expected, then the Cap-and-Trade Program will be responsible for relatively fewer emissions reductions. If California's direct regulatory measures reduce GHG emissions less than expected, then the Cap-and-Trade Program will be responsible for relatively more emissions reductions. Thus, the Cap-and-Trade Program assures that California will meet its 2020 GHG emissions reduction mandate:

> The Cap-and-Trade Program establishes an overall limit on GHG emissions from most of the California economy—the "capped sectors." Within the capped sectors, some of the reductions are being accomplished through direct regulations, such as improved building and appliance efficiency standards, the [Low Carbon Fuel

> Standard] LCFS, and the 33 percent [Renewables Portfolio Standard] RPS. Whatever additional reductions are needed to bring emissions within the cap is accomplished through price incentives posed by emissions allowance prices. Together, direct regulation and price incentives assure that emissions are brought down cost-effectively to the level of the overall cap. The Cap-and-Trade Regulation provides assurance that California's 2020 limit will be met because the regulation sets a firm limit on 85 percent of California's GHG emissions. In sum, the Cap-and-Trade Program will achieve aggregate, rather than site specific or project-level, GHG emissions reductions. Also, due to the regulatory architecture adopted by ARB in AB 32, the reductions attributed to the Cap-and-Trade Program can change over time depending on the State's emissions forecasts and the effectiveness of direct regulatory measures (ARB 2014b).

AB 398. The Governor signed AB 398 on July 25, 2017 to extend the Cap-and-Trade Program to 2030. The legislation includes provisions to ensure that offsets used by sources are limited to 4 percent of their compliance obligation from 2021 through 2025 and 6 percent from 2026 through 2030. AB 398 also prevents Air Districts from adopting or implementing emission reduction rules from stationary sources that are also subject to the Cap-and-Trade Program (CAR 2017).

SB 32. The Governor signed SB 32 on September 8, 2016. SB 32 gave ARB the statutory responsibility to include the 2030 target previously contained in Executive Order B-30-15 in the 2017 Scoping Plan Update. SB 32 states that "In adopting rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions authorized by this division, the state [air resources] board shall ensure that statewide greenhouse gas emissions are reduced to at least 40 percent below the statewide greenhouse gas emissions limit no later than December 31, 2030." The 2017 Climate Change Scoping Plan Update addressing the SB 32 targets was adopted on December 14, 2017. The major elements of the framework proposed to achieve the 2030 target are as follows:

1. SB 350
   - Achieve 50 percent Renewables Portfolio Standard (RPS) by 2030.
   - Doubling of energy efficiency savings by 2030.
2. Low Carbon Fuel Standard (LCFS)
   - Increased stringency (reducing carbon intensity 18 percent by 2030, up from 10 percent in 2020).
3. Mobile Source Strategy (Cleaner Technology and Fuels Scenario)
   - Maintaining existing GHG standards for light- and heavy-duty vehicles.
   - Put 4.2 million zero-emission vehicles (ZEVs) on the roads.
   - Increase ZEV buses, delivery and other trucks.
4. Sustainable Freight Action Plan
   - Improve freight system efficiency.
   - Maximize use of near-zero emission vehicles and equipment powered by renewable energy.
   - Deploy over 100,000 zero-emission trucks and equipment by 2030.

5. Short-Lived Climate Pollutant (SLCP) Reduction Strategy
    - Reduce emissions of methane and hydrofluorocarbons 40 percent below 2013 levels by 2030.
    - Reduce emissions of black carbon 50 percent below 2013 levels by 2030.

6. SB 375 Sustainable Communities Strategies
    - Increased stringency of 2035 targets.

7. Post-2020 Cap-and-Trade Program
    - Declining caps, continued linkage with Québec, and linkage to Ontario, Canada.
    - ARB will look for opportunities to strengthen the program to support more air quality co-benefits, including specific program design elements. In Fall 2016, ARB staff described potential future amendments including reducing the offset usage limit, redesigning the allocation strategy to reduce free allocation to support increased technology and energy investment at covered entities and reducing allocation if the covered entity increases criteria or toxics emissions over some baseline.

8. 20 percent reduction in greenhouse gas emissions from the refinery sector.

9. By 2018, develop Integrated Natural and Working Lands Action Plan to secure California's land base as a net carbon sink (ARB 2017c).

SB 375—The Sustainable Communities and Climate Protection Act of 2008. SB 375 was signed into law on September 30, 2008. According to SB 375, the transportation sector is the largest contributor of GHG emissions, which emits over 40 percent of the total GHG emissions in California. SB 375 states, "Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 does the following: (1) requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing GHG emissions, (2) aligns planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies.

Concerning CEQA, SB 375—as codified in Public Resources Code Section 21159.28—states that CEQA findings determinations for certain projects are not required to reference, describe, or discuss (1) growth-inducing impacts or (2) any project-specific or cumulative impacts from cars and light-duty truck trips generated by the project on global warming or the regional transportation network if the project:

1. Is in an area with an approved Sustainable Communities Strategy or an alternative planning strategy that the ARB accepts as achieving the greenhouse gas emission reduction targets;

2. Is consistent with that strategy (in designation, density, building intensity, and applicable policies); and

3. Incorporates the mitigation measures required by an applicable prior environmental document.

The ARB has prepared the Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets. The update includes an increase in the 2035 target for Fresno County from 10 percent to 13 percent (ARB 2017c). However, the 2018 RTP maintains the 10 percent target (Fresno COG 2018).

AB 1493 Pavley Regulations and Fuel Efficiency Standards. California AB 1493, enacted on July 22, 2002, required the ARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by the EPA's denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld by the by the U.S. District Court for the District of Columbia in 2011 (ARB 2013d).

The standards were phased in during the 2009 through 2016 model years. When fully phased in, the near-term (2009–2012) standards resulted in an approximately 22 percent reduction compared with the 2002 fleet, and the mid-term (2013–2016) standards resulted in about a 30 percent reduction. Several technologies stand out as providing significant reductions in emissions at favorable costs. These include discrete variable valve lift or camless valve actuation to optimize valve operation, rather than relying on fixed valve timing and lift as has historically been done; turbocharging to boost power and allow for engine downsizing; improved multi-speed transmissions; and improved air conditioning systems that operate optimally, leak less, and/or use an alternative refrigerant (ARB 2013e).

The second phase of the implementation for the Pavley bill was incorporated into Amendments to the Low-Emission Vehicle Program referred to as LEV III or the Advanced Clean Cars program. The Advanced Clean Car program combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of requirements for model years 2017 through 2025. The regulation will reduce GHGs from new cars by 34 percent from 2016 levels by 2025. The rules will reduce pollutants from gasoline and diesel-powered cars, and deliver increasing numbers of zero-emission technologies, such as full battery electric cars, newly emerging plug-in hybrid electric vehicles, and hydrogen fuel cell cars. The regulations will also ensure adequate fueling infrastructure is available for the increasing numbers of hydrogen fuel cell vehicles planned for deployment in California (ARB 2017e).

SB 1368—Emission Performance Standards. In 2006, the State Legislature adopted SB 1368, which was subsequently signed into law by the governor. SB 1368 directs the California Public Utilities Commission to adopt a performance standard for GHG emissions for the future power purchases of California utilities. SB 1368 seeks to limit carbon emissions associated with electrical energy consumed in California by forbidding procurement arrangements for energy longer than 5 years from resources that exceed the emissions of a relatively clean, combined cycle natural gas power plant. Because of the carbon content of its fuel source, a coal-fired plant cannot meet this standard because such plants emit roughly twice as much carbon as natural gas, combined cycle plants. Accordingly, the new law effectively prevents California's utilities from investing in, otherwise financially supporting, or purchasing power from new coal plants located in or out of the State. The California Public Utilities Commission adopted the regulations required by SB 1368 on August 29, 2007. The regulations implementing SB 1368 establish a standard for baseload generation owned by, or under long-term contract to publicly owned utilities, of 1,100 lbs. CO_2 per megawatt-hour (MWh).

SB 1078—Renewable Electricity Standards. On September 12, 2002, Governor Gray Davis signed SB 1078, requiring California to generate 20 percent of its electricity from renewable energy by 2017. SB 107 changed the due date to 2010 instead of 2017. On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08, which established a Renewable Portfolio Standard target for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. Governor Schwarzenegger also directed the ARB (Executive Order S-21-09) to adopt a regulation by July 31, 2010, requiring the State's load serving entities to meet a 33 percent renewable energy target by 2020 The ARB approved the Renewable Electricity Standard on September 23, 2010 by Resolution 10-23. In 2011, the state legislature adopted this higher standard in SB X1-2. Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas.

SB 350—Clean Energy and Pollution Reduction Act of 2015. The legislature approved and the governor then signed SB 350 on October 7, 2015, which reaffirms California's commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the RPS, higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for electric vehicle charging stations. Provisions for a 50 percent reduction in the use of petroleum statewide were removed from the Bill because of opposition and concern that it would prevent the Bill's passage. Specifically, SB 350 requires the following to reduce statewide GHG emissions:

- Increase the amount of electricity procured from renewable energy sources from 33 percent to 50 percent by 2030, with interim targets of 40 percent by 2024, and 25 percent by 2027.
- Double the energy efficiency in existing buildings by 2030. This target will be achieved through the California Public Utility Commission (CPUC), the California Energy Commission (CEC), and local publicly owned utilities.
- Reorganize the Independent System Operator (ISO) to develop more regional electricity transmission markets and improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States (California Leginfo 2015).

SB 100—California Renewables Portfolio Standard Program. The Governor approved SB 100 on September 10, 2018. The legislation revised the Renewable Portfolio Standard goals to achieve the 50 percent renewable resources target by December 31, 2026, and to achieve a 60 percent target by December 31, 2030. The bill would require that retail sellers and local publicly owned electric utilities procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt hours of those products sold to their retail end-use customers achieve 44 percent of retail sales by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030 (California Leginfo 2018).

SBX 7-7—The Water Conservation Act of 2009. The legislation directs urban retail water suppliers to set individual 2020 per capita water use targets and begin implementing conservation measures to achieve those goals. Meeting this statewide goal of 20 percent decrease in demand will result in a reduction of almost 2 million acre-feet in urban water use in 2020.

Executive Orders Related to GHG Emissions

California's Executive Branch has taken several actions to reduce GHGs through the use of executive orders. Although not regulatory, they set the tone for the State and guide the actions of state agencies.

Executive Order S-3-05. On June 1, 2005, former California Governor Arnold Schwarzenegger announced through Executive Order S-3-05, the following reduction targets for GHG emissions:

- By 2010, reduce greenhouse gas emissions to 2000 levels.
- By 2020, reduce greenhouse gas emissions to 1990 levels.
- By 2050, reduce greenhouse gas emissions to 80 percent below 1990 levels.

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be a mid-term target. Because this is an executive order, the goals are not legally enforceable for local governments or the private sector.

Executive Order B-30-15. On April 29, 2015, Governor Edmund G. Brown Jr. issued an executive order to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. The Governor's executive order aligns California's GHG reduction targets with those of leading international governments ahead of the United Nations Climate Change Conference in Paris late 2015. The executive order sets a new interim statewide GHG emission reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050, and directs the ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of $MMTCO_2e$. The executive order also requires the State's climate adaptation plan to be updated every three years and for the State to continue its climate change research program, among other provisions. As with Executive Order S-3-05, this executive order is not legally enforceable against local governments and the private sector. Legislation that would update AB 32 to provide post-2020 targets was signed by the Governor in 2016. SB 32 includes a 2030 mandate matching the requirements of the Executive Order.

Executive Order S-01-07—Low Carbon Fuel Standard. The governor signed Executive Order S 01-07 on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. In particular, the executive order established a Low Carbon Fuel Standard (LCFS) and directed the Secretary for Environmental Protection to coordinate the actions of the California Energy Commission, the ARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. This analysis supporting development of the protocols was included in the State Implementation Plan for alternative fuels (State Alternative Fuels Plan adopted by California Energy Commission on December 24, 2007) and was submitted to ARB for consideration as an "early action" item under AB 32. The ARB adopted the Low Carbon Fuel Standard on April 23, 2009.

The Low Carbon Fuel Standard was subject to legal challenge in 2011. Ultimately, ARB was required to bring a new LCFS regulation to the Board for consideration in February 2015. The proposed LCFS regulation was required to contain revisions to the 2010 LCFS as well as new provisions designed to foster investments in the production of the low-carbon fuels, offer additional flexibility to regulated parties, update critical technical information, simplify and streamline program operations, and enhance enforcement. The Office of Administrative Law (OAL) approved the regulation on November 16, 2015 (ARB 2015e). The regulation was last amended in 2018.

Executive Order S-13-08. Executive Order S-13-08 states that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the order, the 2009 California Climate Adaptation Strategy (California Natural Resources Agency 2009) was adopted, which is the ". . . first statewide, multi-sector, region-specific, and information-based climate change adaptation strategy in the United States." Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Executive Order B-55-18. Executive Order B-55-18 issued by Governor Brown on September 10, 2018 establishes a new statewide goal to achieve carbon neutrality as soon as possible, but no later than 2045, and achieve and maintain net negative emissions thereafter. The executive order directs ARB to work with relevant state agencies to develop a framework for implementation and accounting that tracks progress toward this goal (Brown 2018).

California Regulations and Building Codes

California has a long history of adopting regulations to improve energy efficiency in new and remodeled buildings. These regulations have kept California's energy consumption relatively flat even with rapid population growth.

Title 20 Appliance Efficiency Regulations. California Code of Regulations, Title 20: Division 2, Chapter 4, Article 4, Sections 1601–1608: Appliance Efficiency Regulations regulates the sale of appliances in California. The Appliance Efficiency Regulations include standards for both federally regulated appliances and non-federally regulated appliances. Twenty-three categories of appliances are included in the scope of these regulations including lighting, air conditioning, and most home appliances. The standards within these regulations apply to appliances that are sold or offered for sale in California, except those sold wholesale in California for final retail sale outside the State and those designed and sold exclusively for use in recreational vehicles or other mobile equipment (CEC 2018a).

Title 24 Energy Efficiency Standards. California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The 2019 Building Energy Efficiency Standards went into effect on January 1, 2020 (CEC 2018b).

Title 24 California Green Building Standards Code (California Code of Regulations Title 24, Part 11 code) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect January 1, 2011. The code is updated on a regular basis, with the most recent update consisting of the 2016 California Green Building Code Standards that became effective January 1, 2017. Local jurisdictions are permitted to adopt more stringent requirements, as state law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they provide a minimum 50-percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. State building code provides the minimum standard that buildings need to meet in order to be certified for occupancy, which is generally enforced by the local building official.

The California Green Building Standards Code (California Code of Regulations Title 24, Part 11 code) requires:

- **Short-term bicycle parking.** If a commercial project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for five percent of visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- **Long-term bicycle parking.** For buildings with over 10 tenant-occupants, provide secure bicycle parking for five percent of tenant-occupied motorized vehicle parking capacity, with a minimum of one space (5.106.4.1.2).
- **Designated parking.** Provide designated parking in commercial projects for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).
- **Recycling by Occupants.** Provide readily accessible areas that serve the entire building and are identified for the depositing, storage, and collection of nonhazardous materials for recycling. (5.410.1).
- **Construction waste.** A minimum 50-percent diversion of construction and demolition waste from landfills, increasing voluntarily to 65 and 80 percent for new homes and 80-percent for commercial projects. (5.408.1, A5.408.3.1 [nonresidential], A5.408.3.1 [residential]). All (100 percent) of trees, stumps, rocks and associated vegetation and soils resulting from land clearing shall be reused or recycled (5.408.3).
- **Wastewater reduction.** Each building shall reduce the generation of wastewater by one of the following methods:
  1. The installation of water-conserving fixtures or
  2. Using nonpotable water systems (5.303.4).
- **Water use savings.** Twenty percent mandatory reduction in indoor water use with voluntary goal standards for 30, 35, and 40 percent reductions (5.303.2, A5303.2.3 [nonresidential]).
- **Water meters.** Separate water meters for buildings in excess of 50,000 square feet or buildings projected to consume more than 1,000 gallons per day (5.303.1).
- **Irrigation efficiency.** Moisture-sensing irrigation systems for larger landscaped areas (5.304.3).
- **Materials pollution control.** Low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring, and particleboard (5.404).
- **Building commissioning.** Mandatory inspections of energy systems (i.e., heat furnace, air conditioner, mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity according to their design efficiencies (5.410.2).

Model Water Efficient Landscape Ordinance. The Model Water Efficient Landscape Ordinance (Ordinance) was required by AB 1881 Water Conservation Act. The bill required local agencies to adopt a local landscape ordinance at least as effective in conserving water as the Model Ordinance by January 1, 2010. Reductions in water use of 20 percent consistent with (SBX-7-7) 2020 mandate are expected for the ordinance. Governor Brown's Drought Executive Order of April 1, 2015 (EO B-29-15) directed DWR to update the ordinance through expedited regulation. The California Water Commission approved the revised ordinance on July 15, 2015, which became effective on December 15, 2015. New development projects that include landscaped areas of 500 square feet or more are subject to the ordinance. The update requires:

- More efficient irrigation systems
- Incentives for graywater usage
- Improvements in on-site stormwater capture
- Limiting the portion of landscapes that can be planted with high water use plants
- Reporting requirements for local agencies.

SB 97 and the CEQA Guidelines Update. Passed in August 2007, SB 97 added Section 21083.05 to the Public Resources Code. The code states: "(a) On or before July 1, 2009, the Office of Planning and Research shall prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of GHG emissions or the effects of GHG emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption. (b) On or before January 1, 2010, the Resources Agency shall certify and adopt guidelines prepared and developed by the Office of Planning and Research pursuant to subdivision (a)."

Section 21097 was also added to the Public Resources Code. This provided an exemption until January 1, 2010 for transportation projects funded by the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006, or projects funded by the Disaster Preparedness and Flood Prevention Bond Act of 2006—in stating that the failure to analyze adequately the effects of GHGs would not violate CEQA. The Natural Resources Agency completed the approval process and the Amendments became effective on March 18, 2010. The Natural Resources Agency adopted additional amendments related to greenhouse gases in the 2019 CEQA Guidelines Update adopted on December 28, 2018.

The 2010 CEQA Amendments along with the 2018 CEQA Amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. The CEQA Amendments fit within the existing CEQA framework by amending existing CEQA Guidelines to reference climate change.

Section 15064.4(b) of the CEQA Guidelines provides direction for lead agencies for assessing the significance of impacts of GHG emissions:

- The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;

- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; or

- The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project. In determining the significance of impacts, the lead agency may consider a project's consistency with the State's long-term climate goals or strategies, provided that substantial evidence supports the agency's analysis of how those goals or strategies address the project's incremental contribution to climate change and its conclusion that the project's incremental contribution is not cumulatively considerable.

Section 15064.4(c) states that a lead agency may use a model or methodology to estimate greenhouse gas emissions resulting from a project. The lead agency has discretion to select the model or methodology it considers most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change. The lead agency must support its selection of a model or methodology with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use.

The 2018 CEQA Guidelines include the following discussion regarding thresholds of significance.

> (d) Using environmental standards as thresholds of significance promotes consistency in significance determinations and integrates environmental review with other environmental program planning and regulation. Any public agency may adopt or use an environmental standard as a threshold of significance. In adopting or using an environmental standard as a threshold of significance, a public agency shall explain how the particular requirements of that environmental standard reduce project impacts, including cumulative impacts, to a level that is less than significant, and why the environmental standard is relevant to the analysis of the project under consideration. For the purposes of this subdivision, an "environmental standard" is a rule of general application that is adopted by a public agency through a public review process and that is all of the following:
> (1) a quantitative, qualitative or performance requirement found in an ordinance, resolution, rule, regulation, order, plan or other environmental requirement;
> (2) adopted for the purpose of environmental protection;
> (3) addresses the environmental effect caused by the project; and,
> (4) applies to the project under review.

In addition, the 2018 amendments revised Appendix G Checklist questions to include a new question specifically related to energy conservation, which focuses on potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation.

CEQA emphasizes that the effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impacts analysis (see CEQA Guidelines Section 15130(f)).

California Supreme Court GHG Ruling

A November 30, 2015 ruling, the *California Supreme Court in Center for Biological Diversity (CBD) v. California Department of Fish and Wildlife (CDFW)* on the Newhall Ranch project, concluded that whether the project was consistent with meeting statewide emission reduction goals is a legally permissible criterion of significance, but the significance finding for the project was not supported by a reasoned explanation based on substantial evidence. The Court offered potential solutions on pages 25 to 27 of the ruling to address this issue summarized below.

Specifically, the Court advised that:

- **Substantiation of Project Reductions from BAU.** A lead agency may use a BAU comparison based on the Scoping Plan's methodology if it also substantiates the reduction a particular project must achieve to comply with statewide goals. The Court suggested a lead agency could examine the "data behind the Scoping Plan's business-as-usual model" to determine the necessary project-level reductions from new land use development at the proposed location (p. 25).
- **Compliance with Regulatory Programs or Performance Based Standards.** "A lead agency might assess consistency with A.B. 32's goal in whole or part by looking to compliance with regulatory programs designed to reduce greenhouse gas emissions from particular activities. (See Final Statement of Reasons, supra, at p. 64 [greenhouse gas emissions 'may be best analyzed and mitigated at a programmatic level.'].) To the extent a project's design features comply with or exceed the regulations outlined in the Scoping Plan and adopted by the Air Resources Board or other state agencies, a lead agency could appropriately rely on their use as showing compliance with 'performance based standards' adopted to fulfill 'a statewide . . . plan for the reduction or mitigation of greenhouse gas emissions.' (CEQA Guidelines § 15064.4(a)(2), (b)(3); see also id., § 15064(h)(3) [determination that impact is not cumulatively considerable may rest on compliance with previously adopted plans or regulations, including 'plans or regulations for the reduction of greenhouse gas emissions'].)" (p. 26).
- **Compliance with GHG Reduction Plans or Climate Action Plans (CAPs).** A lead agency may utilize "geographically specific GHG emission reduction plans" such as climate action plans or greenhouse gas emission reduction plans to provide a basis for the tiering or streamlining of project-level CEQA analysis (p. 26).
- **Compliance with Local Air District Thresholds.** A lead agency may rely on "existing numerical thresholds of significance for greenhouse gas emissions" adopted by, for example, local air districts (p. 27).

Therefore, consistent with CEQA Guidelines Appendix G, the three factors identified in CEQA Guidelines Section 15064.4 and the recently issued Newhall Ranch opinion, the GHG impacts would be considered significant if the project would:

- Conflict with a compliant GHG Reduction Plan if adopted by the lead agency;
- Exceed an adopted quantitative threshold that applies to the area; or
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emission of GHGs.

3.3.4 - San Joaquin Valley Air Pollution Control District

Climate Change Action Plan

On August 21, 2008, the SJVAPCD Governing Board approved a proposal called the Climate Change Action Plan (CCAP). The CCAP began with a public process bringing together stakeholders, land use agencies, environmental groups, and business groups to conduct public workshops to develop comprehensive policies for CEQA guidelines, a carbon exchange bank, and voluntary GHG emissions mitigation agreements for the Board's consideration. The CCAP contains the following goals and actions:

- Develop GHG significance thresholds to address CEQA projects with GHG emission increases.
- Develop the San Joaquin Valley Carbon Exchange for banking and trading GHG reductions.
- Authorize use of the SJVAPCD's existing inventory reporting system to allow use for GHG reporting required by AB 32 regulations.
- Develop and administer GHG reduction agreements to mitigate proposed emission increases from new projects.
- Support climate protection measures that reduce greenhouse gas emissions as well as toxic and criteria pollutants. Oppose measures that result in a significant increase in toxic or criteria pollutant emissions in already impacted areas.

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

The SJVAPCD's approach is intended to streamline the process of determining if project-specific GHG emissions would have a significant effect. Projects exempt from the requirements of CEQA, and projects complying with an approved plan or mitigation program would be determined to have a less than significant cumulative impact. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources, and must have a certified final CEQA document.

For non-exempt projects, those projects for which there is no applicable approved plan or program, or those projects not complying with an approved plan or program, the lead agency must evaluate the project against performance-based standards and would require the adoption of design elements, known as a Best Performance Standard, to reduce GHG emissions. The Best Performance Standards (BPS) have not yet fully been established, though they must be designed to achieve a 29 percent reduction when compared with the BAU projections identified in ARB's AB 32 Scoping Plan.

BAU represents the emissions that would occur in 2020 if the average baseline emissions during the 2002–2004 period were grown to 2020 levels, without control. Thus, these standards would carry with them pre-quantified emissions reductions, eliminating the need for project-specific quantification. Therefore, projects incorporating BPS would not require specific quantification of GHG emissions, and automatically would be determined to have a less than significant cumulative impact for GHG emissions.

For stationary source permitting projects, BPS means, "The most stringent of the identified alternatives for control of GHG emissions, including type of equipment, design of equipment and operational and maintenance practices, which are achieved-in-practice for the identified service, operation, or emissions unit class." The SJVAPCD has identified BPS for the following sources: boilers; dryers and dehydrators; oil and gas extraction; storage, transportation, and refining operations; cogeneration; gasoline dispensing facilities; volatile organic compound control technology; and steam generators.

For development projects, BPS means, "Any combination of identified GHG emission reduction measures, including project design elements and land use decisions that reduce project-specific GHG emission reductions by at least 29 percent compared with business as usual."

Projects not incorporating BPS would require quantification of GHG emissions and demonstration that BAU GHG emissions have been reduced or mitigated by 29 percent. As stated earlier, ARB's adjusted inventory reduced the amount required by the State to achieve 1990 emission levels from 29 percent to 21.7 percent to account for slower growth experienced since the 2008 recession. According to SJVAPCD guidance, quantification of GHG emissions would be required for all projects for which the lead agency has determined that an environmental impact report is required, regardless of whether the project incorporates BPS. The SJVAPCD has not yet adopted BPS for development projects, so quantification of project emissions is required. The SJVAPCD has not updated its guidance to address SB 32 2030 targets.

San Joaquin Valley Carbon Exchange

The SJVAPCD initiated work on the San Joaquin Valley Carbon Exchange in November 2008. The purpose of the carbon exchange is to quantify, verify, and track voluntary GHG emissions reductions generated within the San Joaquin Valley. However, the SJVAPCD has pursued an alternative strategy that incorporates the GHG emissions into its existing Rule 2301—Emission Reduction Credit Offset Banking that formerly only addressed criteria pollutants. The SJVAPCD is also participating with the California Air Pollution Control Officers Association (CAPCOA), of which it is a member, in the CAPCOA Greenhouse Gas Reduction Exchange (GHG Rx). The GHG Rx is operated cooperatively by air districts that have elected to participate. Participating districts have signed a Memorandum of Understanding (MOU) with CAPCOA and agree to post only those credits that meet the Rx standards for quality. The objective is to provide a secure, low-cost, high-quality greenhouse gas exchange for credits created in California. The GHG Rx is intended to help fulfill compliance obligations or mitigation needs of local projects subject to environmental review, reducing the uncertainty of using credits generated in distant locations. The SJVAPCD currently has no credits posted to the GHG Rx website as of this writing (CAPCOA 2018).

Rule 2301

While the Climate Change Action Plan indicated that the GHG emission reduction program would be called the San Joaquin Valley Carbon Exchange, the District incorporated a method to register voluntary GHG emission reductions into its existing Rule 2301—Emission Reduction Credit Banking through amendments of the rule. Amendments to the rule were adopted on January 19, 2012. The purposes of the amendments to the rule include the following:

- Provide an administrative mechanism for sources to bank voluntary GHG emission reductions for later use.
- Provide an administrative mechanism for sources to transfer banked GHG emission reductions to others for any use.
- Define eligibility standards, quantitative procedures, and administrative practices to ensure that banked GHG emission reductions are real, permanent, quantifiable, surplus, and enforceable.

Fresno Council of Governments

Regional Transportation Plan

The Fresno Council of Governments (Fresno COG) is the Regional Transportation Planning Agency (RTPA) for the Fresno County region. The Fresno COG adopted the 2014 Regional Transportation Plan/Sustainable Community Strategy (RTP/SCS) that included the County's first Sustainable Community Strategy to comply with SB 375. The RTP is a planning document prepared in cooperation with the Federal Highway Administration (FHWA), Federal Transit Administration (FTA), the California Department of Transportation (Caltrans), and other stakeholders, including transportation system users. The SCS is intended to show how integrated land use and transportation planning can lead to lower greenhouse gas (GHG) emissions from autos and light trucks. SB 375 includes the following four primary findings related to the RTP/SCS development process:

- SB 375 required the ARB to develop regional GHG emission reduction targets for cars and light trucks for each of the 18 MPOs in California, including Fresno COG. ARB approved targets for the San Joaquin Valley in January 2013. The target for Fresno is a per capita reduction in GHG emissions from passenger vehicle travel of five percent by 2020 and 10 percent by 2035 relative to 2005 levels. The 2018 RTP indicates that the County continues to pursue the 5 percent reduction by 2020 and 10 percent reduction by 2035 (Fresno COG 2018).
- SB 375 required the preparation of an SCS. Fresno COG included a SCS that specifies how the GHG emission reduction target set by ARB will be achieved in the RTP. If the target cannot be met through the SCS, then an Alternative Planning Strategy (APS) shall be prepared by Fresno

COG. Chapter 4 of the 2014 RTP includes the SCS for Fresno COG. Chapter 3 of the 2018 RTP includes the updated SCS.

- SB 375 streamlines CEQA requirements for specific residential and mixed-use developments that are consistent with the Fresno County SCS or APS (as determined by ARB) to achieve regional GHG emissions reduction target.

The 2018 RTP/SCS was adopted by Fresno COG on July 26, 2018 and reflects its latest per capita GHG reduction targets of 5 percent by 2020, 10 percent by 2035, and 12 percent by 2042 (Fresno COG 2018).

3.3.5 - Local

The City of Fresno included a Greenhouse Gas Reduction Plan as part of the General Plan Update that includes strategies that would help reduce GHG emissions associated with development projects. The GHG Reduction Plan used the General Plan as the basis for its land use and transportation related policies to reduce GHG emissions.

City of Fresno General Plan

The City of Fresno General Plan includes numerous objectives and policies in the Urban Form, Land Use, Design, Transportation, Park and Open Space, and Resource Conservation Elements. A list of the relevant policies was compiled in the Greenhouse Gas Reduction Plan. A qualitative policy consistency analysis of relevant General Plan policies is included in the Greenhouse Gas section.

City of Fresno General Plan Master Environmental Impact Report (MEIR)

The General Plan MEIR relies on General Plan goals and policies to mitigate GHG emissions to the extent feasible. The policies are similar to the strategies and actions included in plan. The following policies are applicable to the project:

- **RC-5-a Support State Goal to Reduce Statewide GHG Emissions.** As is consistent with State law, strive to meet AB 32 goal to reduce greenhouse gas emissions to 1990 levels by 2020 and strive to meet a reduction of 80 percent below 1990 levels by 2050 as stated in Executive Order S-03-05. As new statewide GHG reduction targets and dates are set by the State update the City’s Greenhouse Gas Reduction Plan to include a comprehensive strategy to achieve consistency with those targets by the dates established.
- **RC-5-c GHG Reduction through Design and Operations.** Increase efforts to incorporate requirements for GHG emission reductions in land use entitlement decisions, facility design, and operational measures subject to City regulation through the following measures and strategies:
  - Promote the expansion of incentive-based programs that involve certification of projects for energy and water efficiency and resiliency. These certification programs and scoring systems may include public agency “Green” and conservation criteria, Energy Star™ certification, CALGreen Tier 1 or Tier 2, Leadership in Energy Efficient Design (LEED™) certification, etc.
  - Promote appropriate energy and water conservation standards and facilitate mixed-use projects, new incentives for infill development, and the incorporation of mass transit, bicycle and pedestrian amenities into public and private projects.

- **RC-5-d SCS and CAP Conformity Analysis.** Ensure that the City includes analysis of a project's conformity to an adopted regional Sustainable Community Strategy or Alternative Planning Strategy (APS), an adopted Climate Action Plan (CAP), and any other applicable City and regional greenhouse gas reduction strategies in affect at the time of project review.
- **RC-5-e Ensure Compliance.** Ensure ongoing compliance with GHG emissions reduction plans and programs by requiring that air quality measures are incorporated into projects' design, conditions of approval, and mitigation measures.
- **RC-5-g Evaluate Impacts with Models.** Continue to use computer models such as those used by SJVAPCD to evaluate greenhouse gas impacts of plans and projects that require such review (City of Fresno 2014c).

Greenhouse Gas Reduction Plan

The General Plan Update includes a Greenhouse Gas Reduction Plan (GHG Plan) that provides the City's primary strategy for reductions greenhouse gas emissions. The intent of the GHG Plan is to achieve compliance with state GHG reduction mandates by focusing on feasible actions the City can take to minimize the adverse impacts of growth and development on climate change. The GHG Plan does not reinvent the wheel; rather, it builds on the General Plan policies and implementation measures. Where needed, the GHG Plan provides more details to clarify and focus action and to ensure implementation (Fresno 2014b).

The GHG Plan shows that the City will achieve a reduction of 26.8 percent from BAU by 2020 through compliance with regulations only, which exceeds the 21.7 percent required to show consistency with AB 32 targets. The local measures contained in the GHG Plan were expected to achieve an additional 3.0 percent reduction from BAU for a total reduction of 29.8 percent from BAU by 2020.

The GHG Plan includes criteria that would allow projects to qualify for permit streamlining provisions and incentives and would receive a less than significant finding for GHG impacts. The checklist is intended as an incentive program and is not feasible for all projects. Projects that meet the Fresno Green Checklist point totals receive the following incentives:

- 25 percent fee reductions of many planning fees (Site Plans, CUPs, EAs, etc.)
- 20 percent minor deviation from development standards, if needed (25% if public art is incorporated into the project)
- Expedited processing through the "Green Team"
- Eligibility for a Fresno Green award and use of the Fresno Green brand for the project

In addition, projects that meet the criteria listed below do not need a quantitative greenhouse gas analysis in some cases. Projects that comply with the four actions listed below would not need to prepare a quantitative GHG analysis to demonstrate consistency with the GHG Plan and to be considered to have less than significant impacts. Projects requiring a General Plan Amendment would require a quantitative analysis of GHG emissions to demonstrate that the project would achieve at least a 21.7 percent GHG emission reduction compared to business as usual (BAU) in 2020 to be considered less than significant.

The GHG Plan includes the following guidance for determining project consistency with the GHG Plan:

1. Review General Plan Policies listed in the GHG Plan to determine applicability to the project.
2. Incorporate design features or mitigation measures into the project as needed to demonstrate consistency.
   a. Street and pedestrian design complies with complete streets concepts.
   b. Review project against Development Code for mandatory design features required for the project.
   c. Consider alternative energy generation (solar) if appropriate for the project and site. (The State is working towards zero net energy development that will require increasing efficiency and self-generation over time).
   d. Review water conservation building and landscape design features for compliance with City water conservation standards.
3. Implement project design features suitable for the development type and location.
   a. Projects within core/center areas and BRT corridors should meet minimum density and design requirements to ensure pedestrian and transit orientation is met.
   b. Maintain and enhance connections to regional bikeways and trail system.
4. Complete the latest version of the Fresno Green Residential or Non-Residential Checklist
   a. Meet the Fresno Green checklist point requirements.
   b. Alternatively, meet the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Programs, or qualify for Build It Green's GreenPoint rating system for residential building.

Many of the points available on the Fresno Green Checklist and the LEED Program apply to measures not related to greenhouse gas emissions or are specific to certain areas of the City such as redevelopment areas. Projects that do not choose to pursue the Fresno Green streamlining benefits may prepare a quantitative analysis to demonstrate that the project achieves emission reductions consistent with the GHG Plan and AB 32 reduction targets (21.7 percent reduction from BAU in 2020). This project has provided a quantitative analysis of project emissions under the BAU scenario and 2020 with emission reductions scenario to demonstrate that the project would achieve the 21.7 percent reduction required to demonstrate consistency with AB 32 reduction targets and the 29 percent reduction from BAU recommended by the SJVAPCD that is based on reductions required in the AB 32 Scoping Plan. In addition, an analysis of 2030 emissions is included to address SB 32 2030 targets and compliance with the Newhall Ranch California Supreme Court ruling.

Waste Diversion

With the passage of SB 1016, the Per Capita Disposal Measurement System, only per capita disposal rates are measured. Targets are based on the per capita disposal rates. The City's disposal rate for 2019 was 6.2 pounds per person per day, which is well below the target of 6.6 pounds per person per day. The disposal rate per employee was 14 pounds per day, which is below the target of 15.6 pounds per employee per day (CalRecycle 2020).

SECTION 4: MODELING PARAMETERS AND ASSUMPTIONS

4.1—Model Selection and Guidance

Air pollutant emissions can be estimated by using emission factors and a level of activity. Emission factors represent the emission rate of a pollutant given the activity over time; for example, grams of NO_X per horsepower-hour (hp-hr) or grams of NO_X per vehicle mile traveled. The ARB has published emission factors for on-road mobile vehicles/trucks in the EMission FACtors Model (EMFAC) mobile source emissions model and emission factors for off-road equipment and vehicles in the OFFROAD emissions model. An air emissions model (or calculator) combines the emission factors and the various levels of activity and outputs the emissions for the various pieces of equipment.

The California Emissions Estimator Model (CalEEMod) version 2016.3.2 was developed by the South Coast Air Quality Management District in cooperation with other air districts throughout the State. CalEEMod is designed as a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with construction and operation from a variety of land uses.

The modeling follows District guidance where applicable from its GAMAQI. The models used in this analysis are summarized as follows:

- Construction emissions: CalEEMod, version 2016.3.2
- Operational emissions: CalEEMod, version 2016.3.2

4.2—Air Pollutants and GHGs Assessed

4.2.1 - Criteria Pollutants Assessed

The following air pollutants are assessed in this analysis:

- Reactive organic gases (ROG)
- Nitrogen oxides (NO_X)
- Carbon monoxide (CO)
- Sulfur dioxide (SO_2)
- Particulate matter less than 10 microns in diameter (PM_{10})
- Particulate matter less than 2.5 microns in diameter ($PM_{2.5}$)

Note that the project would emit ozone precursors ROG and NO_X. However, the project would not directly emit ozone, since it is formed in the atmosphere during the photochemical reaction of ozone precursors. Other criteria pollutants such as vinyl chloride, hydrogen sulfide, lead, and sulfates were not included because of their low levels of emissions from the project.

As noted previously, the project would emit ultrafine particles. However, there is currently no standard separate from the $PM_{2.5}$ standards for ultrafine particles and there is no accepted methodology to quantify or assess the significance of such particles.

4.2.2 - Greenhouse Gases Assessed

This analysis is restricted to GHGs identified by AB 32, which include: carbon dioxide, methane, NO_X, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The project would generate a variety of GHGs, including several defined by AB 32 such as carbon dioxide, methane, and NO_X.

The project may emit GHGs that are not defined by AB 32. For example, the project may generate aerosols through emissions of DPM from the vehicles and trucks that would access the project site. Aerosols are short-lived particles, as they remain in the atmosphere for about one week. Black carbon is a component of aerosol. Studies have indicated that black carbon has a high global warming potential; however, the Intergovernmental Panel on Climate Change states that it has a low level of scientific certainty (IPCC 2007a).

Water vapor could be emitted from evaporated water used for landscaping, but this is not a significant impact because water vapor concentrations in the upper atmosphere are primarily due to climate feedbacks rather than emissions from project-related activities.

The project would emit nitrogen oxides and volatile organic compounds, which are ozone precursors. Ozone is a GHG; however, unlike the other GHGs, ozone in the troposphere is relatively short-lived and can be reduced in the troposphere on a daily basis. Stratospheric ozone can be reduced through reactions with other pollutants.

Certain GHGs defined by AB 32 would not be emitted by the project. Perfluorocarbons and sulfur hexafluoride are typically used in industrial applications, none of which would be used by the project. Therefore, it is not anticipated that the project would emit perfluorocarbons or sulfur hexafluoride.

4.3—Construction Modeling Assumptions

Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and prevailing weather conditions. Construction emissions result from on-site and off-site activities. On-site emissions principally consist of exhaust emissions from the activity levels of heavy-duty construction equipment, motor vehicle operation, and fugitive dust (mainly PM_{10}) from disturbed soil. Additionally, paving operations and application of architectural coatings would release VOC emissions. Off-site emissions are caused by motor vehicle exhaust from delivery vehicles, worker traffic, and road dust (PM_{10} and $PM_{2.5}$).

4.3.1 - Project Schedule

Copper River Ranch has been under construction since 2004. A substantial number of individual tract maps within the plan area have been completed. Some tract maps, an apartment complex, and a commercial project have been approved and are under construction. Other tract maps and commercial sites have been approved but have not started construction. Finally, other areas do not have an approved tract map or site plan. The project baseline for existing conditions for this project includes all individual subdivisions and commercial projects within Copper River Ranch that have completed construction. The project for analysis purposes includes all remaining dwelling units in unfinished tracts and apartment complexes, and building pads remaining in partially developed and undeveloped commercial sites. The project was assumed to begin construction activities in October 2021 with residential buildout expected by 2026 and commercial buildout by 2028.

4.3.2 - Project Land Use Assumptions

The land use categories used in the modeling and the number of dwelling units and estimated square feet of each land use are shown in Table 8.

Table 8: Land Use Modeling Assumptions

Land Use	Dwelling Units or KSF
Residential Development	
Single Family Residential	1,247
Multifamily Residential	849
Total Residential	**2,096**
Commercial Development	
Shopping Center (4 projects)	126.10
General Office Building (3 projects)	47.42
Gas Station & Convenience Market (3 projects)	28 (fueling positions)
Fast Food Restaurant with Drive Thru	3.00
Coffee/Donut Shop with Drive Thru	2.25
Source: CalEEMod Modeling Output in Appendix A.	

4.3.3 - Construction Equipment Emission Factors

The analysis uses CalEEMod default assumptions for the equipment used during construction except for demolition. CalEEMod default construction equipment and equipment activity are based on surveys of construction projects of various sizes conducted for development in Southern California and may overstate equipment use for larger project sites in regions outside of Southern California and should be considered highly conservative. The modeling assumptions can be reviewed in the modeling results included in Appendix A of this report. CalEEMod contains an inventory of construction equipment that incorporates estimates of the number of equipment, age, horsepower, and equipment emission, and control level or tier from which rates of emissions are developed. The CalEEMod default equipment assumptions were used in this analysis for the estimation of emissions from on-site construction equipment. CalEEMod's off-road emission factors and load factors are from the ARB OFFROAD model.

4.3.4 - Demolition

No demolition is required.

4.3.5 - Site Preparation

Site preparation involves clearing vegetation and removing stones and other unwanted material or debris prior to grading. During site preparation, emissions are generated from the use of diesel construction equipment. Fugitive dust is generated during soil-disturbing activities and truck loading and unloading. Default modeling assumptions were used for site preparation.

4.3.6 - Grading

The project includes tracts and commercial sites that have already been graded. The acreage of the graded sites has been deducted from the total acres. During grading activities, fugitive dust can be generated from the movement of dirt on the project site. CalEEMod estimates dust from dozers moving dirt around, dust from graders or scrapers leveling the land, and loading or unloading dirt into haul trucks. Each activity is calculated differently in CalEEMod, based on the number of acres traversed by the grading equipment.

Only some pieces of equipment generate fugitive dust in CalEEMod. The CalEEMod manual identifies various equipment and the acreage disturbed in an 8-hour day:

- Crawler tractors, graders, and rubber-tired dozers: 0.5 acre per 8-hour day
- Scrapers: 1 acre per 8-hour day

Therefore, the following acres are the total quantities disturbed per day, per phase, according to the acreage disturbed quantities listed above:

- Site preparation = 1.03 acres per day
- Grading = 2.06 acres per day

Default assumptions for equipment and days of grading were used in the modeling.

4.3.7 - Building Construction, Paving, and Architectural Coatings

The analysis uses the default modeling assumptions from CalEEMod for construction equipment during building construction, paving, and application of architectural coatings. As previously discussed, the equipment hours for the building construction phases were adjusted to retain the CalEEMod default-generated horsepower hours. The coatings used for the project are required to comply with the SJVAPCD Rule 4601—Architectural Coatings. The rule required flat paints to meet a standard of 50 grams per liter (g/l) and gloss paints 100 g/l by 2012 for an average rate of 65 g/l. Most of the coatings used for residential painting are flat paints.

4.3.8 - Construction Off-site Trips

Worker trips are accounted for during the construction phases, based on 1.25 trips per piece of equipment (the CalEEMod default). The CalEEMod default worker trip length of 10.8 miles was retained. The CalEEMod default vehicle fleet (LD Mix) was used for employee trips.

Vendor trips for the building construction phase are calculated from a study performed by the Sacramento Metropolitan Air Quality Management District (SMAQMD) based on land use and size.

The CalEEMod defaults for vendor trips, trip length, and vehicle fleet (Heavy Duty Truck Vehicle Fleet Mix) were used.

4.4—Operation

Operational emissions are those emissions that occur when the project is occupied by the future residents. The major sources are summarized below.

4.4.1 - Motor Vehicles

Motor vehicle emissions refer to exhaust and road dust emissions from the automobiles that would travel to and from the project residences and businesses.

Project trip generation rates were obtained from the project Traffic Impact Study that uses rates from the *Institute of Transportation Engineers Trip Generation Manual, 10th Edition*.

A pass-by trip accounts for vehicles already on the roadway network that stop at the project site as they pass-by; the pass-by trips are existing vehicle trips in the community. CalEEMod default rates of three percent pass-by trips were used in this analysis.

The vehicle fleet mix is defined as the mix of motor vehicle classes active during the operation of the project. Emission factors are assigned to the expected vehicle mix as a function of vehicle class, speed, and fuel use (gasoline and diesel-powered vehicles). The CalEEMod default vehicle fleet mix overstates the percentage of heavy-duty trucks for residential and neighborhood commercial development projects; therefore, the SJVAPCD-approved Residential Fleet Mix was used for residential, and rates based on survey data from similar projects were used for the commercial land uses. Details regarding the project fleet mix allocations for each land use is provided in Appendix A.

4.4.2 - Architectural Coatings (Painting)

Paints release VOC emissions during application and drying. The buildings in the project would be repainted on occasion. The project is required to comply with the SJVAPCD Rule 4601—Architectural Coatings. The rule required flat paints to meet a standard of 50 grams per liter (g/l) and gloss paints 100 g/l by 2012 for an average rate of 65 g/l. Most of the coatings used for residential and nonresidential painting are flat paints.

4.4.3 - Consumer Products

Consumer products are various solvents used in non-industrial applications, which emit VOCs during their product use. "Consumer Product" means a chemically formulated product used by household and institutional consumers, including but not limited to: detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products. It does not include other paint products, furniture coatings, or architectural coatings (ARB 2011). The default emission factor developed for CalEEMod was adjusted to reflect current ARB regulations on consumer products.

4.4.4 - Landscape Equipment

CalEEMod estimated the landscaping equipment using the default assumptions in the model.

4.4.5 - Electricity

Electricity used by the project (for lighting, etc.) would result in emissions from the power plants that would generate electricity distributed on the electrical power grid. Electricity emissions estimates are only used in the GHG analysis. CalEEMod was used to estimate these emissions from the project.

Electricity Emission Factor

The default CalEEMod emission factors for Pacific Gas & Electric (from the CEC's year 2006 data) are as follows:

- Carbon dioxide: 641.35 pounds per megawatt hour (lbs/MWh)
- Methane: 0.029 lb/MWh
- Nitrous oxide: 0.006 lb/MWh

It is assumed that the Renewable Electricity Standards would have taken effect by 2020. The Renewable Electricity Standard requires that electricity providers include a minimum of 33 percent renewable energy in their portfolios by the year 2020. Pacific Gas & Electric provides estimates of its emission factor per megawatt hour of electricity delivered to its customers. The Pacific Gas and Electric Company (PG&E) emissions factor for 2020 for CO_2 is provided below. No projections have been made by PG&E for later years, so the rate is assumed to remain constant through 2030. The rates for methane and nitrous oxide are based on compliance with the Renewable Portfolio Standard.

- Carbon dioxide: 290 lbs/MWh
- Methane: 0.022 lb/MWh
- Nitrous oxide: 0.005 lb/MWh

4.4.6 - Electricity Consumption

CalEEMod has three categories for electricity consumption: electricity that is impacted by Title 24 regulations, non-Title 24 electricity, and lighting. The Title 24 uses are defined as the major building envelope systems covered by California's Building Code Title 24 Part 6, such as space heating, space cooling, water heating, and ventilation. Lighting is separate since it can be both part and not part of Title 24. Since lighting is not considered as part of the building envelope energy budget, CalEEMod does not consider lighting to have any further association with Title 24 references in the program. Non-Title 24 includes everything else such as appliances and electronics. Total electricity consumption in CalEEMod is divided into the three categories. The percentage for each category is determined by using percentages derived from the CalEEMod default electricity intensity factors. The percentages are then applied to the electricity consumption to result in the values used in the analysis. A 7 percent reduction from 2019 Title 24 was taken in the CalEEMod mitigation component for residential projects. Non-residential projects are expected to achieve a 10.7 percent reduction in electricity use compared to 2016 Title 24. The reductions for nonresidential land uses are taken by adjusting the intensity factors in CalEEMod.

4.4.7 - Natural Gas

The project would generate emissions from the combustion of natural gas for water heaters, heat, etc. CalEEMod has two categories for natural gas consumption: Title 24 and non-Title 24. CalEEMod defaults intensity factors were adjusted to reflect a 1.0 percent reduction in natural gas use from compliance with 2019 Title 24.

4.4.8 - Water and Wastewater

GHG emissions are emitted from the use of electricity to pump water to the project and to treat wastewater. CalEEMod defaults were used.

4.4.9 - Refrigerants

During operation, air conditioners and refrigeration systems may leak refrigerants (hydrofluorocarbons). Hydrofluorocarbons are typically used for refrigerants, which are long-lived GHGs. Residential and neighborhood commercial uses of refrigerants are minor; therefore, they were not estimated.

4.4.10 - Solid Waste

GHG emissions would be generated from the decomposition of solid waste generated by the project. CalEEMod was used to estimate the GHG emissions from this source. The CalEEMod default for the mix of landfill types is as follows:

- Landfill no gas capture: 6%
- Landfill capture gas flare: 94%
- Landfill capture gas energy recovery: 0%

4.4.11 - Vegetation

There is currently limited carbon sequestration occurring on-site from existing vegetation. The project would plant trees and integrate landscaping into the project design, which would provide carbon sequestration. However, the number of trees to be planted is unknown and data are insufficient to accurately determine the impact that existing plants have on carbon sequestration. For this analysis, it was assumed that the loss and addition of carbon sequestration that are due to the project would be balanced; therefore, emissions due to carbon sequestration were not included.

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SECTION 5: AIR QUALITY IMPACT ANALYSIS

This section calculates the expected emissions from construction and operation of the project as a necessary requisite for assessing the regulatory significance of project emissions on a regional and localized level.

5.1—CEQA Guidelines

The CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would have a significant impact on air quality, the type, level, and impact of emissions generated by the project must be evaluated.

The following air quality significance thresholds are contained in Appendix G of the CEQA Guidelines effective December 28, 2018. A significant impact would occur if the project would:

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

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable national or state ambient air quality standard;

c) Expose sensitive receptors to substantial pollutant concentrations; or

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

While the final determination of whether a project is significant is within the purview of the lead agency pursuant to Section 15064(b) of the CEQA Guidelines, the District recommends that its quantitative air pollution thresholds be used to determine the significance of project emissions. If the lead agency finds that the project has the potential to exceed these air pollution thresholds, the project should be considered to have significant air quality impacts. The applicable thresholds and methodologies are contained under each impact statement below.

5.2—Impact Analysis

5.2.1 - Consistency with Air Quality Plan

Impact AIR-1: **The project would conflict with or obstruct implementation of the applicable air quality plan.**

Impact Analysis

The CEQA Guidelines indicate that a significant impact would occur if the project would conflict with or obstruct implementation of the applicable air quality plan. The GAMAQI indicates that projects that do not exceed SJVAPCD regional criteria pollutant emissions quantitative thresholds would not conflict with or obstruct the applicable air quality plan (AQP). An additional criterion regarding the project's implementation of control measures was assessed to provide further evidence of the project's consistency with current AQPs. This document proposes the following criteria for determining project consistency with the current AQPs:

1. Will the project result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQPs? This measure is determined by comparison to the regional and localized thresholds identified by the District for Regional and Local Air Pollutants.
2. Will the project comply with applicable control measures in the AQPs? The primary control measures applicable to development projects is Regulation VIII—Fugitive PM_{10} Prohibitions and Rule 9510 Indirect Source Review.

Contribution to Air Quality Violations

A measure for determining if the project is consistent with the air quality plans is if the project would not result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the air quality plans. Regional air quality impacts and attainment of standards are the result of the cumulative impacts of all emission sources within the air basin. Individual projects are generally not large enough to contribute measurably to an existing violation of air quality standards. Therefore, the cumulative impact of the project is based on its cumulative contribution. Because of the region's nonattainment status for ozone, $PM_{2.5}$, and PM_{10}—if project-generated emissions of either of the ozone precursor pollutants (ROG and NO_X), PM_{10}, or $PM_{2.5}$ would exceed the District's significance thresholds—then the project would be considered to contribute to violations of the applicable standards and conflict with the attainment plans.

As discussed in Impact AIR-2 below, emissions of ROG, NO_X, CO, and PM_{10} associated with the operation of the project would exceed the District's significance thresholds. However, as shown in Impact AIR-2, the project would not result in CO hotspots that would violate CO standards. Therefore, the project would not contribute to air quality violations of the CO standard. Although the project would exceed the criteria pollutant thresholds for several pollutants, the Copper River Ranch DEIR had already considered air quality to be a significant and unavoidable impact. In addition, the new area being added to Copper River Ranch by the proposed project was designated for development in the City of Fresno General Plan and was addressed in the air quality analysis in the General Plan Master Environmental Impact Report (MEIR). In addition, proposed changes in land use designation within the adopted Copper River Ranch plan area reflect reduced development densities which produce less air quality impacts than would occur if developed at the existing designations.

Compliance with Applicable Control Measures

The AQP contains a number of control measures, which are enforceable requirements through the adoption of rules and regulations. A description of rules and regulations that apply to this project is provided below.

SJVAPCD Rule 9510—Indirect Source Review (ISR) is a control measure in the 2006 PM_{10} Plan that requires NO_X and PM_{10} emission reductions from development projects in the San Joaquin Valley. The NO_X emission reductions help reduce the secondary formation of PM_{10} in the atmosphere (primarily ammonium nitrate and ammonium sulfate) and also reduce the formation of ozone. Reductions in directly emitted PM_{10} reduce particles such as dust, soot, and aerosols. Rule 9510 is also a control measure in the 2016 Plan for the 2008 8-Hour Ozone Standard. Developers of projects subject to Rule 9510 must reduce emissions occurring during construction and operational phases through on-site measures, or pay off-site mitigation fees. The project is required to comply with Rule 9510.

Regulation VIII—Fugitive PM_{10} **Prohibitions** is a control measure that is one main strategies from the 2006 PM_{10} for reducing the PM_{10} emissions that are part of fugitive dust. Residential projects over 10 acres and non-residential projects over 5 acres are required to file a Dust Control Plan (DCP) containing dust control practices sufficient to comply with Regulation VIII. The project is required to prepare a DCP to comply with Regulation VIII.

Other control measures that apply to the project are Rule 4641—Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operation that requires reductions in VOC emissions during paving and Rule 4601—Architectural Coatings that limits the VOC content of all types of paints and coatings sold in the San Joaquin Valley. These measures apply at the point of sale of the asphalt and the coatings, so project compliance is ensured without additional mitigation measures.

The project would comply with all applicable SJVAPCD rules and regulations. Therefore, the project complies with this criterion and would not conflict with or obstruct implementation of the applicable air quality attainment plan.

Conclusion

The project's emissions are significant for ROG, NOx, CO, and PM_{10} and would be considered inconsistent with the AQP for this criterion. The project complies with applicable control measures of the AQP and would be less than significant for this criterion. The growth accommodated by Copper River Ranch is included in the General Plan and therefore it is consistent with the land use assumptions used to prepare the AQP. A substantial portion of the undeveloped area in Copper River Ranch is fully entitled by the City so no additional mitigation can be imposed on those individual projects. Copper River Ranch includes numerous design features to reduce motor vehicle trips and increase walking, bicycling, and transit use. In addition, all projects are required to comply with Rule 9510, which is intended to mitigate the cumulative impacts of new development in the San Joaquin Valley to the extent feasible. However, after compliance with Rule 9510, emissions will still exceed the SJVAPCD quantitative thresholds of significance and may be considered to have a significant air quality impact.

Level of Significance Before Mitigation

Significant impact.

Mitigation Measures

See MM-AIR-2.

Level of Significance After Mitigation

Significant and unavoidable impact.

5.2.2 - Cumulative Criteria Pollutant Impacts

Impact AIR-2: The project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard.

Impact Analysis

To result in a less than significant impact, the following criteria must be true:

1. Regional analysis: emissions of nonattainment pollutants must be below the District's regional significance thresholds. This is an approach recommended by the District in its GAMAQI.
2. Summary of projections: the project must be consistent with current air quality attainment plans including control measures and regulations. This is an approach consistent with Section 15130(b) of the CEQA Guidelines.
3. Cumulative health impacts: the project must result in less than significant cumulative health effects from the nonattainment pollutants. This approach correlates the significance of the regional analysis with health effects, consistent with the court decision, *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1219-20.

Regional Emissions

Air pollutant emissions have both regional and localized effects. This analysis assesses the regional effects of the project's criteria pollutant emissions in comparison to SJVAPCD thresholds of significance for short-term construction activities and long-term operation of the project. Localized emissions from project construction and operation are assessed under Impact AIR-3—Sensitive Receptors using concentration-based thresholds that determine if the project would result in a localized exceedance of any ambient air quality standards or would make a cumulatively considerable contribution to an existing exceedance.

The primary pollutants of concern during project construction and operation are ROG, NO_X, PM_{10}, and $PM_{2.5}$. The SJVAPCD GAMAQI adopted in 2015 contains thresholds for CO, NO_X, ROG, SO_X, PM_{10}, and $PM_{2.5}$.

Ozone is a secondary pollutant that can be formed miles from the source of emissions, through reactions of ROG and NO_X emissions in the presence of sunlight. Therefore, ROG and NO_X are termed ozone precursors. The Air Basin often exceeds the state and national ozone standards. Therefore, if the project emits a substantial quantity of ozone precursors, the project may contribute to an exceedance of the ozone standard. The Air Basin also exceeds air quality standards for PM_{10}, and $PM_{2.5}$; therefore, substantial project emissions may contribute to an exceedance for these pollutants. The District's annual emission significance thresholds used for the project define the substantial contribution for both operational and construction emissions as follows:

- 100 tons per year CO
- 10 tons per year NO_X
- 10 tons per year ROG
- 27 tons per year SO_X
- 15 tons per year PM_{10}
- 15 tons per year $PM_{2.5}$

The project does not contain sources that would produce substantial quantities of SO_2 emissions during construction and operation. Modeling conducted for the project show that SO_2 emissions are well below the SJVAPCD GAMAQI thresholds, as shown in the modeling results contained in Appendix A. No further analysis of SO_2 is required.

Construction Emissions

Construction emissions were modeled using the CalEEMod version 2016.3.2. The results of the modeling are presented in Table 9. Construction emissions were assumed to occur at a steady rate through project buildout and were modeled in a single run. CalEEMod assumes that site preparation and grading would occur at the beginning of construction and architectural coatings would occur at the end of construction. For large plan areas, individual residential tracts and commercial projects are constructed gradually with the various construction activities happening at any time within the buildout period. Therefore, the annual average construction emissions were calculated for comparison to the annual threshold of significance. The emissions reflect compliance with SJVAPCD regulations that apply to construction activities. For assumptions in estimating the emissions, please refer to Section 4, Modeling Parameters and Assumptions. As shown in Table 9, the emissions are below the SJVAPCD significance thresholds. Therefore, the emissions would be less than significant on a project basis.

Table 9: Construction Air Pollutant Emissions Summary

Year	Emissions (tons per year)				
	ROG	NO_X	CO	PM_{10}	$PM_{2.5}$
Residential Construction					
2021	0.48	5.04	3.09	1.07	0.59
2022	0.52	4.98	4.19	0.83	0.40
2023	1.18	8.60	10.01	1.59	0.63
2024	1.11	8.23	9.80	1.57	0.60
2025	1.03	7.76	9.50	1.53	0.56
2026	13.03	3.49	4.83	0.58	0.24
Total	**17.35**	**38.10**	**41.42**	**7.17**	**3.01**
Average Annual Construction Emissions (5 years or 60 months)	**3.47**	**7.62**	**8.28**	**1.43**	**0.60**
Commercial Construction					
2021	0.05	0.49	0.31	0.11	0.06
2022	0.27	2.59	1.87	0.52	0.17
2023	0.27	2.35	1.89	0.59	0.18
2024	0.26	2.31	1.80	0.60	0.18
2025	0.24	2.25	1.70	0.59	0.17
2026	0.23	2.23	1.63	0.59	0.17

Table 9 (cont.): Construction Air Pollutant Emissions Summary

Year	Emissions (tons per year)				
	ROG	NO_X	CO	PM_{10}	$PM_{2.5}$
2027	0.22	2.21	1.56	0.59	0.17
2028	0.85	0.97	0.80	0.26	0.08
Total	**2.41**	**15.40**	**11.54**	**3.85**	**1.19**
Average Annual Construction Emissions (7 years or 84 months)	**0.34**	**2.20**	**1.65**	**0.55**	**0.17**
Combined Project Annual Average Construction Emissions					
Annual Average	**3.81**	**9.82**	**9.93**	**1.98**	**0.26**
Annual Average with Rule 9510 ISR Compliance	**3.81**	**7.86**	**9.93**	**1.97**	**0.26**
Significance threshold (tons/year)	10	10	100	15	15
Exceed threshold—significant impact?	No	No	No	No	No

Notes:
PM_{10} and $PM_{2.5}$ emissions are from the mitigated output to reflect compliance with Regulation VIII—Fugitive PM_{10} Prohibitions.
ROG = reactive organic gases NO_X = nitrogen oxides PM_{10} and $PM_{2.5}$ = particulate matter
Calculations use unrounded numbers.
Source: CalEEMod output (Appendix A).

Operational Emissions

Operational emissions occur over the lifetime of the project and are from two main sources: area sources and motor vehicles, or mobile sources. Project buildout for residential is assumed to occur in 2026 and in 2028 for the commercial portions of the project. The SJVAPCD considers construction and operational emissions separately when making significance determinations. For assumptions in estimating the emissions, please refer to Section 4, Modeling Parameters and Assumptions. The emissions modeling results for project operation are summarized in Table 10.

As shown in Table 10, the operational emissions exceed the SJVAPCD thresholds for ROG, NOx, CO, and PM_{10} after compliance with Rule 9510. The emissions shown in Table 10 for the residential and commercial portions of the project include credit for compliance with regulations and project design features that would reduce project emissions. The combined project emissions show the unmitigated emissions before and after compliance with Rule 9510 which applies to the unmitigated baseline. Project operational emissions would result in a significant impact.

Table 10: Operational Air Pollutant Emissions at Buildout

Emission Sources	Emissions (tons per year)				
	ROG	NO_X	CO	PM_{10}	$PM_{2.5}$
Residential (with design features)					
Area	13.16	0.96	15.88	0.15	0.15
Energy	0.23	1.94	0.82	0.16	0.16
Mobile	4.20	13.74	44.35	17.77	4.83
Total	**17.60**	**16.64**	**61.05**	**18.07**	**5.13**
Commercial (with design features)					
Area	0.85	0.00	0.00	0.00	0.00
Energy	0.02	0.15	0.13	0.01	0.01
Mobile	2.09	2.05	14.26	5.03	1.36
Total	**2.96**	**2.21**	**14.39**	**5.04**	**1.38**
Combined Project Residential and Commercial (Unmitigated)					
Area	18.05	1.55	51.99	6.04	6.04
Energy	0.26	2.21	1.00	0.18	0.18
Mobile	6.45	16.67	63.71	25.60	6.96
Total Project Emissions	**24.76**	**20.43**	**116.70**	**31.82**	**13.18**
Total with Rule 9510 ISR Compliance	**24.76**	**13.62**	**116.70**	**15.91**	**13.18**
Significance threshold	10	10	100	15	15
Exceed threshold—significant impact?	Yes	Yes	Yes	Yes	No

Notes:
ROG = reactive organic gases NO_X = nitrogen oxides PM_{10} and $PM_{2.5}$ = particulate matter
Area source emissions include emissions from natural gas, landscape, and painting. Rule 9510 compliance is based on a reduction prior to credits for design features and mitigation measures.
Source: CalEEMod output (Appendix A).

Step 2: Plan Approach

Section 15130(b) of the CEQA Guidelines states the following:

> The following elements are necessary to an adequate discussion of significant cumulative impacts: 1) Either: (A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or (B) A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact.

In accordance with CEQA Guidelines 15130(b), this analysis of cumulative impacts is based on a summary of projections analysis. The District attainment plans are based on a summary of projections that accounts for projected growth throughout the Air Basin, and the controls needed to achieve ambient air quality standards. This analysis considers the current CEQA Guidelines, which includes the amendments approved by the Natural Resources Agency, effective on December 28, 2018. The Air Basin is in nonattainment or maintenance status for ozone and particulate matter (PM_{10} and $PM_{2.5}$), which means that concentrations of those pollutants currently exceed the ambient air quality standards for those pollutants, or that the standards have recently been attained in the case of pollutants with maintenance status. When concentrations of ozone, PM_{10}, or $PM_{2.5}$ exceed the ambient air quality standard, then those sensitive to air pollution (such as children, the elderly, and the infirm) could experience health effects such as: decrease of pulmonary function and localized lung edema in humans and animals; increased mortality risk; and risk to public health, implied by altered connective tissue metabolism, altered pulmonary morphology in animals after long-term exposures, and pulmonary function decrements in chronically exposed humans. See Section 2.3—Existing Air Quality Conditions for additional correlation of the health impacts with the existing pollutant concentrations experienced in the Fresno area.

Under the CEQA Guidelines, cumulative impacts may be analyzed using other plans that evaluate relevant cumulative effects. The geographic scope for cumulative criteria pollution from air quality impacts is the Air Basin, because that is the area in which the air pollutants generated by the sources within the Air Basin circulate and are often trapped. The SJVAPCD is required to prepare and maintain air quality attainment plans and a State Implementation Plan to document the strategies and measures to be undertaken to reach attainment of ambient air quality standards. While the SJVAPCD does not have authority over land use decisions, it is recognized that changes in land use and circulation planning would help the Air Basin achieve clean air mandates. The District evaluated emissions from land uses and transportation in the entire Air Basin when it developed its attainment plans. Emission inventories used to predict attainment of NAAQS must be based on the latest planning assumptions for mobile sources.

In accordance with CEQA Guidelines Section 15064, subdivision (h)(3), a lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project complies with the requirements in a previously approved plan or mitigation program.

The history and development of the SJVAPCD's current Ozone Attainment Plan is described in Section 2.4, Air Quality Plans. The 2007 8-Hour Ozone Plan contains measures to achieve reductions in emissions of ozone precursors, and sets plans towards attainment of ambient ozone standards by 2023. The 2012 $PM_{2.5}$ Plan and the 2015 $PM_{2.5}$ Plan for the 1997 $PM_{2.5}$ Standard require fewer NO_X reductions to attain the $PM_{2.5}$ standard than the Ozone Plan, so the Ozone Plan is considered the applicable plan for reductions of the ozone precursors NO_X and ROG. The 2012 $PM_{2.5}$ Plan requires reductions in directly emitted $PM_{2.5}$ from combustion sources, such as diesel engines and fireplaces, and from fugitive dust to attain the ambient standard and is the applicable plan for $PM_{2.5}$ emissions. $PM_{2.5}$ is also formed in secondary reactions in the atmosphere involving NO_X and ammonia to form nitrate particles. Reductions in NO_X required for ozone attainment are also sufficient for $PM_{2.5}$ attainment. As discussed in Impact AIR-1, the project is consistent with all applicable control measures in the air quality attainment plans. The project would comply with any District rules and regulations that may pertain to implementation of the AQPs. Therefore, impacts would be less than significant with regard to compliance with applicable rules and regulations.

In conclusion, the growth resulting from the project is accounted for in the General Plan and the applicable AQP, the project will comply with applicable rules and regulations implementing the AQP; however, the project exceeds SJVAPCD thresholds for ROG, NOx, CO, and PM_{10} after compliance with Rule 9510; therefore, the project is considered significant for this criterion.

Project Health Impacts

In the 5th District Court of Appeal case *Sierra Club v. County of Fresno (Friant Ranch, L.P.)*, the Court found the project EIR deficient because it did not identify specific health-related effects resulting from the estimated amount of pollutants generated by the project. The ruling stated that the EIR should give a "sense of the nature and magnitude of the 'health and safety problems' caused by a project's air pollution. The EIR should translate the emission numbers into adverse impacts or to understand why such translation is not possible at this time (and what limited translation is, in fact, possible)."

The standard measure of the severity of impact is the concentration of pollutant in the atmosphere compared to the ambient air quality standard for the pollutant for a specified period of time. The severity of the impact increases with the concentration and the amount of time that people are exposed to the pollutant. The change in health impacts with concentration is described in Table 3 and Table 4 using the EPA's Air Quality Index. The pollutants of concern in the Friant Ranch ruling were regional criteria pollutants ozone, and PM_{10}. It is important to note that the potential for localized impacts can be addressed through dispersion modeling. The SJVAPCD includes screening criteria that if exceeded would require dispersion modeling to determine if project emissions would result in a significant health impact. For this project, no significant localized health impacts would occur. Regional pollutants require more complex modeling as described below.

Ozone concentrations are estimated using regional photochemical models because ozone formation is subject to temperature, inversion strength, sunlight, emissions transport over long distances, dispersion, and the regional nature of the precursor emissions. The emissions from individual projects are too small to produce a measurable change in ozone concentrations—it is the cumulative contribution of emissions from existing and new development that is accounted for in the photochemical model. Ozone concentrations vary widely throughout the day and year even with the same amount of daily emissions. The SJVAPCD indicated in an Amicus Brief on Friant Ranch that running the photochemical model with just Friant Ranch emissions (109.5 tons/year NO_X) is not likely to yield valid information given the relative scale involved. A copy of the SJVAPCD brief is included in Appendix B. The NO_X inventory for the San Joaquin Valley is 224 tons per day in 2019 or 81,760 tons per year. Friant Ranch would result in 0.13 percent increase in NO_X emissions. A project emitting at the SJVAPCD CEQA threshold of 10 tons per year would result in a 0.01 percent increase in NO_X emissions. Project NOx emissions are 13.2 tons per year, so would result in a 0.016 percent increase in NOx. Most project emissions are generated by motor vehicle travel distributed on regional roadways miles from the project site, and these emissions are not conducive to project-level concentration-based modeling.

Emissions throughout the San Joaquin Valley are projected to markedly decline in the coming decade. The SJVAPCD 2016 Ozone Plan predicts NO_X emissions will decline to 103 tons per day by 2029 or 54 percent from 2019 levels through implementation of control measures included in the plan. This means that ozone health impacts to residents of the San Joaquin Valley will be lower than currently experienced and most areas of the San Joaquin Valley will have attained ozone air quality standards. The plan accounts for growth in population at rates projected by the State of California for the San Joaquin Valley, so only cumulative projects that would exceed regional growth projections would potentially delay attainment and prolong the time and the number of people would experience health impacts. It is unlikely that anyone would experience greater impacts from regional emissions than currently occur. The federal transportation conformity regulation provides a means of ensuring growth in emissions does not exceed emission budgets for each County. Regional Transportation Plans and Regional Transportation Improvement Plans must provide a conformity analysis based on the latest planning assumptions that demonstrates that budgets will be not be exceeded. If budgets are exceeded, the San Joaquin Valley may be subject to Clean Air Act sanctions until the deficiency is addressed.

Particulate emission impacts can be localized and regional. Particulates can be directly emitted and can be formed in the atmosphere with chemical reactions. Small directly emitted particles such as diesel emissions and other combustion emissions can remain in the atmosphere for a long time and can be transported over long distances. Large particles such as fugitive dust tend to be deposited a short distance from where emitted but can also travel long distances during periods of high winds. Particulates can be washed out of the atmosphere by rain and deposited on surfaces. Secondary particulates formed in the atmosphere such as ammonium nitrate require NO_X and ammonia, and they require low inversion levels and certain ranges of temperature and humidity to result in substantial concentrations. These complications make modeling project particulate emissions to determine concentration feasible only for directly emitted particles at receptor locations close to the project site. Regional particulate concentrations are modeled using a gridded inventory (emissions in tons/day are placed a 4-kilometer, three-dimensional grid to spatially allocate the emissions geographically and vertically in the atmosphere) and an atmospheric chemistry component to simulate the chemical reactions. The model uses relative reduction factors to determine the reductions of each PM component that will be needed to attain the air quality standards on the days with the conditions most favorable to high particulate concentrations. A small project would not produce sufficient emissions to determine a project’s individual contribution to the particulate concentration.

Step 3: Cumulative Health Impacts

The Air Basin is in nonattainment for ozone, PM_{10} (State only), and $PM_{2.5}$, which means that the background levels of those pollutants are at times higher than the ambient air quality standards. The air quality standards were set to protect public health, including the health of sensitive individuals (such as children, the elderly, and the infirm). Therefore, when the concentration of those pollutants exceeds the standard, it is likely that some sensitive individuals in the population would experience health effects that were described in Table 1. However, the health effects are a factor of the dose-response curve. Concentration of the pollutant in the air (dose), the length of time exposed, and the response of the individual are factors involved in the severity and nature of health impacts. If a significant health impact results from project emissions, it does not mean that 100 percent of the population would experience health effects. Table 2, Table 3, and Table 4 relate the pollutant concentration experienced by residents using air quality data for the nearest air monitoring station to the health impacts ascribed to those concentrations by the EPA Air Quality Index. This provides a more detailed look at the actual impacts currently experienced by area residents.

Since the Basin is nonattainment for ozone, PM_{10}, and $PM_{2.5}$, it is considered to have an existing significant cumulative health impact without the project. When this occurs, the analysis considers whether the project's contribution to the existing violation of air quality standards is cumulatively considerable. The SJVAPCD regional thresholds for NO_X, VOC, PM_{10}, or $PM_{2.5}$ are applied as cumulative contribution thresholds. Projects that exceed the regional thresholds would have a cumulatively considerable health impact. As shown in Table 9 and Table 10, the regional analysis of construction and operational emissions indicates that the project would exceed the District's significance thresholds for operational emissions. Therefore, the project would be considered to have a significant health impact based on this criterion. However, the project is considered less than significant for the other criteria related to consistency with the Air Quality Plan.

The SJVAPCD Air Quality Attainment Plans predict that nonattainment pollutant emissions will continue to decline each year as regulations adopted to reduce these emissions are implemented, accounting for growth projected for the region. Therefore, the cumulative health impact will also decline even with the project's emission contribution.

Conclusion

The project's operational emissions exceed SJVAPCD regional criteria pollutant thresholds for ROG, NOx, CO, and PM_{10}; therefore, this is considered significant impact. The Draft Environmental Impact Report (DEIR) for Copper River Ranch includes a mitigation measure to reduce air quality impacts that will continue to apply to individual projects within the plan area, but found the impacts to be significant and unavoidable after mitigation. Since the DEIR was certified in 2002, the City of Fresno General Plan was updated in 2014 and a Master Environmental Impact Report (MEIR) was prepared that included Copper River Ranch and the expanded plan area included in the current project. The MEIR identified General Plan policies that would reduce significant air quality impacts to the extent feasible and found regional air quality impacts to be significant and unavoidable. The mitigation measure for regional emission impacts from the DEIR is provided below:

1. The developer shall be responsible for the following measures to be included as a condition of approval on each conditional use permit; tentative tract map, or site plan:
    a. Pedestrian enhancing infrastructure shall be provided an include: sidewalks and pedestrian paths; street trees to shade sidewalks; pedestrian safety designs/infrastructure; street furniture; street lighting; and pedestrian signalization and signage.
    b. Bicycle enhancing infrastructure shall be provided and include: bikeways/paths connecting to a bikeway system; and secure bicycle parking.
    c. The project shall either contract with Fresno Area Express (FAX) through the City to provide transit services within the project area, or provide an on-site transit service to off-site FAX transit stations/multimodal centers.
    d. Transit-enhancing infrastructure shall be provided and include: transit shelters, benches, etc.; street lighting; route signs and displays; and/or bus turnouts/bulbs.
    e. Park and ride lots and/or satellite telecommuting centers shall be provided in the project area.
    f. Carpool/Vanpool programs shall be implemented, e.g., carpool, ridematching for employees, assistance with vanpool formation, provision of vanpool vehicles, etc.

   g. On-site shops and services for employees, such as cafeteria, bank/ATM, dry cleaners, convenience market, etc. shall be provided within commercial and office areas.
   h. A Transportation Demand Management Program shall be established and include: transit, bicycle, pedestrian, traffic flow improvements, transportation system management, rideshare, telecommuting, video conferencing, and other measures to reduce peak hour vehicle trips.
2. Future construction plans for residential, commercial, office, and public uses shall include:
   a. Solar or low-emission water heaters.
   b. Central water heating systems in commercial areas.
   c. Open-hearth fireplaces shall require use of natural gas or installation of low-emissions, EPA-certified fireplace inserts.

The project incorporates design features that reduce air quality impacts as required by the mitigation measures. In addition, regulations adopted by the SJVAPCD and the State of California since the DEIR was prepared, provide emission reductions that meet or exceed the requirements of the mitigation measures included in the DEIR and relevant General Plan policies. For example, Rule 9510 ISR, adopted in 2006, requires the project to reduce operational NOx emissions by 30 percent and PM_{10} emissions by 50 percent through the implementation of design features or payment of off-site mitigation fees. Rule 4901 regulates the installation of wood burning devices in project residences. Rule 9401 Employee Trip Reduction requires large employers to prepare plans to reduce employee trips with measures listed in the mitigation measure, among others. Title 24 Building Energy Efficiency Standards are updated every three years and now require energy efficiency measures much more stringent than envisioned at the time the DEIR was prepared. Solar panels are now required for residential projects under 2019 Title 24. The existing development in Copper River Ranch and new development in the proposed project include bicycle, pedestrian, and transit infrastructure as required by the mitigation measure.

SJVAPCD comments on the NOP recommended that If the project is expected to have a significant impact, the SEIR should include a discussion on the feasibility of implementing a Voluntary Emission Reduction Agreement (VERA) for the project. A VERA is an off-site mitigation program funded with mitigation fees managed by the SJVAPCD. A VERA in not feasible for this project for the following reasons:

1. Copper River Ranch was subject to an EIR that identified significant and unavoidable air quality impacts and included all feasible mitigation measures and a Statement of Overriding Circumstances (SOC), so no additional mitigation measures can be imposed. This includes partially developed and undeveloped portions of the current plan area.

2. Undeveloped portions of current plan area with vested land use entitlements in place are not subject to additional mitigation measures or conditions of approval. A substantial portion of the emissions that that resulted in the project exceeding the threshold of significance are from fully entitled residential and commercial projects.

3. New project areas being added to Copper River Ranch have existing land use designations that were included in the City of Fresno General Plan and covered by an SOC for air quality impacts by the General Plan MEIR. Under this circumstance, the projects within new areas must only demonstrate consistency with the General Plan and comply with conditions

applied to the Tentative Tract Maps and commercial site plans for individual projects and with applicable regulations. If the project is not approved, development projects could proceed on an individual project basis without any additional requirements beyond compliance with Rule 9510 ISR.

4. Requiring additional mitigation for only a portion of the project site would create an unfair burden to individual projects within the plan area that have not fully completed the entitlement process. The burden of administering a VERA for only a portion of the site over a seven-year buildout would be excessive compared to the air quality benefits.

5. VERAs are open ended agreements with no cap on potential costs to the developer. The SJVAPCD reserves the option to increase mitigation fees if the cost of emission reduction projects increase by the time development occurs and the fees are paid. Paying the fees early to lock in the cost is not feasible for most developers. This places uncertainty on the future feasibility and cost of the projects.

Based on this information, a VERA should not be considered a feasible mitigation measure for this project. However, the project should continue to implement the mitigation measures included in the 2002 Copper River Ranch DEIR that have not been superseded by more stringent regulations and standards.

Level of Significance Before Mitigation

Significant impact.

Mitigation Measures

MM AIR-2 The air quality mitigation measures adopted in the Copper River Ranch 2002 DEIR shall apply to new projects within the plan area, except for those measures that have been superseded by more stringent regulations or are part of City of Fresno Development Code.

Level of Significance After Mitigation

Significant and unavoidable impact.

5.2.3 - Sensitive Receptors

Impact AIR-3: The project would not expose sensitive receptors to substantial pollutant concentrations.

Impact Analysis

Sensitive Receptors

Those who are sensitive to air pollution include children, the elderly, and persons with pre-existing respiratory or cardiovascular illness. The District considers a sensitive receptor a location that houses or attracts children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Examples of sensitive receptors include hospitals, residences, convalescent facilities, and schools. The closest off-site sensitive receptors are existing residences located adjacent to the project site to the south across East Copper Avenue. Development will occur at multiple locations within Copper River Ranch where residences already exist. New and existing residential development within the project area would be considered sensitive receptors once occupied.

Off-site Sensitive Receptors

Impacts to receptors located outside the project boundaries would occur during project construction and operation. Construction emissions are assumed to commence with the year 2021 and continue until project buildout in 2028. The highest emissions are expected to occur during the site preparation and grading activities and to a lesser extent during ground up construction. The buildout of Copper River Ranch will occur on a project-by-project basis over a wide area. The maximum impact from each individual subdivision or commercial development would occur at sensitive receptor locations closest to construction sites. Therefore, the largest individual projects remaining to be constructed in the project area were assessed to determine the maximum daily emissions compared to SJVAPCD localized emission thresholds. As shown in Table 11 and Table 12, emissions generated from construction and operation of the largest residential and commercial projects project would be less than SJVAPCD screening criteria. Therefore, this impact would be less than significant.

On-site Sensitive Receptors

The project is not a significant source of TAC emissions. Construction activities produce short-term emissions that would not contribute substantially to cancer risk, which is estimated on a 70-year exposure period. The neighborhood commercial uses produce TAC emissions from diesel delivery trucks, but not in significant amounts.

Construction: ROG

ROG is emitted during the application of architectural coatings (painting). The amount emitted is dependent on the amount of ROG (or VOC) in the paint. ROG emissions are typically an indoor air quality health hazard concern rather than an outdoor air quality health hazard concern. Therefore, exposure to ROG during architectural coatings is a less than significant health impact.

There are three types of asphalt that are typically used in paving: asphalt cements, cutback asphalts, and emulsified asphalts. However, SJVAPCD Rule 4641 prohibits the use of the following types of asphalt: rapid cure cutback asphalt; medium cure cutback asphalt; slow cure asphalt that contains more than one-half (0.5) percent of organic compounds that evaporate at 500 degrees Fahrenheit (°F) or lower; and emulsified asphalt containing organic compounds, in excess of 3 percent by volume, that evaporate at 500°F or lower. An exception to this is medium cure asphalt when the National Weather Service official forecast of the high temperature for the 24-hour period following application is below 50°F.

The acute (short-term) health effects from worker direct exposure to asphalt fumes include irritation of the eyes, nose, and throat. Other effects include respiratory tract symptoms and pulmonary function changes. The studies were based on occupational exposure of fumes. Residents are not in the immediate vicinity of the fumes; therefore, they would not be subjected to concentrations high enough to evoke a negative response. In addition, the restrictions that are placed on asphalt in the San Joaquin Valley reduce ROG emissions from asphalt and exposure. The impact to nearby sensitive receptors from ROG during construction would be less than significant.

Localized Pollutant Screening Analysis

Emissions occurring at or near the project have the potential to create a localized impact, also referred to as an air pollutant hotspot. Localized emissions are considered significant if, when combined with background emissions, they would result in exceedance of any health-based air quality standard. The impact from localized pollutants is based on the impact to the nearest sensitive receptor. Copper River Ranch covers a large area with individual projects that are widely separated from one another and would be constructed over at least five years for residential development and seven years for commercial projects. All individual projects will be adjacent to existing and planned sensitive receptor locations where the maximum localized impact would occur. Therefore, only the largest individual projects with Copper River Ranch were modeled to identify the worst-case, since other smaller projects would produce lower emissions and impacts to nearby sensitive receptors.

The SJVAPCD's GAMAQI includes screening thresholds for identifying projects that need detailed analysis for localized impacts. Projects with on-site emission increases from construction activities or operational activities that exceed the 100 pounds per day screening level of any criteria pollutant after compliance with Rule 9510 and implementation of all enforceable mitigation measures would require preparation of an ambient air quality analysis. The criteria pollutants of concern for localized impact in the SJVAB are PM_{10}, $PM_{2.5}$, NO_X, and CO. There is no localized emission standard for ROG and most types of ROG are not toxic and have no health-based standard; however, ROG was included for informational purposes only.

The highest daily emissions occur during project grading activities except for ROG emissions, which are highest during application of architectural coatings. The results of the construction screening analysis are presented in Table 11. The largest remaining tract map (Tract 6269) and largest commercial project (Copper/Willow Shopping Center) were modeled to determine the maximum daily impact. The sequence and location of development within Copper River Ranch is subject to market forces; therefore, construction was assumed to begin early in the buildout process as a conservative assumption. Project maximum daily construction emissions would be less than the screening threshold for all pollutants; therefore, no additional analysis is required for localized criteria pollutant impacts.

Table 11: Maximum Daily Air Pollutant Emissions during Construction

Maximum Daily Emissions by Year	Emissions (pounds per day)				
	ROG	NO_X	CO	PM_{10}	$PM_{2.5}$
Residential Project (Tract 6269)					
2022	7.33	77.73	58.62	16.33	9.91
2023	73.75	33.73	38.37	2.55	1.71
Maximum Daily Construction Emissions any Year	**73.75**	**77.73**	**58.62**	**16.33**	**9.91**
Screening Thresholds	100	100	100	100	100
Exceeds Threshold (Yes or No)	No	No	No	No	No
2022	3.71	38.88	29.58	9.89	5.99
2023	36.86	22.41	22.92	3.21	1.35

Table 11 (cont.): Maximum Daily Air Pollutant Emissions during Construction

Maximum Daily Emissions by Year	Emissions (pounds per day)				
	ROG	NO_X	CO	PM_{10}	$PM_{2.5}$
Residential Project (Tract 6269)					
Maximum Daily Construction Emissions any Year	**36.86**	**38.88**	**29.58**	**9.89**	**5.99**
Screening Thresholds	100	100	100	100	100
Exceeds Threshold (Yes or No)	No	No	No	No	No

Notes:
NO_X = nitrogen oxides CO = carbon monoxide PM_{10} and $PM_{2.5}$ = particulate matter
N/A = Not applicable
Emissions shown are from the summer model output. There is no ambient air quality standard for ROG.
Source: CalEEMod output (Appendix A).

Maximum Daily Operational Emissions

An analysis of maximum daily emissions during operation was conducted to determine if emissions would exceed 100 pounds per day for any pollutant of concern. The maximum daily operational emissions are assumed to occur at the largest, most intense individual development sites. In this case, the largest residential tract remaining to be developed is Tract 6269 with 276 dwelling units on 39.84 acres, and the largest commercial development is the 12.92-acre shopping center site at Copper Avenue and Willow Avenue. The projects were modeled with a 2022 operational date, which would constitute a conservative analysis because emissions decline over time as older, high-emitting vehicles are replaced with new low-emitting vehicles compliant with current emission standards. Operational emissions include emissions generated on-site by area sources such as natural gas combustion and landscape maintenance, and off-site by motor vehicles accessing the project. Most motor vehicle emissions would occur distant from the site and would not contribute to a violation of ambient air quality standards; therefore, only emissions from vehicles operating within 0.5 mile of the site were included in the assessment. The results of the screening analysis are presented in Table 12.

Table 12: Maximum Daily Air Pollutant Emissions during Operations

Maximum Daily Emissions per Source Category	Emissions (pounds per day)				
	ROG	NO_X	CO	PM_{10}	$PM_{2.5}$
Residential Project (Tract 6269)					
Area	12.72	2.78	23.87	0.33	0.33
Energy	0.20	1.71	0.73	0.14	0.14
Mobile	0.40	1.06	3.64	1.02	0.28
Total	**13.32**	**5.56**	**28.24**	**1.49**	**0.75**
Screening threshold	100	100	100	100	100
Exceed screening threshold?	No	No	No	No	No

Table 12 (cont.): Maximum Daily Air Pollutant Emissions during Operations

Maximum Daily Emissions per Source Category	Emissions (pounds per day)				
	ROG	NO_X	CO	PM_{10}	$PM_{2.5}$
Commercial Project (Copper/Willow Shopping Center)					
Area	2.26	0.00	0.01	0.00	0.00
Energy	0.04	0.37	0.31	0.03	0.03
Mobile	0.83	0.83	4.60	1.04	0.28
Total	**3.13**	**1.21**	**4.92**	**1.07**	**0.31**
Screening threshold	100	100	100	100	100
Exceed screening threshold?	No	No	No	No	No

Notes:
NO_X = nitrogen oxides CO = carbon monoxide PM_{10} and $PM_{2.5}$ = particulate matter
N/A = Not applicable
Emissions shown are from the summer model output. There is no ambient air quality standard for ROG.
Source: CalEEMod output (Appendix A).

The project would not exceed SJVAPCD screening thresholds for localized operational criteria pollutant impacts; therefore, the project's localized criteria pollutant impacts would be less than significant.

Operation: ROG

During operation, ROG would be emitted primarily from motor vehicles. Direct exposure to ROG from project motor vehicles would not result in health effects, because the ROG would be distributed across miles and miles of roadway and in the air. The concentrations would not be great enough to result in direct health effects.

Operation: PM_{10}, $PM_{2.5}$, CO, NO_2

As shown in Table 12, localized emissions of PM_{10}, $PM_{2.5}$, CO, and NO_2 would not exceed the SJVAPCD screening thresholds at full project buildout. Residential development is an insignificant source of these pollutants, except for projects that allow woodburning devices that emit PM_{10}, $PM_{2.5}$ in wood smoke. The project will include only natural gas-fueled fireplaces and inserts that are insignificant sources of $PM_{2.5}$ and PM_{10}. The largest source of emissions from commercial projects is motor vehicles. Most motor vehicle emissions occur far from the project site and have less than significant impacts on nearby sensitive receptors. Therefore, the project would not expose sensitive receptors to substantial criteria air pollutant concentrations during operation.

Carbon Monoxide Hot Spot Analysis

Localized high levels of CO are associated with traffic congestion and idling or slow-moving vehicles. The SJVAPCD provides screening criteria to determine when to quantify local CO concentrations based on impacts to the level of service (LOS) of intersections in the project vicinity.

Construction of the project would result in minor increases in traffic for the surrounding road network during the duration of construction. Motor vehicles accessing the site when it becomes operational would result in a minor increase in daily trips that would not substantially reduce the LOS on roads serving the site. The highest background 8-hour average CO concentration during the latest year it was monitored is 2.06 ppm, which is 78 percent lower than the CAAQS of 9.0 ppm or the NAAQS of 9 ppm.

A sensitivity analysis using the CALINE4 CO Hotspot model was run for the General Plan MEIR to determine the volume of trips that would be required to exceed the most stringent CO standard. At triple the predicted peak for General Plan buildout of 36,000 peak-hour trips, the hourly concentration was 7.5 ppm and an 8-hour concentration of 6.0 ppm. Based on this analysis, it is extremely unlikely that a CO hotspot will occur in the Plan Area. CO emissions are predicted to continue to decline as old vehicles are retired and new cleaner motor vehicles take their place. Therefore, no CO hotspot modeling is required for new projects during General Plan Buildout unless intersection volumes exceed 36,000 peak-hour trips, which is not projected to occur with the project.

Construction: Toxic Air Contaminants

Project construction would involve the use of diesel-fueled vehicles and equipment that emit DPM, which is considered a TAC. The SJVAPCD's latest threshold of significance for TAC emissions is an increase in cancer risk for the maximally exposed individual of 20 in a million (formerly 10 in a million). The SJVAPCD's 2015 GAMAQI does not currently recommend analysis of TAC emissions from project construction activities, but instead focuses on projects with operational emissions that would expose sensitive receptors over a typical lifetime of 70 years. Residential and neighborhood commercial projects produce limited amounts of TAC emissions during operation and thus have not been subject to project TAC analysis. Most emissions from construction activities occur during the grading and site preparation phases that occur over the first three months of construction and do not overlap with project operations. Limited amounts of diesel equipment are used during ground-up construction of individual houses that occurs during the majority of the construction schedule when some units may be occupied. Construction equipment fleet operators are subject to ARB's In Use Offroad Equipment Fleet Regulation, which requires the use of increasing amounts of lower-emitting equipment that will help to ensure that risk would not exceed SJVAPCD thresholds.

Construction phase risks would be considered acute health risks as opposed to cancer risks, which are long-term. OEHHA has yet to define acute risk factors for diesel particulates that would allow the calculation of a hazards risk index; thus, evaluation of this impact would be speculative and no further discussion is necessary.

Operation: Toxic Air Contaminants

The ARB Air Quality and Land Use Handbook contains recommendations that will "help keep California's children and other vulnerable populations out of harm's way with respect to nearby sources of air pollution" (ARB 2005), including recommendations for distances between sensitive receptors and certain land uses. In the *California Building Industry Association v. Bay Area Air Quality Management District*, 62 Cal.4th 369 (2015) (Case No. S213478) the California Supreme Court held that "agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users or residents. But when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users. In those specific instances, it is the project's impact on the environment—and not the environment's impact on the project—that compels an evaluation of how future residents or users could be affected by exacerbated conditions." Although the Court ruled that impacts from the existing environment on projects are not required to be addressed under CEQA, land uses such as gasoline stations, dry cleaners, distribution centers, and auto body shops can expose residents to high levels of TAC emissions if they are close to the project site. Information regarding the location of existing TAC sources is provided for disclosure purposes only and not as a measure of the project's significance under CEQA.

Consistency with these recommendations is assessed as follows:

- Heavily traveled roads. ARB recommends avoiding new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day. Epidemiological studies indicate that the distance from the roadway and truck traffic densities were key factors in the correlation of health effects, particularly in children. The project is located on the north side of East Copper Avenue between North Friant Road and North Willow Avenue. Traffic volume on East Copper west of North Cedar was 5,270 trips per day in 2011. Traffic volume on North Friant Road north of Rice Road was 12,840 in 2008. The design capacity of Copper Avenue is 36,000 trips per day. No roads serving the project would exceed this criterion (Fresno COG 2013).
- Distribution centers. ARB also recommends avoiding siting new sensitive land uses within 1,000 feet of a distribution center. The project is not located within 1,000 feet of a distribution center.
- Fueling stations. ARB recommends avoiding new sensitive land uses within 300 feet of a large fueling station (a facility with a throughput of 3.6 million gallons per year or greater). ARB recommends a 50-foot separation is recommended for typical gas dispensing facilities. The nearest gas station is located at 10091 N. Maple Avenue, approximately 1.2 miles south of the project site. The project is expected to have three gas stations at buildout. The gas stations are expected to be small facilities with volumes of 1.0 million gallons per year or less that should be constructed at least 50 feet from the nearest residence. The proposed gas stations at Friant Road and Copper Avenue and Copper Avenue and Maple Avenue are over 50 feet from the nearest residence. No site plan has been prepared for the shopping center site located at Copper Avenue and Willow Avenue.
- Dry cleaning operations. ARB recommends avoiding siting new sensitive land uses within 300 feet of any dry-cleaning operation that uses perchloroethylene. For operations with two or more machines, ARB recommends a buffer of 500 feet. For operations with three or more machines, ARB recommends consultation with the local air district. The nearest dry-cleaning operation is approximately 1.2 miles south of the project site at 10083 N. Maple Avenue. The commercial sites could attract dry cleaners as tenants, but this would be speculative. In the event that dry cleaners are located in the project, facilities with on-site dry cleaning would be subject to SJVAPCD permitting and health risk screening.
- Auto body shops. Auto body shops have the potential to emit TACs related to painting. The nearest auto body shop is located at 427 W. Bedford Avenue approximately 6.0 miles south of the project site, which is beyond the distance that would result in a measurable impact.

Valley Fever

Valley fever, or coccidioidomycosis, is an infection caused by inhalation of the spores of the fungus, *Coccidioides immitis* (*C. immitis*). The spores live in soil and can live for an extended time in harsh environmental conditions. Activities or conditions that increase the amount of fugitive dust contribute to greater exposure, and they include dust storms, grading, and recreational off-road activities.

The San Joaquin Valley is considered an endemic area for Valley fever. By geographic region, hospitalizations for Valley fever in the San Joaquin Valley increased from 230 (6.9 per 100,000 population) in 2000 to 701 (17.7 per 100,000 population) in 2007. Within the region, Kern County reported the highest hospitalization rates, increasing from 121 (18.2 per 100,000 population) in 2000 to 285 (34.9 per 100,000 population) in 2007, and peaking in 2005 at 353 hospitalizations (45.8 per 100,000 population). The Centers for Disease Control and Prevention indicates that 752 of the 8,657 persons (8.7 percent) hospitalized in California between 2000 and 2007 for Valley fever died (CDC 2009). California experienced 7,466 new cases of Valley fever in 2017. A total of 275 Valley fever cases were reported in Fresno County in 2017 for a rate of 82.4 per 100,000 people (CDPH 2018).

The distribution of *C. immitis* within endemic areas is not uniform and growth sites are commonly small (a few tens of meters) and widely scattered. Known sites appear to have some ecological factors in common suggesting that certain physical, chemical, and biological conditions are more favorable for *C. immitis* growth. Avoidance, when possible, of sites favorable for the occurrence of *C. immitis* is a prudent risk management strategy. Listed below are ecologic factors and sites favorable for the occurrence of *C. immitis*:

1) Rodent burrows (often a favorable site for *C. immitis*, perhaps because temperatures are more moderate and humidity higher than on the ground surface)
2) Old (prehistoric) Indian campsites near fire pits
3) Areas with sparse vegetation and alkaline soils
4) Areas with high salinity soils
5) Areas adjacent to arroyos (where residual moisture may be available)
6) Packrat middens
7) Upper 30 centimeters of the soil horizon, especially in virgin undisturbed soils
8) Sandy, well-aerated soil with relatively high water-holding capacities

Sites within endemic areas less favorable for the occurrence of *C. immitis* include:

1) Cultivated fields
2) Heavily vegetated areas (e.g., grassy lawns)
3) Higher elevations (above 7,000 feet)
4) Areas where commercial fertilizers (e.g., ammonium sulfate) have been applied
5) Areas that are continually wet
6) Paved (asphalt or concrete) or oiled areas

7) Soils containing abundant microorganisms

8) Heavily urbanized areas where there is little undisturbed virgin soil (USGS 2000).

The project site is situated in a city growth area. The project includes urbanization of a site that is partially developed and previously graded. Therefore, implementation of the project would have a low probability of the site having *C. immitis* growth sites and exposure to the spores from disturbed soil.

Construction activities would generate fugitive dust that could contain *C. immitis* spores. The project will minimize the generation of fugitive dust during construction activities by complying with the District's Regulation VIII. Therefore, this regulation, combined with the relatively low probability of the presence of *C. immitis* spores, would reduce Valley fever impacts to less than significant.

During operations, dust emissions are anticipated to be negligible, because most of the project area would be occupied by buildings, pavement, and landscaped areas. This condition would preclude the possibility of the project from providing habitat suitable for *C. immitis* spores and for generating fugitive dust that may contribute to Valley fever exposure. Impacts would be less than significant.

Naturally Occurring Asbestos

According to a map of areas where naturally occurring asbestos in California are likely to occur (U.S. Geological Survey 2011), there are no such areas in the project area. Therefore, development of the project is not anticipated to expose receptors to naturally occurring asbestos. Impacts would be less than significant.

In summary, the project would not exceed SJVAPCD localized emission daily screening levels for any criteria pollutant. The project is not a significant source of TAC emissions during construction or operation. The project is not in an area with suitable habitat for Valley fever spores and is not in area known to have naturally occurring asbestos. Therefore, the project would not result in significant impacts to sensitive receptors.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant impact.

5.2.4 - Objectionable Odors

Impact AIR-4: The project would not create objectionable odors affecting a substantial number of people.

Impact Analysis

Thresholds of Significance

Odor impacts on residential areas and other sensitive receptors, such as hospitals, day-care centers, schools, etc. warrant the closest scrutiny, but consideration should also be given to other land uses where people may congregate, such as recreational facilities, worksites, and commercial areas.

Two situations create a potential for odor impact. The first occurs when a new odor source is located near an existing sensitive receptor. The second occurs when a new sensitive receptor locates near an existing source of odor. According to the *CBIA v. BAAQMD* ruling, impacts of existing sources of odors on the project are not subject to CEQA review. Therefore, the analysis to determine if the project would locate new sensitive receptors near an existing source of odor is provided for information only. The District has determined the common land use types that are known to produce odors in the Air Basin. These types are shown in Table 13.

Table 13: Screening Levels for Potential Odor Sources

Odor Generator	Screening Distance
Wastewater Treatment Facilities	2 miles
Sanitary Landfill	1 mile
Transfer Station	1 mile
Composting Facility	1 mile
Petroleum Refinery	2 miles
Asphalt Batch Plant	1 mile
Chemical Manufacturing	1 mile
Fiberglass Manufacturing	1 mile
Painting/Coating Operations (e.g., auto body shop)	1 mile
Food Processing Facility	1 mile
Feed Lot/Dairy	1 mile
Rendering Plant	1 mile
Source: SJVAPCD 2015a.	

According to the SJVAPCD GAMAQI, analysis of potential odor impacts should be conducted for the following two situations:

- **Generators:** projects that would potentially generate odorous emissions proposed to locate near existing sensitive receptors or other land uses where people may congregate, and
- **Receivers:** residential or other sensitive receptor projects or other projects built for the intent of attracting people located near existing odor sources.

Project Analysis

Project as a Generator

Land uses that are typically identified as sources of objectionable odors include landfills, transfer stations, sewage treatment plants, wastewater pump stations, composting facilities, feed lots, coffee roasters, asphalt batch plants, and rendering plants. The project would not engage in any of these activities. Therefore, the project would not be considered a generator of objectionable odors during operations.

During construction, the various diesel-powered vehicles and equipment in use on-site would create localized odors. These odors would be temporary and would not likely be noticeable for extended periods of time beyond the project's site boundaries. The potential for diesel odor impacts would therefore be less than significant.

Project as a Receiver

With the *CBIA v. BAAQMD* ruling, analysis of odor impacts on receivers is not required for CEQA compliance. Therefore, the following analysis is provided for information only.

The residential portion of the development has the potential to place sensitive receptors near existing and new odor sources. However, there are no major odor-generating sources (as listed in Table 13) within screening distance of the site or planned for the commercially designated areas of the plan. Therefore, the uses in the vicinity of the project would not result in substantial odor impacts to the project.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant impact.

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SECTION 6: GREENHOUSE GAS IMPACT ANALYSIS

6.1—CEQA Guidelines

CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would have a significant impact on GHGs, the type, level, and impact of emissions generated by the project must be evaluated.

The following GHG significance thresholds are contained in Appendix G of the CEQA Guidelines, which were amendments adopted into the Guidelines on March 18, 2010, pursuant to SB 97 and most recently amended December 28, 2019. A significant impact would occur if the project would:

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

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

6.2—Impact Analysis

6.2.1 - Greenhouse Gas Inventory

Impact GHG-1: **The project would generate direct and indirect greenhouse gas emissions; however, these emissions would not result in a significant impact on the environment.**

Impact Analysis

Threshold of Significance

Section 15064.4(b) of the CEQA Guidelines' 2018 amendments for GHG emissions states that a lead agency may take into account the following three considerations in assessing the significance of impacts from GHG emissions.

- **Consideration #1**: The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting.
- **Consideration #2**: Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
- **Consideration #3**: The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project. In determining the significance of impacts, the lead agency may consider a project's consistency with the State's long-term

> climate goals or strategies, provided that substantial evidence supports the agency's analysis of how those goals or strategies address the project's incremental contribution to climate change and its conclusion that the project's incremental contribution is not cumulatively considerable.

The City of Fresno adopted a Greenhouse Gas Reduction Plan in 2014 that includes procedures for certain qualified projects to demonstrate consistency with plan and use the streamlining provisions allowed under CEQA. In addition to the plan consistency analysis, a quantitative analysis that shows that reductions from BAU emissions would exceed 21.7 percent in 2020 was prepared to show consistency with State reduction targets. The SJVAPCD's *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* provides guidance for preparing a BAU analysis (SJVAPCD 2009b). Under the SJVAPCD guidance, projects meeting one of the following would have a less than significant impact on climate change:

- Exempt from CEQA;
- Complies with an approved GHG emission reduction plan or GHG mitigation program;
- Project achieves 29 percent GHG reductions by using approved Best Performance Standards; and
- Project achieves AB 32 targeted 29 percent GHG reductions compared with "business as usual."

The 29 percent GHG reduction level is based on the target established by ARB's AB 32 Scoping Plan, approved in 2008. The GHG reduction level for the State to reach 1990 emission levels by 2020 was reduced to 21.7 percent from BAU in 2020 in the 2014 First Update to the Scoping Plan to account for slower than projected growth after the 2008 recession (ARB 2014). In addition, the State has reported that the 2016, 2017, and 2018 greenhouse gas inventories are all below the 2020 target (ARB 2018b). Copper River Ranch is an ongoing project with new homes and businesses added continuously to meet market demand with or without the proposed plan revisions. For analysis purposes, construction is expected to begin in September 2021 and would reach buildout of the residential portion of the project by 2026 and the commercial portion of the project by 2028. Since buildout will occur after the AB 32 target year, and no new City of Fresno or SJVAPCD threshold has been adopted, progress toward achieving the SB 32 2030 target is the most relevant criteria for determining significance.

A quantitative analysis was prepared for this project to determine the extent to which it may increase or reduce greenhouse gas emissions as compared to the existing environmental setting to fulfill Consideration 1.

Consideration 2 requires the identification of BPS that are determined to meet the 29 percent reduction from BAU. The SJVAPCD intended to develop a list of BPS for development projects that were pre-determined to achieve a 29 percent reduction from BAU, but has not completed the list. However, since the SJVAPCD guidance was adopted in 2009, regulations on sources of GHG emissions applicable to development projects have been implemented that will achieve in excess of a 29 percent reduction from BAU for most projects. A BAU analysis is provided to demonstrate that the project would exceed the current 21.7 percent reduction and the previous SJVAPCD 29 percent reduction threshold.

The analysis also addresses consistency with the SB 32 targets and the 2017 Scoping Plan Update with an assessment of the project's reduction from BAU based on emissions in 2030 compared with the 21.7 percent reduction and with a consistency analysis. This approach provides estimates of project emissions in the new 2030 milestone year with the existing threshold to address Considerations 1 and 2 above.

The ARB adopted the 2017 Scoping Plan Update on December 14, 2017. The plan provides the State's strategy to achieve the SB 32 2030 target of a 40 percent reduction in emissions compared to 1990 levels. The plan includes existing and new measures that when implemented are expected to achieve the SB 32 2030 target. The 2017 Scoping Plan achieves substantial reductions beyond 2020 through continued implementation of existing regulations. Other regulations will be adopted to implement recently enacted legislation including SB 350, which requires an increase in renewable energy from 33 percent to 50 percent and doubling the efficiency of existing buildings by 2030. The Legislature extended the Cap-and-Trade Program through 2030. Cap-and-Trade provides a mechanism to make up shortfalls in other strategies if they occur (ARB 2017c). In addition, the strategy relies on reductions achieved in implementing the ARB Short-Lived Climate Pollutant (SLCP) Reduction Strategy to reduce pollutants not previously controlled for climate change such as black carbon, CH_4, and hydrofluorocarbons (ARB 2017b).

Newhall Ranch

On November 30, 2015, the California Supreme Court issued its decision in *Newhall Ranch,* invalidating the GHG analysis for a large master planned residential development in Los Angeles County consisting of over 20,000 residential dwelling units and other uses. In particular, the Court upheld: (1) use of the statewide emissions reduction goal in AB 32 as a significance criterion (pp. 15–19), (2) use of the Scoping Plan's BAU model "as a comparative tool for evaluating efficiency and conservation efforts" of the Project (pp. 18–19), and (3) a comparison of the project's expected emissions to a BAU model rather than a baseline of pre-project conditions (pp. 15–19). The Court invalidated the GHG analysis on the grounds that the "administrative record discloses no substantial evidence that the Newhall Ranch's project-level reduction of 31 percent in comparison to [BAU] is consistent with achieving AB 32's statewide goal of a 29 percent reduction from [BAU]." The Court indicated that a lead agency may use a BAU comparison based on the Scoping Plan's methodology if it also substantiates the reduction a particular project must achieve to comply with statewide goals. The Court suggested a lead agency could examine the "data behind the Scoping Plan's business-as-usual model" to determine the necessary project-level reductions from new land use development at the proposed location (p. 25). A lead agency "might assess consistency with A.B. 32's goal in whole or part by looking to compliance with regulatory programs designed to reduce greenhouse gas emissions from particular activities."

The substantial evidence needed to support a project BAU threshold can be derived from data used to develop the Scoping Plan inventory and control strategy, and from analysis conducted by the ARB to track progress in achieving the AB 32 2020 target. The critical factor in determining the appropriate project threshold is whether the State requires additional reductions beyond those achieved by existing regulations in order to achieve its target. If no additional reductions are required from individual projects, no nexus exists to require a project to mitigate its emissions. In that case, the percentage reductions achieved by projects through compliance with regulations is the amount needed to reach the AB 32 target. As discussed above, the State GHG inventory has been below the AB 32 target since 2016. Therefore, no additional reductions are needed to achieve

AB 32 targets. Now that the AB 32 target has been achieved, the focus turns to achieving the SB 32 2030 target.

The Supreme Court was concerned that new development may need to do more than existing development to reduce GHGs to demonstrate that it is doing its fair share of reductions. As will be shown below, new development does do more than existing development and, because of the nature of the sources of GHG emissions related to development, existing development is equally responsible for reducing emissions from the most important sources of emissions. It is important to note that most of the State's regulatory program applies to both new and existing development.

The Scoping Plan reduction from BAU accounts for growth projected in the State and assumes that existing development would continue to emit GHGs at the same rate that occurred in the base year. The DOF forecasts California's population will grow by 8.1 percent between 2020 and 2030, so existing development will be responsible for 92 percent of the emissions that occur in 2030 and new development for 8 percent of the emissions that occur in 2030. If measures to reduce emissions from existing development were not available, new development could not provide sufficient reductions to reach the 2030 target even if their emissions were reduced to net zero.

The State's regulatory program is able to target both new and existing development because the two most important strategies—motor vehicle fuel efficiency and emissions from electricity generation—obtain reductions equally from existing and new sources. This is because all vehicle operators use cleaner low carbon fuels and buy vehicles subject to the fuel efficiency regulations, and all building owners or operators purchase cleaner energy from the grid that is produced by increasing percentages of renewable fuels. This includes regulations on mobile sources such as: The Pavley standards that apply to all vehicles purchased in California, the Low Carbon Fuel Standard (LCFS) that applies to all fuel used in California, and the Renewable Portfolio Standard and Renewable Energy Standard that apply to utilities providing electricity to all California homes and businesses. The reduction strategy where new development is required to do more than existing development is building energy efficiency and energy use related to water conservation regulations. For example, new projects are subject to Title 24 Energy Efficiency standards and CALGreen Code and Model Water Efficient Landscape Ordinance (MWELO) water conservation requirements. Residential buildings constructed to the 2013 Title 24 standards use 25 percent less energy than buildings complying with the 2008 standards. The version of Title 24 effective January 1, 2017 improves energy efficiency in residential buildings by 28 percent compared to the 2013 Title 24 standards and 46 percent compared with 2008 Title 24 standards. New buildings and landscapes are much more energy efficient and water efficient than the development that has been built over the past decades and will require much less energy. The 2019 Title 24 standards effective January 2020 makes progress toward achieving net zero energy use through requirements for on-site renewable generation for most projects. The project buildings would be constructed after 2020 and would be required to comply with 2019 or later Title 24 standards.

As described above, the State requires an average reduction from all sources of the emission inventory of approximately 40 percent from 1990 levels to achieve the 2030 target. The Scoping Plan strategy will achieve greater than average reductions from energy and mobile source sectors that are the primary sources related to development projects, and lower than average reductions from other sources such as agriculture. The amount of reduction estimated by the ARB for each sector was based on technical feasibility and cost effectiveness. The 2017 Scoping Plan Update identifies a range of reductions expected from each emission sector, but an amount needed for development's fair share of reductions have not been determined.

As suggested by the Court, a project BAU analysis was prepared for this project that assesses "consistency with AB 32's goal in whole or part by looking to compliance with regulatory programs designed to reduce greenhouse gas emissions from particular activities." The analysis shows the extent to which the project complies with adopted regulations and the additional amount that will be achieved through project design features. At this point in time, it appears that the State has achieved the 2020 target, so no additional reductions are required from new development beyond regulations for the State to achieve and maintain the 2020 target. The 2030 target will require a reduction from 431 $MTCO_2e$ to 260 $MTCO_2e$ or 40 percent from 1990 levels. After accounting for projected growth of approximately 0.8 percent per year an average decrease of 5.2 percent per year from the State GHG inventory will be required to achieve the target. The 2017 Scoping Plan Update includes a strategy for achieving the needed reductions, but does not identify an amount required specifically from new development. However, all GHG emission sources within development projects are subject to GHG regulations.

Therefore, this analysis shows progress toward achieving the 2030 target. The quantitative analysis prepared for the project provides the reduction from BAU in the 2030 target year to show the progress anticipated prior to applying reductions from new strategies contained in the 2017 Scoping Plan Update. The new reduction strategies from the plan are designed to close the gap between existing commitments and those needed to achieve the 2030 target, but many of the strategies must go through a regulatory process to be implemented. Therefore, the reductions needed from new development beyond regulations, if any, is uncertain.

The analysis prepared for the project also includes qualitative assessments of compliance with 2008 Scoping Plan, the 2017 Scoping Plan Update, and City of Fresno General Plan to support GHG significance findings under Impact GHG-2.

To determine significance, the analysis first quantifies project-related GHG emissions under a BAU scenario, and then compares these emissions with emissions that would occur when all project-related design features are accounted for, and when compliance with applicable regulatory measures is assumed. The standard and methodology is explained in further detail below.

Impact Analysis

Construction

Total GHG emissions generated during construction are presented in Table 14. Two model runs were prepared for the project at buildout. One run covered the remaining residential development and the second run covered the remaining commercial development. The SJVAPCD does not recommend assessing the significance of construction-related emissions. However, other jurisdictions, such as the SCAQMD and the SMAQMD, have concluded that construction emissions should be included since they may remain in the atmosphere for years after construction is complete. In order to account for the construction emissions, amortizations of the total emissions generated during construction were based on the life of the development (30 years) and added to the operational emissions.

Table 14: Construction Greenhouse Gas Emissions

Year	$MTCO_2e$ per year		
	Residential	Commercial	Total
2021	519.89	54.65	574.54
2022	877.91	795.35	1673.26
2023	2,566.51	962.05	3528.56
2024	2,546.98	952.18	3499.15
2025	2,499.37	931.92	3,431.29
2026	1,050.54	918.76	1,969.30
2027	0.00	905.55	905.55
2028	0.00	391.48	391.48
Total	**10,061.19**	**5911.94**	**15,973.13**
Amortized over 30 years	***335.37***	***197.06***	***532.44***

Notes:
Calculation totals use unrounded numbers from CalEEMod output.
$MTCO_2e$ = metric tons of carbon dioxide equivalents
Source: CalEEMod output (Appendix A).

Operation

Operational or long-term emissions occur over the life of the project. Sources of emissions may include motor vehicles and trucks, energy usage, water usage, waste generation, and area sources, such as landscaping activities and residential wood burning.

Business As Usual Operational Emissions

Operational emissions under the BAU scenario were modeled using CalEEMod 2016.3.2. Modeling assumptions for the year 2005 were used to represent 2026, 2028, and 2030 BAU conditions (without the benefit of regulations adopted to reduce GHG emissions). The SJVAPCD guidance recommends using emissions in 2002–2004 in the baseline scenario to represent conditions—as if regulations had not been adopted—to allow the effect of projected growth on achieving reduction targets to be clearly defined. CalEEMod defaults were used for project energy usage, water usage, waste generation, and area sources (architectural coating, consumer products, and landscaping). The vehicle fleet mix was revised to reflect the residential fleet mix approved by SJVAPCD for 2026, which is when buildout of the residential areas of the project is assumed to be complete. The default vehicle fleet mix for the commercial land uses was revised to land use specific fleet mixes to more accurately account for project truck trips. Full assumptions and CalEEMod model outputs are provided in Appendix A.

2026, 2028, and 2030 Operational Emissions

Operational emissions were modeled using CalEEMod for the years 2026 for residential development and 2028 for commercial development. The project was also modeled for both residential and commercial development for 2030 to show progress towards SB 32 reduction targets. CalEEMod assumes compliance with some, but not all, applicable rules and regulations regarding energy efficiency, vehicle fuel efficiency, renewable energy usage, and other GHG reduction policies, as described in the CalEEMod User's Guide (SCAQMD 2017). The reductions obtained from each regulation and the source of the reduction amount used in the analysis are described below.

Emissions Accounting for Applicable Regulations

The following regulations are incorporated into the CalEEMod emission factors:

- Pavley I and Pavley II (LEV III) motor vehicle emission standards
- ARB Medium and Heavy-Duty Vehicle Regulation
- 2005, 2008, 2013, and 2016 Title 24 Energy Efficiency Standards

The following regulations have not been incorporated into the CalEEMod emission factors and require alternative methods to account for emission reductions provided by the regulations:

- Renewable Portfolio Standards (RPS)
- Low Carbon Fuel Standard (LCFS)
- Green Building Code Standards (indoor water use)
- California Model Water Efficient Landscape Ordinance (Outdoor Water)

Pavley II/LEV III standards have been incorporated in the latest version of CalEEMod. ARB estimates a 3 percent reduction in 2020 and a 19 percent reduction from the vehicle categories subject to the regulation by 2030 (ARB 2010b and ARB 2013d).

The ARB GHG Regulation for Medium and Heavy-Duty Engines and Vehicles applies to trucks that will be accessing the project site. The benefits of the regulation were incorporated into CalEEMod 2016.3.2. The ARB estimates that this regulation will reduce GHG emissions from the affected vehicles by 7.2 percent (ARB 2013f).

The Low Carbon Fuel Standard (LCFS) is estimated to achieve a 10 percent reduction in emissions by 2020 and an 18 percent reduction by 2030 (ARB 2010). CalEEMod does not include credit for the LCFS.

Title 24 reductions for 2013 and 2016 updates were added to CalEEMod 2016.3.2. The California Energy Commission (CEC) estimates that 2013 Title 24 standards would result in an increase in energy efficiency of 25 percent in residential buildings compared to 2008 Title 24 (CEC 2014a). An additional 28 percent reduction from the 2008 standards have been claimed for compliance with 2016 Title 24. This results in a combined reduction of 46 percent (CEC 2015). Compliance with 2019 Title 24 is expected to reduce residential energy use by 7 percent beyond 2016 Title 24 prior to accounting for the installation of solar panels (CEC 2018). 2019 Title 24 requires new residential development include solar panels to generate electricity. The project is expected to include solar panels on each residential unit in quantities that meet or exceed Title 24 requirements. 2019 Title 24 is expected to reduce electricity consumption by 10.7 percent and natural gas by 1.0 percent for nonresidential uses.

RPS is not accounted for in CalEEMod 2016.3.2. Reductions from RPS are addressed by revising the electricity emission intensity factor in CalEEMod to account for the utility RPS rate forecast for 2020 (CPUC 2016). PG&E provides emission factors for the electricity it provides to customers and projections for its energy portfolio for 2020 that is used to estimate project emissions. No data to reflect compliance in 2030 was included in the PG&E projections. The utilities will be required by SB 100 to increase the use of renewable energy sources to 60 percent by 2030, but details on individual utility compliance have not been determined.

Energy savings from water conservation resulting from the Green Building Code Standards for indoor water use and California Model Water Efficient Landscape Ordinance for outdoor water use are not included in CalEEMod. The Water Conservation Act of 2009 mandates a 20 percent reduction in urban water use that is implemented with these regulations (CDWR 2013). Benefits of the water conservation regulations are applied in the CalEEMod mitigation component.

Reductions in emissions from solid waste are based on the City achieving the CalRecycle 75 Percent Initiative by 2020 compared with a 50 percent baseline for 2005. Reductions are taken using the CalEEMod mitigation component.

Regulations applicable to project sources and the percent reduction anticipated from each source are shown in Table 15. The percentage reductions are only applied to the specific sources subject to the regulations. For example, the Pavley LEV Standards apply only to light duty cars and trucks.

Table 15: Reductions from Greenhouse Gas Regulations

Regulation	Project Applicability	Reduction Source	Percent Reduction in 2020 and 2030
Pavley Low Emission Vehicle Standards	Light-duty cars and trucks accessing the site are subject to the regulation.	CalEEMod defaults (Pavley I)	25.1[1]
		Adjusted GHG emission factor (Pavley II/LEV III) in CalEEMod.	3% 2020 19.5% 2030[2]
Truck and Bus Regulation	Heavy-duty trucks accessing the site for deliveries and services are subject to the regulation.	Adjusted GHG emission factors for the regulation in CalEEMod	7.2%[3]
Low Carbon Fuel Standard (LCFS)	Vehicles accessing the site will use fuel subject to the LCFS	CalEEMod defaults	10% 2020 20% 2030[1]
Title 24 Energy Efficiency Standards	Project buildings will be constructed to meet the latest version of Title 24 (currently 2016). Reduction applies only to energy consumption subject to the regulation.	CalEEMod defaults	35%[4,5]
Green Building Code Standards	The project will include water conservation features required by the standard	CalEEMod mitigation component	20%[6]
Water Efficient Land Use Ordinance	The project landscaping will comply with the regulation	CalEEMod mitigation component	20%[7]

Table 15 (cont.): Reductions from Greenhouse Gas Regulations

Regulation	Project Applicability	Reduction Source	Percent Reduction in 2020 and 2030
Renewable Portfolio Standard (RPS)	Electricity purchased for use at the project site is subject to the 33 percent RPS mandate	CalEEMod adjusted energy intensity factors with PG&E emission factors that show the company exceeds the 33 percent 2020 mandate and is progressing toward 60 percent 2030 mandate.	54.5%[8]
Solid waste	The solid waste service provider will need to provide programs to increase diversion and recycling to meet the 75 percent mandate.	CalEEMod mitigation component	25%[9]

Notes:
Regulations are described in Section 2.3 Regulatory Environment. The source of the percentage reductions from each measure are from the following sources:
[1] Pavley 1 + Low Carbon Fuel Standard Postprocessor Version 1.0 User's Guide (ARB 2010b)
[2] ARB Staff Report for LEV III Amendments (ARB 2013e)
[3] ARB Staff Report for GHG Regulations for Medium and Heavy-Duty Engines and Vehicles (ARB 2013f)
[4] California Energy Commission News Release: New Title 24 Standards Will Cut Residential Energy Use by 25 Percent, Save Water, and Reduce Greenhouse Gas Emissions (CEC 2014b)
[5] California Energy Commission Adoption Hearing Presentation: 2016 Buildings Energy Efficiency Standards (CEC 2015)
[6] 2013 California Green Building Standards Code Section 5.303.2
[7] California Water Plan Update 2013 (CDWR 2013)
[8] Based on CalEEMod default PG&E rate for 2005 and PG&E projected emission factor for 2020
[9] CalRecycle 75 Percent Initiative: Defining the Future (2016b)

In addition to rules and regulations, the project would incorporate design features and would obtain benefits from its location and infrastructure that would reduce project vehicle miles traveled (VMT) compared with default values. The project would construct pedestrian infrastructure connecting to adjacent land uses. Copper River Ranch incorporates bike lanes and roundabouts into the internal road network. In addition, the project would provide electrical outlets for landscaping equipment that would be used in accordance with statewide usage rates for this type of equipment. The project is located approximately 8.9 miles from existing development on Herndon Avenue and in the Palm Bluffs Business Park and other employment centers in North Fresno, providing shorter-than-average trip lengths to important destinations. The neighborhood commercial components of the project will provide local shopping and services to residents that will help reduce VMT.

Note that CalEEMod nominally treats these design elements and conditions as "mitigation measures," despite their inclusion in the project description. Therefore, reported operational emissions are considered to represent unmitigated project conditions. Full assumptions and model outputs are provided in Appendix A. The residential and commercial projects were modeled in separate model runs with the results for each provided in Table 16 and Table 17. The combined results for the full project are presented in Table 18.

Table 16: Project Operational Greenhouse Gases Residential 2026

Source	Emissions ($MTCO_2e$ per year)		
	Business as Usual	2026 (with Regulation and Design Features)	Percent Reduction
Area	1,820.34	939.43	48.39%
Energy	6,744.79	4,212.38	37.5%
Mobile	23,685.66	12,734.36	46.9%
Waste	842.01	631.51	25.0%
Water	489.70	258.95	47.1%
Amortized Construction Emissions	335.37	335.37	0.0%
Total	**33,918.69**	**19,111.99**	**43.7%**
	Reduction from BAU	**14,963.10**	—
	Percent Reduction	**43.7%**	—
	Significance Threshold	**21.7%**	—
	Are emissions significant?	**No**	

Notes:
$MTCO_2e$ = metric tons of carbon dioxide equivalents
The project achieves the SJVAPCD 29 percent reduction from BAU threshold and the 21.7 percent required to show consistency with AB 32 targets.
Source: CalEEMod output (Appendix A).

Table 17: Project Operational Greenhouse Gases Commercial 2028

Source	Emissions ($MTCO_2e$ per year)		
	Business as Usual	2028 (with Regulation and Design Features)	Percent Reduction
Area	0.00	0.00	4.66%
Energy	717.97	416.45	42.0%
Mobile	8,413.74	3,009.10	64.2%
Waste	119.18	89.39	25.0%
Water	69.24	36.82	46.8%
Amortized Construction Emissions	197.06	197.06	0.0%
Total	**9,517.20**	**3,748.82**	**60.6%**
	Reduction from BAU	**5,768.38**	—
	Percent Reduction	**60.6%**	—
	Significance Threshold	**21.7%**	—
	Are emissions significant?	**No**	

Notes:
$MTCO_2e$ = metric tons of carbon dioxide equivalents
The project achieves the SJVAPCD 29 percent reduction from BAU threshold and the 21.7 percent required to show consistency with AB 32 targets.
Source: CalEEMod output (Appendix A).

Table 18: Project Operational Greenhouse Gases Full Project 2028

Source	Emissions ($MTCO_2e$ per year)		
	Business as Usual	2028 (with Regulation and Design Features)	Percent Reduction
Area	1,820.35	939.43	48.39%
Energy	7,462.76	4,628.82	38.0%
Mobile	32,099.40	15,743.46	51.0%
Waste	961.19	720.89	25.0%
Water	558.94	295.77	47.1%
Amortized Construction Emissions	51.99	51.99	0.0%
Total	**42,954.62**	**22,380.37**	**47.9%**
	Reduction from BAU	**20,574.26**	—
	Percent Reduction	**47.9%**	—
	Significance Threshold	**21.7%**	—
	Are emissions significant?	**No**	

Notes:
$MTCO_2e$ = metric tons of carbon dioxide equivalents
The project achieves the SJVAPCD 29 percent reduction from BAU threshold and the 21.7 percent required to show consistency with AB 32 targets. No new target has been set for 2030.
Source: CalEEMod output (Appendix A).

As shown in Table 18, the project operations for the full project would achieve a reduction from BAU of 47.9 percent, which exceeds the 21.7 percent reduction required by the State to achieve the 2020 target by 26.2 percent and the SJVAPCD 29.0 percent target by 18.9 percent. No new threshold has been adopted by the City of Fresno for the 2030 target, so in the interim the project must make continued progress toward the 2030 goal to be considered less than significant for this criterion. The project includes design features that would result in reductions in energy use and support walking and bicycling. Measures that are part of the project design do not require additional mitigation measures to ensure they are accomplished.

The 47.9 percent reduction from BAU is 26.2 percent beyond the average reduction required by the State from all sources to achieve the AB 32 2020 target and therefore addresses the concern expressed in Newhall Ranch that projects should likely do more than the average to ensure they are providing a fair share of emission reductions.

Since the project buildout would occur after 2020, additional analyses summarized in Table 19, Table 20, and Table 21 were prepared to show continued progress toward meeting the SB 32 2030 target.

Table 19: Project Operational Greenhouse Gases Residential 2030

Source	Emissions ($MTCO_2e$ per year)		
	Business as Usual	2030 (with Regulation and Design Features)	Percent Reduction
Area	1,820.34	939.43	48.39%
Energy	6,744.79	4,212.38	37.5%
Mobile	23,685.66	10,958.03	53.7%
Waste	842.01	631.51	25.0%
Water	489.70	258.95	47.1%
Amortized Construction Emissions	335.37	335.37	0.0%
Total	**33,917.87**	**17,335.66**	**48.9%**
	Reduction from BAU	**16,582.21**	—
	Percent Reduction	**48.9%**	—
	Significance Threshold	**21.7%**	—
	Are emissions significant?	**No**	

Notes:
$MTCO_2e$ = metric tons of carbon dioxide equivalents
The project achieves the SJVAPCD 29 percent reduction from BAU threshold and the 21.7 percent required to show consistency with AB 32 targets. No new target has been set for 2030.
Source: CalEEMod output (Appendix A).

Table 20: Project Operational Greenhouse Gases Commercial 2030

Source	Emissions ($MTCO_2e$ per year)		
	Business as Usual	2030 (with Regulation and Design Features)	Percent Reduction
Area	0.00	0.00	4.66%
Energy	717.97	416.45	42.0%
Mobile	8,413.74	2,781.03	66.9%
Waste	119.18	89.39	25.0%
Water	69.24	36.82	46.8%
Amortized Construction Emissions	197.06	197.06	0.0%
Total	**9,517.20**	**3,520.75**	**63.0%**
	Reduction from BAU	**5,996.45**	—
	Percent Reduction	**63.0%**	—
	Significance Threshold	**21.7%**	—
	Are emissions significant?	**No**	

Notes:
$MTCO_2e$ = metric tons of carbon dioxide equivalents
The project achieves the SJVAPCD 29 percent reduction from BAU threshold and the 21.7 percent required to show consistency with AB 32 targets. No new target has been set for 2030.
Source: CalEEMod output (Appendix A).

Table 21: Project Operational Greenhouse Gases Full Project 2030

Source	Emissions ($MTCO_2e$ per year)		
	Business as Usual	2030 (with Regulation and Design Features)	Percent Reduction
Area	1,820.35	939.43	48.39%
Energy	7,462.76	4,628.82	38.0%
Mobile	32,099.40	13,739.06	57.2%
Waste	961.19	720.89	25.0%
Water	558.94	295.77	47.1%
Amortized Construction Emissions	532.44	532.44	0.0%
Total	**43,435.07**	**20,856.41**	**52.0%**
	Reduction from BAU	**22,578.66**	—
	Percent Reduction	**52.0%**	—
	Significance Threshold	**21.7%**	—
	Are emissions significant?	**No**	

Notes:
$MTCO_2e$ = metric tons of carbon dioxide equivalents
The project achieves the SJVAPCD 29 percent reduction from BAU threshold and the 21.7 percent required to show consistency with AB 32 targets. No new target has been set for 2030.
Source: CalEEMod output (Appendix A).

As shown in Table 21, the full project at buildout would achieve a 52.0 percent reduction from BAU that would exceed the 21.7 percent reduction required by the State to achieve the 2020 target by 30.3 percent and the SJVAPCD 29.0 percent target by 23.0 percent by 2030.

The analysis presented above does not include credit for new strategies proposed in the 2017 Scoping Plan Update. The update was adopted in December 2017. The update provides alternatives in terms of their likelihood of implementation and ranges of reduction from the strategies. Measures already authorized by legislation are highly likely to be implemented, while measures requiring new legislation are less likely to go forward. The State is highly likely to incorporate zero net energy buildings in future updates to Title 24 and now requires solar panels in most residential development. A new round of motor vehicle fuel efficiency standards beyond 2025 when LEV III standards are at their maximum reduction level is highly likely. Changing heavy-duty trucks and off-road equipment to alternative fuels face greater technological hurdles and are less likely to provide dramatic reductions by 2030; however, ARB recently approved the Advanced Clean Trucks regulation that requires increasing percentages of zero emission trucks between 2024 and 2035 (ARB 2020b).

The 2030 emission limit is 260 $MMTCO_2e$. The ARB estimates that the 2030 BAU (reference) Inventory will be 392 $MMTCO_2e$—a reduction of 132 $MMCO_2e$, including existing policies and programs but not including known commitments that are already underway. The 2017 Scoping Plan Update includes the estimated GHG emissions by sector compared with 1990 levels that is presented in Table 22. The proposed plan would achieve the bulk of the reductions from Electric Power, Industrial fuel combustion, and Transportation. Cap-and-Trade would provide between 10 and 20 percent of the required reductions depending on the amounts achieved by the other reduction measures.

Table 22: 2017 Scoping Plan Update Estimated Change in GHG Emissions by Sector

Scoping Plan Sector	Emissions ($MMTCO_2e$ per year)		
	1990	2030 Proposed Plan Ranges	Percent Change form 1990
Agriculture	26	24–25	-4 to -8
Residential and Commercial	44	38–40	-9 to -14
Electric Power	108	42–62	-43 to -61
High GWP	3	8–11	167 to 267
Industrial	98	77–87	-11 to -21
Recycling and Waste	7	8–9	14 to 29
Transportation (including TCU)	152	103–111	-27 to -32
Net Sink	-7	TBD	TBD
Subtotal	**431**	**300–345**	**-20 to -30**
Cap-and-Trade Program	N/A	40–85	N/A
Total	**431**	**260**	**-40**
Source: ARB 2017 Scoping Plan Update (ARB 2017c).			

Although 2017 Scoping Plan Update focuses on state agency actions necessary to achieve the 2030 GHG limit, the ARB considers local governments essential partners in achieving California's goals to reduce GHG emissions. The 2030 target will require an increase in the rate of emission reductions compared to what was needed to achieve the 2020 limit, and this will require action and collaboration at all levels, including local government action to complement and support State-level actions. For individual projects, the 2017 Scoping Plan Update suggests that all new land use development implement all feasible measures to reduce GHG emissions. The Scoping Plan does not define all feasible measures or attribute an amount of reductions required from new development beyond compliance with regulations. When requiring mitigation of a project's fair share of a cumulative impact, the Lead Agency must show the nexus between the project contribution and its fair share of mitigation to reduce the impact to less than cumulatively considerable. A threshold based on local support and collaboration with State actions as described in the 2017 Scoping Plan Update does not lend itself to a quantitative determination of fair share. Requiring developers and future residents and businesses within the development to fully mitigate emissions without accounting for compliance with regulations would result in double mitigation, first by the developer and then by the residents purchasing electricity, fuel, and vehicles compliant with regulations in effect at the time of purchase and beyond that would violate constitutional nexus requirements.

In conclusion, the project would achieve reductions of 30.3 percent beyond the ARB 2020 21.7 percent target and 23.0 percent beyond the SJVAPCD 29 percent reduction from BAU requirements from adopted regulations and on-site design features. No new threshold has been adopted by the

City of Fresno for the SB 32 2030 target; however, the reductions from BAU by 2030 are 30.3 percent beyond the 21.7 percent required for the 2020 target. Based on this progress and the strong likelihood that the measures included in the 2017 Scoping Plan Update will be implemented, it is reasonable to conclude that the project is consistent with the 2017 Scoping Plan and will contribute a reasonable fair-share contribution to achieving the 2030 target. The fair share may very well be achieved through compliance with increasingly stringent State regulations that apply to new development, such as Title 24 and CALGreen; regulations on energy production, fuels, and motor vehicles that apply to both new and existing development; and voluntary actions to improve energy efficiency in existing development. In addition, compliance with the VMT targets adopted to comply with SB 375 and implemented through the RTP/SCS may be considered to adequately address GHG emissions from passenger cars and light-duty trucks. As shown in Table 22, the State strategy relies on the Cap-and-Trade Program to make up any shortfalls that may occur from the other regulatory strategies. The costs of Cap-and-Trade emission reductions will ultimately be passed on to the consumers of fuels, electricity, and products produced by regulated industries, which include future residents and businesses located within the Copper River Ranch project and other purchasers of products and services. Therefore, the impact in terms of Considerations #1 and #2 would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant impact.

6.2.2 - Greenhouse Gas Reduction Plans

Impact GHG-2: The project would not conflict with any applicable plan, policy, or regulation of an agency adopted to reduce the emissions of greenhouse gases.

Impact Analysis

The following analysis assesses the project's compliance with Consideration #3 regarding consistency with adopted plans to reduce GHG emissions. The City of Fresno adopted its GHG Reduction Plan as part of the General Plan Update in 2014. The project's consistency with applicable GHG policies from the GHG Reduction Plan policies is assessed below.

The project is also assessed for its consistency with ARB's adopted Scoping Plans. This would be achieved with an assessment of the project's compliance with Scoping Plan measures contained in the 2008 Scoping Plan and the 2017 Scoping Plan Update.

City of Fresno GHG Plan

The GHG Plan includes procedures to use when assessing the impacts of project's requiring a general plan amendment. The following requirements apply.

1. Review General Plan policies listed in the GHG Reduction Plan to identify those that apply to the project and prepare a consistency analysis for compliance with the applicable policies.
2. Ensure project is consistent with the City's Development Code as it relates to complete streets and design standards for multi-family projects
3. Prepare a GHG technical study to quantify project emissions and emission reductions through compliance with regulations and project design features.

Table 23 provides a consistency analysis with applicable GHG policies from the GHG Reduction Plan. The project is consistent with all applicable policies.

Table 23: Consistency with Fresno Greenhouse Gas Reduction Plan

Climate Action Plan Policy	Project Consistency
Policy RC-2-a Link Land Use to Transportation. Promote mixed-use, higher density infill development in multi-modal corridors. Support land use patterns that make more efficient use of the transportation system and plan future transportation investments in areas of higher-intensity development. Discourage investment in infrastructure that would not meet these criteria**.**	**Consistent**. The project will provide higher-density, compact development and neighborhood shopping and services at a partially developed site, making more efficient use of the existing infrastructure.
Objective UF-12 Locate roughly one-half of future residential development in infill areas—defined as being within the City on December 21, 2012—including the Downtown core area and surrounding neighborhoods, mixed-use centers and transit-oriented development along major BRT corridors, and other non-corridor infill areas, and vacant land.	**Consistent**. The Copper River Ranch plan area is partially built out and all land within the expanded area is already designated for urban development in the Fresno General Plan. The project provides a mix of uses and development densities conducive to future service with transit connections to the BRT corridors.
Policy LU-2-b Infill Development for Affordable Housing. Consider a priority infill incentive program for residential infill development of existing vacant lots and underutilized sites within the City as a strategy to help to meet the affordable housing needs of the community.	**Not Applicable.** The project will provide 849 units of multi-family housing and a variety of higher-density, compact single-family development at a partially developed site. The project would provide market-based housing. Although not classified as "affordable housing," development of the project would provide housing that helps the City meet the needs of the community.
Policy LU-5-f High Density Residential Uses. Promote high-density residential uses to support Activity Centers and BRT corridors, affordable housing and walkable access to transit stops**.**	**Not Applicable.** The project is not within a designated Activity Center or BRT corridor.
Policy UF-14-a Design Guidelines for Walkability. Use design guidelines and standards for a walkable and pedestrian-scaled environment with a network of streets and connections for pedestrians and bicyclists, as well as transit and autos.	**Consistent.** The project will comply with the City Development Code, which requires appropriate pedestrian infrastructure in new development projects. The project connects to the existing street network that includes sidewalks, bike lanes, and roundabouts with pedestrian-friendly street crossings.

Table 23 (cont.): Consistency with Fresno Greenhouse Gas Reduction Plan

Climate Action Plan Policy	Project Consistency
Objective MT-9 Provide public transit opportunities to the maximum number and diversity of people practicable in balance with providing service that is high in quality, convenient, frequent, reliable, and financially feasible.	**Consistent.** The project is not on an existing FAX transit line; however, Copper River Ranch includes a location for a future transit stop and provides increased development density that will help support future transit in the area.
Policy MT-6-a Link Residences to Destinations. Design a pedestrian and bicycle path network that links residential areas with Activity Centers, such as parks and recreational facilities, educational institutions, employment centers, cultural sites, and other focal points of the city environment.	**Consistent.** The project will provide pedestrian infrastructure connecting to neighboring uses. The project bike lanes and pedestrian paths connects to the San Joaquin River Bike Path and Woodward Park and the Palm Bluffs jobs center.
Objective RC-8 Reduce the consumption of non-renewable energy resources by requiring and encouraging conservation measures and the use of alternative energy sources**.**	**Consistent.** The project will comply with Title 24 Energy Efficiency Standards and CalGreen Code requirements for solar panels, electric vehicle charging, and water conservation. The 2019 Title 24 Standards include a solar photovoltaic systems requirement for new low-rise residential homes.
Policy RC-8-a Existing Standards and Programs. Continue existing beneficial energy conservation programs, including adhering to the California Energy Code in new construction and major renovations.	**Consistent.** The project will comply with all applicable energy standards such as Title 24 Building Energy Standards and home appliance purchased for the homes will comply with Title 20 Appliance Standards.
Policy RC-8-b Energy Reduction Targets. Strive to reduce per capita residential electricity use to 1,800 kWh per year and nonresidential electricity use to 2,700 kWh per year per capita by developing and implementing incentives, design and operation standards, promoting alternative energy sources, and cost-effective savings.	**Consistent.** The project will comply with the Title 24 energy standards in effect at the time building permits are processed for approval. With the new solar panel requirements, homes are expected to meet or exceed this target.
Source: City of Fresno Greenhouse Gas Reduction Plan 2014.	

AB 32 Scoping Plan

The California State Legislature adopted AB 32 in 2006. AB 32 focuses on reducing GHGs (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) to 1990 levels by the year 2020. Pursuant to the requirements in AB 32, the ARB adopted the Climate Change Scoping Plan (Scoping Plan) in 2008, which outlines actions recommended to obtain that goal. The 2008 Scoping Plan calls for an “ambitious but achievable” reduction in California’s GHG emissions, cutting approximately 30 percent from BAU emission levels projected for 2020, or about 10 percent from 2008 levels. On a per-capita basis, that means reducing annual emissions of 14 tons of carbon dioxide for every man, woman, and child in California down to about 10 tons per person by 2020. As stated earlier, the State emission inventory was below the target in 2016, 2017, and 2018, and is expected to remain below the target in 2020.

Although, the Scoping Plan is now fully implemented and has achieved its goal, many of the strategies remain in effect. The Scoping Plan contains a variety of strategies to reduce the State’s emissions. As shown in Table 24, the project is consistent with most of the strategies, while others are not applicable to the project. As discussed earlier, the 2017 Scoping Plan Update strategies primarily rely on increasing the stringency of existing regulations with which the project would continue to comply, support through the project's design, and implementation of the General Plan goals and policies.

Table 24: Project Consistency with AB 32 Scoping Plan

Scoping Plan Sector	Scoping Plan Measure	Implementing Regulations	Project Consistency
Transportation	California Cap-and-Trade Program Linked to Western Climate Initiative	Regulation for the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanism October 20, 2015 (CCR 95800)	**Consistent.** The Cap-and-Trade Program applies to large industrial sources such as power plants, refineries, and cement manufacturers. However, the regulation indirectly affects people who use the products and services produced by these industrial sources when increased cost of products or services (such as electricity and fuel) are transferred to the consumers. The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Accordingly, GHG emissions associated with CEQA projects' electricity usage are covered by the Cap-and-Trade Program. The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the Program's first compliance period.
	California Light-Duty Vehicle Greenhouse Gas Standards	Pavley I 2005 Regulations to Control GHG Emissions from Motor Vehicles 2012 LEV III Amendments to the California Greenhouse Gas and Criteria Pollutant Exhaust and Evaporative Emission Standards	**Consistent**. This measure applies to all new vehicles starting with model year 2012. The project would not conflict with its implementation as it would apply to all new passenger vehicles purchased in California. Passenger vehicles, model year 2012 and later, associated with construction and operation of the project would be required to comply with the Pavley emissions standards.
	Low Carbon Fuel Standard.	2009 readopted in 2015. Regulations to Achieve Greenhouse Gas Emission Reductions Subarticle 7. Low Carbon Fuel Standard CCR 95480	**Consistent.** This measure applies to transportation fuels utilized by vehicles in California. The project would not conflict with implementation of this measure. Motor vehicles associated with construction and operation of the project would utilize low carbon transportation fuels as required under this measure.

Table 24 (cont.): Project Consistency with AB 32 Scoping Plan

Scoping Plan Sector	Scoping Plan Measure	Implementing Regulations	Project Consistency
	Regional Transportation-Related Greenhouse Gas Targets.	SB 375. Cal. Public Resources Code §§ 21155, 21155.1, 21155.2, 21159.28	**Consistent**. The project will provide residential and mixed use development in the region that is consistent with the increased development densities promoted in the 2018 Regional Transportation Plan/Sustainable Communities Strategy (SCS). The project is not within an SCS priority area and so is not subject to requirements applicable to those areas.
	Goods Movement	Goods Movement Action Plan January 2007.	**Not applicable**. The project does not propose any changes to maritime, rail, or intermodal facilities or forms of transportation.
	Medium/Heavy-Duty Vehicles	2010 Amendments to the Truck and Bus Regulation, the Drayage Truck Regulation and the Tractor-Trailer Greenhouse Gas Regulation	**Consistent**. This measure applies to medium- and heavy-duty vehicles that operate in the State. The project would not conflict with implementation of this measure. Medium- and heavy-duty vehicles associated with construction and operation of the project would be required to comply with the requirements of this regulation.
	High Speed Rail	Funded under SB 862	**Not applicable**. This is a statewide measure that cannot be implemented by a project applicant or lead agency.
Electricity and Natural Gas	Energy Efficiency	Title 20 Appliance Efficiency Regulation	**Consistent.** The project would not conflict with implementation of this measure. The project will comply with the latest energy efficiency standards and incorporate applicable energy efficiency features designed to reduce project energy consumption.
		Title 24 Part 6 Energy Efficiency Standards for Residential and Non-Residential Building	
		Title 24 Part 11 California Green Building Code Standards	
	Renewable Portfolio Standard/Renewable Electricity Standard.	2010 Regulation to Implement the Renewable Electricity Standard (33% 2020)	**Consistent**. PG&E obtained 33 percent of its power supply from renewable sources such as solar and geothermal in 2017, and about 70 percent of the electricity it delivers is carbon-free, including nuclear and large hydroelectric facilities. The owners of residences and businesses within the project would purchase power that consists of a
		SB 350 Clean Energy and Pollution Reduction Act of 2015 (50% 2030) SB 100 now requires 60% by 2030.	

Table 24 (cont.): Project Consistency with AB 32 Scoping Plan

Scoping Plan Sector	Scoping Plan Measure	Implementing Regulations	Project Consistency
			greater percentage of renewable sources and could install renewable solar power systems that will assist the utility in achieving exceeding the renewable mandate.
	Million Solar Roofs Program	Tax incentive program	**Consistent.** This measure is intended to increase solar throughout California by means of a variety of electricity providers and existing solar programs. Projects within the plan area will be able to take advantage of incentives that are in place at the time of construction. The project includes installation of solar panels.
Water	Water	Title 24 Part 11 California Green Building Code Standards	**Consistent.** The project will comply with the California Green Building Standards Code, which requires a 20 percent reduction in indoor water use. The project will also comply with the MWELO as required by the City's development code and water ordinance.
		SBX 7-7—The Water Conservation Act of 2009	
		Model Water Efficient Landscape Ordinance	
Green Buildings	Green Building Strategy	Title 24 Part 11 California Green Building Code Standards	**Consistent.** The State will increase the use of green building practices. The project would implement required green building strategies through existing regulation that requires the project to comply with various CALGreen requirements. The project includes sustainability design features that support the Green Building Strategy.
Industry	Industrial Emissions	2010 ARB Mandatory Reporting Regulation	**Not applicable.** The project is not an industrial land use.
Recycling and Waste Management	Recycling and Waste	Title 24 Part 11 California Green Building Code Standards	**Consistent.** The project would not conflict with implementation of these measures. The project is required to achieve the recycling mandates via compliance with the CALGreen code. The project would utilize City of Fresno recycling services.
		AB 341 Statewide 75 Percent Diversion Goal	
Forests	Sustainable Forests	Cap-and-Trade Offset Projects	**Not applicable.** The project site is in an area designated for urban uses. No forested lands exist on-site.

Table 24 (cont.): Project Consistency with AB 32 Scoping Plan

Scoping Plan Sector	Scoping Plan Measure	Implementing Regulations	Project Consistency
High Global Warming Potential	High Global Warming Potential Gases	ARB Refrigerant Management Program CCR 95380	**Not applicable**. The regulations are applicable to refrigerants used by large air conditioning systems and large commercial and industrial refrigerators and cold storage system. Homes and neighborhood commercial developments do not use large systems subject to the refrigerant management regulations adopted by ARB.
Agriculture	Agriculture	Cap-and-Trade Offset Projects for Livestock and Rice Cultivation	**Not applicable**. The project site is proposed for urban development. No grazing, feedlot, or other agricultural activities that generate manure occur currently exist on-site or are proposed to be implemented by the project.
Source of ARB Scoping Plan Reduction Measures: California Air Resources Board 2008.			

In summary, the project incorporates a number of features that would minimize GHG emissions. These features are consistent with project-level strategies identified by the ARB's 2008 Scoping Plan and the City of Fresno GHG Reduction Plan. As demonstrated in the impact analysis above, the project would achieve a 47.9 percent reduction from the BAU inventory by 2028 and 52.0 percent from the BAU inventory by 2030; therefore, the project would not significantly hinder or delay the State's ability to meet the reduction targets contained in AB 32 or SB 32 or conflict with implementation of the Scoping Plan. The project promotes the goals of the Scoping Plan through implementation of design measures that reduce energy consumption, water consumption, and reduction in VMT. Therefore, the project does not conflict with any plans to reduce GHG emissions. The impact would be less than significant.

Consistency with California's Post-2020 Targets

The State's executive branch adopted several Executive Orders related to GHG emissions. Executive Orders S-3-05 and B-30-15 are two examples. Executive Order S-3-05 sets goals to reduce emissions to 1990 levels by 2020 and 80 percent below 1990 levels by 2050. The goal of Executive Order S-3-05 to reduce GHG emissions to 1990 levels by 2020 was codified by AB 32. The project, as analyzed above, is consistent with AB 32. Therefore, the project does not conflict with this component of Executive Order S-3-05. Executive Order B-30-15 establishes an interim goal to reduce GHG emissions to 40 percent below 1990 levels by 2030.

The 2030 goal was codified under SB 32 and is now addressed by the 2017 Scoping Plan Update. The new plan provides a strategy that is capable of reaching the SB 32 target if the measures included in the plan are implemented and achieve reductions within the ranges expected. Under the Scoping Plan Update, local government plays a supporting role through its land use authority and control over local transportation infrastructure. The Plan Update includes reductions from implementation of SB 375 that applies to VMT from passenger vehicles. Fresno County targets for SB 375 are a 5 percent reduction by 2020 and a 10 percent reduction by 2035. SB 375 is implemented with the Fresno COG Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). The RTP/SCS envisions an increase in development density that would encourage fewer and shorter trips and more trips by transit, walking, and bicycling in amounts sufficient to achieve the SB 375 targets.

Now that the 2017 Scoping Plan has been adopted, new methodologies and threshold approaches are required to determine the fair-share contributions City development projects would need to make to achieve the 2030 target. In the meantime, however, the discussion under "Consistency with SB 32" below addresses the consistency of the proposed project with SB 32, which provides the statutory underpinning of the 2017 Scoping Plan. The SB 32 target requires GHG emissions to be reduced from 1990 levels. No consensus has been reached around the State on a new quantitative target for new development based on consistency with the SB 32 targets.

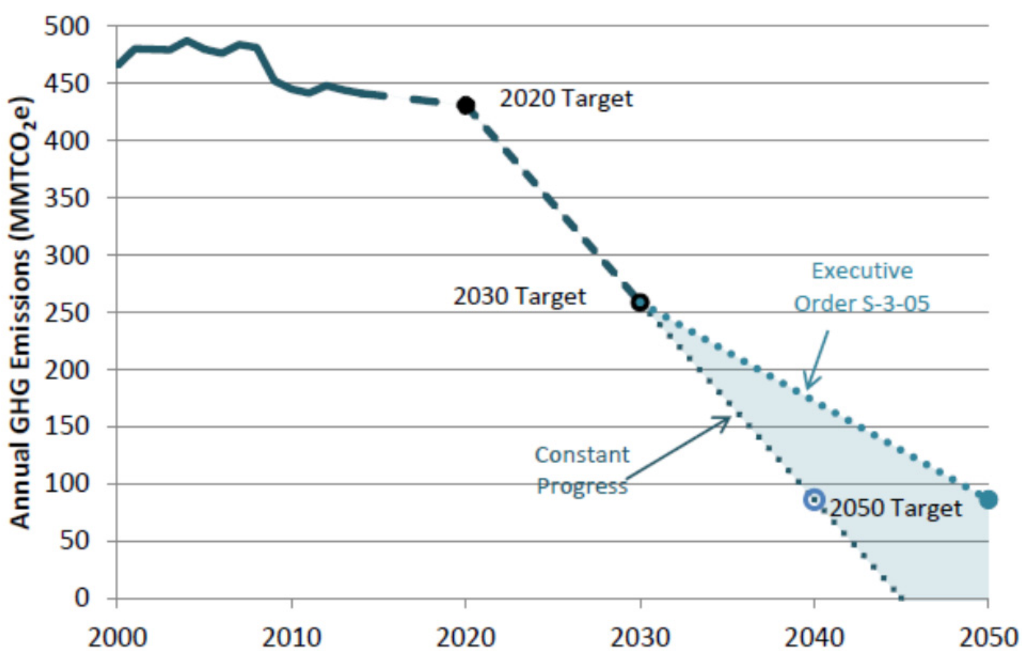
The Executive Order S-3-05 2050 target has not been codified by legislation. Studies have shown that, in order to meet the 2050 target, aggressive pursuit of technologies in the transportation and energy sectors, including electrification and the decarbonization of fuel, will be required. Because of the technological shifts required and the unknown parameters of the regulatory framework in 2050, quantitatively analyzing the project's impacts further relative to the 2050 goal is speculative for purposes of CEQA (ARB 2014b).

The ARB recognized that AB 32 established an emissions reduction trajectory that will allow California to achieve the more stringent 2050 target: "These [greenhouse gas emission reduction] measures also put the State on a path to meet the long-term 2050 goal of reducing California's GHG emissions to 80 percent below 1990 levels. This trajectory is consistent with the reductions that are needed globally to stabilize the climate." In addition, ARB's First Update "lays the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050," and many of the emission reduction strategies recommended by ARB would serve to reduce the proposed project's post-2020 emissions level to the extent applicable by law:

- **Energy Sector:** Continued improvements in California's appliance and building energy efficiency programs and initiatives, such as the State's zero net energy building goals, would serve to reduce the proposed project's emissions level. Additionally, further additions to California's renewable resource portfolio would favorably influence the project's emissions level.
- **Transportation Sector:** Anticipated deployment of improved vehicle efficiency, zero emission technologies, lower carbon fuels, and improvement of existing transportation systems all will serve to reduce the project's emissions level.
- **Water Sector:** The project's emissions level will be reduced as a result of further desired enhancements to water conservation technologies.
- **Waste Management Sector:** Plans to further improve recycling, reuse and reduction of solid waste will beneficially reduce the project's emissions level.

For the reasons described above, the project's post-2020 emissions trajectory is expected to follow a declining trend, consistent with the 2030 and 2050 targets. The trajectory required to achieve the post-2020 targets is shown in Figure 8.

Figure 8: California's Path to Achieving the 2050 Target



Source: ARB 2017 Scoping Plan Update (ARB 2017c)

In his January 2015 inaugural address, Governor Brown expressed a commitment to achieve “three ambitious goals” that he would like to see accomplished by 2030 to reduce the State’s GHG emissions:

- Increasing the State’s Renewable Portfolio Standard from 33 percent in 2020 to 50 percent in 2030;
- Cutting the petroleum use in cars and trucks in half; and
- Doubling the efficiency of existing buildings and making heating fuels cleaner.

These expressions of executive branch policy may be manifested in adopted legislative or regulatory action through the state agencies and departments responsible for achieving the State’s environmental policy objectives, particularly those relating to global climate change (Brown 2015). Further, recent studies show that the State’s existing and proposed regulatory framework will allow the State to reduce its GHG emissions level to 40 percent below 1990 levels by 2030, and to 80 percent below 1990 levels by 2050. Even though these studies did not provide an exact regulatory and technological roadmap to achieve the 2030 and 2050 goals, they demonstrated that various combinations of policies could allow the statewide emissions level to remain very low through 2050, suggesting that the combination of new technologies and other regulations not analyzed in the studies could allow the State to meet the 2050 target (Energy and Economics 2015).

Given the proportional contribution of mobile source-related GHG emissions to the State’s inventory, recent studies also show that relatively new trends—such as the increasing importance of web-based shopping, the emergence of different driving patterns by the “millennial” generation, and the increasing effect of web-based applications on transportation choices—are beginning to substantially influence transportation choices and the energy used by transportation modes. These factors have changed the direction of transportation trends in recent years and will require the creation of new models to effectively analyze future transportation patterns and the corresponding effect on GHG emissions. For the reasons described above, the proposed project’s post-2020 emissions trajectory is expected to follow a declining trend, consistent with the 2030 and 2050 targets.

Consistency with SB 32

The 2017 Climate Change Scoping Plan Update (2017 Scoping Plan) includes the strategy that the State intends to pursue to achieve the 2030 targets of Executive Order S-3-05 and SB 32. The 2017 Scoping Plan includes the following summary of its overall strategy for reaching the 2030 target:

- SB 350
  - Achieve 50 percent Renewables Portfolio Standard (RPS) by 2030 (Now 60% in SB 100).
  - Doubling of energy efficiency savings by 2030.
- Low Carbon Fuel Standard (LCFS)
  - Increased stringency (reducing carbon intensity 18 percent by 2030, up from 10 percent in 2020).
- Mobile Source Strategy (Cleaner Technology and Fuels Scenario)
  - Maintaining existing GHG standards for light- and heavy-duty vehicles.
  - Put 4.2 million zero-emission vehicles (ZEVs) on the roads.
  - Increase ZEV buses, delivery and other trucks.

- Sustainable Freight Action Plan
  - Improve freight system efficiency.
  - Maximize use of near-zero emission vehicles and equipment powered by renewable energy.
  - Deploy over 100,000 zero-emission trucks and equipment by 2030.
- Short-Lived Climate Pollutant (SLCP) Reduction Strategy
  - Reduce emissions of methane and hydrofluorocarbons 40 percent below 2013 levels by 2030.
  - Reduce emissions of black carbon 50 percent below 2013 levels by 2030.
- SB 375 Sustainable Communities Strategies
  - Increased stringency of 2035 targets.
- Post-2020 Cap-and-Trade Program
  - Declining caps, continued linkage with Québec, and linkage to Ontario, Canada.
  - ARB will look for opportunities to strengthen the program to support more air quality co-benefits, including specific program design elements. In Fall 2016, ARB staff described potential future amendments including reducing the offset usage limit, redesigning the allocation strategy to reduce free allocation to support increased technology and energy investment at covered entities and reducing allocation if the covered entity increases criteria or toxics emissions over some baseline.
- By 2018, develop Integrated Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

Table 25 provides an analysis of the project's consistency with the 2017 Scoping Plan Update measures.

Table 25: Consistency with SB 32 2017 Scoping Plan Update

Scoping Plan Measure	Project Consistency
SB 350 50% Renewable Mandate. Utilities subject to the legislation will be required to increase their renewable energy mix from 33% in 2020 to 50% in 2030 (Now 60% in SB 100).	**Consistent**: The project will purchase electricity from a utility subject to the SB 350 Renewable Mandate and SB 100 Renewable Mandate.
SB 350 Double Building Energy Efficiency by 2030. This is equivalent to a 20 percent reduction from 2014 building energy usage compared to current projected 2030 levels	**Not Applicable**. This measure applies to existing buildings. New structures are required to comply with Title 24 Energy Efficiency Standards that are expected to increase in stringency until residential housing achieves zero net energy.
Low Carbon Fuel Standard. This measure requires fuel providers to meet an 18 percent reduction in carbon content by 2030 (Now 20 percent with current regulation).	**Consistent**. Vehicles accessing the project site will use fuel containing lower carbon content as the fuel standard is implemented.
Mobile Source Strategy (Cleaner Technology and Fuels Scenario) Vehicle manufacturers will be required to meet existing regulations mandated by the LEV III and Heavy-Duty Vehicle programs. The strategy includes a goal of having 4.2 million ZEVs on the road by 2030 and increasing numbers of ZEV trucks and buses.	**Consistent**. Project residents and businesses can be expected to purchase increasing numbers of more fuel efficient and zero emission cars and trucks each year. The 2016 CALGreen Code requires electrical service in new single-family housing to be EV charger-ready. Home and business deliveries will be made by increasing numbers of ZEV delivery trucks.

Table 25 (cont.): Consistency with SB 32 2017 Scoping Plan Update

Scoping Plan Measure	Project Consistency
Sustainable Freight Action Plan The plan's target is to improve freight system efficiency 25 percent by increasing the value of goods and services produced from the freight sector, relative to the amount of carbon that it produces by 2030. This would be achieved by deploying over 100,000 freight vehicles and equipment capable of zero emission operation and maximize near-zero emission freight vehicles and equipment powered by renewable energy by 2030.	**Not Applicable**. The measure applies to owners and operators of trucks and freight operations. However, home and business deliveries are expected to be made by increasing number of ZEV delivery trucks.
Short-Lived Climate Pollutant (SLCP) Reduction Strategy. The strategy requires the reduction of SLCPs by 40 percent from 2013 levels by 2030 and the reduction of black carbon by 50 percent from 2013 levels by 2030.	**Consistent**. The project residences will include only natural gas hearths that produce very little black carbon compared to woodburning fireplaces and heaters.
SB 375 Sustainable Communities Strategies. Requires Regional Transportation Plans to include a sustainable communities strategy for reduction of per capita vehicle miles traveled. The targets for Fresno County are	**Consistent**. The project will provide residential and commercial development in the region that is consistent with the Regional Transportation Plan/Sustainable Communities Strategy (SCS) strategy to increase development densities to reduce VMT. The project is not within an SCS priority area and so is not subject to requirements applicable to those areas.
Post-2020 Cap-and-Trade Program. The Post 2020 Cap-and-Trade Program continues the existing program for another 10 years. The Cap-and-Trade Program applies to large industrial sources such as power plants, refineries, and cement manufacturers.	**Consistent.** The post-2020 Cap-and-Trade Program indirectly affects people who use the products and services produced by the regulated industrial sources when increased cost of products or services (such as electricity and fuel) are transferred to the consumers. The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Accordingly, GHG emissions associated with CEQA projects' electricity usage are covered by the Cap-and-Trade Program. The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the program's first compliance period.
Natural and Working Lands Action Plan. The ARB is working in coordination with several other agencies at the federal, state, and local levels, stakeholders, and with the public, to develop measures as outlined in the Scoping Plan Update and the governor's Executive Order B-30-15 to reduce GHG emissions and to cultivate net carbon sequestration potential for California's natural and working land.	**Not Applicable**. The project is residential and commercial development and will not be considered natural or working lands.
Source: ARB 2017 Scoping Plan Update.	

Regarding goals for 2050 under Executive Order S-3-05, at this time it is not possible to quantify the emissions savings from future regulatory measures, as they have not yet been developed; nevertheless, it can be anticipated that operation of the project would comply with whatever measures are enacted that state lawmakers decide would lead to an 80 percent reduction below 1990 levels by 2050. In its 2008 Scoping Plan, ARB acknowledged that the “measures needed to meet the 2050 are too far in the future to define in detail.” In the First Scoping Plan Update; however, ARB generally described the type of activities required to achieve the 2050 target: “energy demand reduction through efficiency and activity changes; large scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and rapid market penetration of efficiency and clean energy technologies that requires significant efforts to deploy and scale markets for the cleanest technologies immediately.” The 2017 Scoping Plan provides an intermediate target that is intended to achieve reasonable progress toward the 2050 target.

Accordingly, taking into account the proposed project’s emissions, project design features, and the progress being made by the State towards reducing emissions in key sectors such as transportation, industry, and electricity, the project would be consistent with State GHG Plans and would further the State’s goals of reducing GHG emissions to 1990 levels by 2020, 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050, and does not obstruct their attainment.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant impact.

SECTION 7: ENERGY

7.1—CEQA Guidelines

CEQA requires that EIRs include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy. Appendix F of the CEQA Guidelines applies to the direct and indirect impact analysis, as well as the cumulative impact analysis.

7.2—Impact Analysis

7.2.1 - Energy

Impact ENERGY-1: The project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation.

Impact Analysis

Threshold of Significance

Appendix F does not prescribe a threshold for the determination of significance. Rather, Appendix F focuses on reducing and minimizing inefficient, wasteful, and unnecessary consumption of energy. Therefore, for the purposes of this EIR, a significant impact to energy would result if the project would:

1. Result in the wasteful and inefficient use of nonrenewable resources during its construction.
2. Result in the wasteful and inefficient use of nonrenewable resources during long-term operation.
3. Be inconsistent with Adopted Plans and Policies.

Construction Energy Consumption

Project construction is assumed to be completed over five years for residential development and seven years for commercial development. Construction activities would consume energy through the operation of heavy off-road equipment, trucks, and worker traffic. Construction equipment fuel consumption for each of was based on equipment lists generated using CalEEMod default values. The fuel consumption of off-road equipment calculated in this analysis is based on an SCAQMD estimated fuel consumption rate of 0.05 gallon per hp-hr and the horsepower, usage hours, and load factors from CalEEMod model runs prepared for the project's air quality analysis.

Based on the anticipated construction schedule and hours of use, construction equipment would result in the consumption of approximately 1,386,254 gallons of diesel fuel for residential development and 225,334 gallons of diesel fuel for commercial development for a total of 1,611,588 gallons over the entire construction period.

Worker, vendor, and haul trips would result in approximately 786,618 VMT over the entire construction period. A countywide average fuel consumption of 30.7 miles per gallon (mpg) for employee vehicles and 8.3 mpg for vendor trucks were obtained from EMFAC 2017. The results indicate that construction trips would consume approximately 523,183 gallons of motor vehicle fuel.

Although the proposed project would result in the consumption of an estimated 1,044,003 gallons of diesel from construction equipment 523,183 gallons of motor vehicle fuels during construction for a total of 1,611,588 gallons of fuel, the project is expected to achieve energy efficiencies typical for development projects in California. Construction equipment fleet turnover and increasingly stringent state and federal regulations on engine efficiency, combined with local, state, and federal regulations limiting engine idling times and require recycling of construction debris, would further reduce the amount of transportation fuel demand during project construction. Considering these reductions in transportation fuel use, the proposed project would not result in the wasteful and inefficient use of energy resources during construction and impacts would be less than significant. Detailed modeling results are provided in Appendix A. Construction energy use is summarized in Table 26.

Table 26: Construction Energy Consumption

Activity	Variable	Consumption Rate	Consumption Amount
Construction Equipment Diesel Fuel Use	hp-hr of equipment use per project Hours of Use	0.05 gal/hp-hr 368,666 hours	1,611,588 gallons (diesel)
Construction Employee VMT	VMT/Project	VMT = 17,496,778 mpg = 33.8	517,656 gallons (gasoline)
Construction Vendor Truck VMT	VMT/Project	VMT = 48,523 mpg = 8.78	5,527 gallons (diesel)

Notes:
mpg = miles per gallon VMT = vehicle miles traveled hp-hr = horsepower per hour
Source of data for construction and VMT: CalEEMod 2016.3.2
Source of Fresno County mpg for 2026 and 2028: EMFAC 2017.
Modeling results are provided in Appendix A.

Operation Energy Consumption

Long-term energy consumption associated with the project includes electricity and natural gas consumption by residents and businesses, energy required for water supply, treatment, distribution, and wastewater treatment, and motor vehicle travel.

Electricity and Natural Gas Consumption

During operations the proposed project would consume natural gas for space heating, water heating, and cooking associated with the land uses on the project site. The natural gas consumption was estimated using the CalEEMod default values and modeling results. The results of the analysis indicate that the project residential development would consume approximately 41,928,900 thousand British thermal units (kBTU) per year of natural gas per year and the commercial development would consume 2,669,996 kBTU of natural gas per year for a total of 44,598,886 kBTU per year during operation.

In addition to the consumption of natural gas, the proposed project would use electricity for lighting, appliances, and other uses associated with the project. Electricity use during operations was estimated using CalEEMod default values. The results of the modeling indicate that the project residential development would use approximately 16,657,135 kilowatt-hours (kWh) of electricity per year, the commercial development would use 1,889,485 kWh per year, and the total is 16,657,135 kWh per year for both residential and commercial development. Title 24 (2019) requires the installation of solar panels in residential developments. Variations in the amount installed can be due to local conditions and project design. In addition, some projects may use community solar instead of rooftop solar installations. Although the energy estimates assume no solar will be installed, most electricity used by the residential portions of the project is expected to be generated by zero emission renewable sources. In addition, commercial projects may install solar panels voluntarily to take advantage of energy cost savings that are increasingly possible as the cost of solar has declined.

As described above, the proposed project would result in a long-term increase in demand for electricity from PG&E. However, the project would be designed to meet the most recent Title 24 standards. Title 24 specifically establishes energy efficiency standards for residential and non-residential buildings constructed in the State of California in order to reduce energy demand and consumption. Title 24 is updated periodically to incorporate and consider new energy efficiency technologies and methodologies. Therefore, impacts from the wasteful or inefficient use of electricity or natural gas during operation of the project would be less than significant.

Water Treatment, Conveyance, and Distribution

Water used for indoor and outdoor purposes requires electricity for water treatment, conveyance, and distribution. The project's water demand was calculated from default values included in CalEEMod. Based on this methodology, the proposed project is estimated to use approximately 178.1 million gallons per year for residential development and 30.7 million gallons per year for commercial development. This would result in the use of approximately 977,098 kWh of electricity per year.

Although the proposed project would result in electricity use from the treatment, conveyance, and distribution of water to the project site, the project would also require all water fixtures to be compliant with the 2013 California Green Building Standards Code and the MWELO, which would reduce the amount of water used by the project and require compliance with regulations relating to drought conditions. Therefore, the project would not result in the wasteful or inefficient use of electricity for water treatment, conveyance, and distribution and impacts would be less than significant.

Wastewater Service

The project would be served by an existing on-site wastewater treatment facility. Project wastewater generation was estimated using CalEEMod default assumptions for indoor water use required by the project land uses. Project indoor water use of 128.9 million gallons per year would result in the use of 697,507 kWh of electricity per year. Compliance with the 2013 California Green Building Standards Code, would reduce the wastewater generated by the project. Energy used for treating project wastewater will increasingly be generated by renewable energy sources to comply with RPS standards that apply to the energy utility serving the project area.

Wastewater service would require connection to existing sewer lines to the treatment plant. The energy added for the extension and use of these facilities combined with the project's estimated electricity and natural gas consumption would not result in substantial new energy generation or transmission infrastructure due to the location and capacity of existing energy infrastructure near the project site. Additionally, the project would be built out over about 7 years, allowing for gradual expansion of facilities. Therefore, the project would not result in the wasteful or inefficient use of electricity for wastewater treatment, and impacts would be less than significant.

Fuel Consumption

During operation of the proposed project, vehicle trips would be generated by the project. The project was modeled with vehicle trip generation rates from the project Traffic Impact Study and default trip lengths. The results show that the vehicle trips generated would result in approximately 47,044,149 VMT per year from the residential development and 15,234,171 VMT from the commercial development for total of 62,278,320 VMT from the project. Based on a countywide average fuel consumption of 24.2 mpg from EMFAC 2017 for all vehicle classifications for 2028, the proposed project would result in the consumption of an estimated 2,569,238 gallons per year of transportation fuel.

Various federal and state regulations including the Low Carbon Fuel Standard, Pavley Clean Car Standards, and Low Emission Vehicle Program would serve to reduce the project's transportation fuel consumption progressively into the future. In addition, the project will include bike lanes, and pedestrian infrastructure that will increase trips by walking and bicycling. Therefore, the project would be designed to avoid the wasteful and inefficient use of transportation fuel during operations and impacts would be less than significant.

State and federal regulatory requirements addressing fuel efficiency are expected to increase fuel efficiency over time as older, less fuel-efficient vehicles are retired. The efficiency standards and light/heavy vehicle efficiency/hybridization programs, contribute to increased fuel efficiency and therefore would reduce vehicle fuel energy consumption rates over time. The annual vehicular energy consumption calculated for the proposed project was based on 2028 average rates for Fresno County. While the project would increase the consumption of gasoline and diesel proportionately with projected population growth, the increase would be accommodated within the projected growth as part of the energy projections for the state and the region and would not require the construction of new regional energy production facilities. Therefore, energy impacts related to fuel consumption/efficiency during project operations would be less than significant.

Impact Summary

As described above, the project would result in less than significant impacts on the wasteful, inefficient, or unnecessary use of energy due to project design features that will comply with the City's design guidelines and regulations that apply to the project such as Title 24 Building Energy Efficiency Standards and the California Green Building Standards Code that apply to commercial and residential buildings. The installation of solar panels required by 2019 Title 24 standards is expected to offset most electricity used by project residences. Furthermore, various federal and state regulations including the Low Carbon Fuel Standard, Pavley Clean Car Standards, and Low Emission Vehicle Program would serve to reduce the transportation fuel demand by the project.

With the adherence to the increasingly stringent building and vehicle efficiency standards as well as implementation of the project's design features that would reduce energy consumption, the proposed project would not contribute to a cumulative impact to the wasteful or inefficient use of energy. As such, the project would not result in a significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation. A summary of the project's estimated operational energy consumption is provided in Table 27.

Table 27: Operational Energy Consumption

Activity	Variable	Consumption Rate	Consumption Amount
Electricity Residential	2,906 Dwelling Unit (1,247 Single Family and 849 Multi-Family)	8,691 kWh/unit/yr. SFR 5,629 kWh/unit/yr. MFR	14.78 MWh/year
Natural Gas Residential		24,576 kBTU/unit/yr. SFR 13,290 kBTU/unit/yr. MFR	41,928,900 kBTU/year
Electricity Commercial	254.423 sf Commercial	kWh/unit/year (varies by land use)	1.89 MWh/year
Natural Gas Commercial		kBTU/unit/year (varies by land use)	44,598,886 kBTU/year
Water Supply, Treatment, and Conveyance and Wastewater Treatment	Water Use (Mgal)	178.1 Mgal/yr Residential 30.7 Mgal/yr Commercial	977,098 kWh/year
Transportation	VMT/year mpg all Fuels	VMT/year = 62,278,320 mi. mpg = 24.24	2,569,238 gallons/year Transportation Fuels

Notes:
MPG = miles per gallon Mgal = million gallons VMT = vehicle miles traveled
kW = kilowatts kWh = kilowatt-hours MWh = megawatt-hours KBTU = thousand British thermal units
Source of data for energy use and VMT: CalEEMod 2016.3.2.
Source of Fresno County MPG for 2028: EMFAC 2017.
Modeling results are provided in Appendix A.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant impact.

7.2.2 - Renewable Energy or Energy Efficiency Plans

Impact ENERGY-2: The project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Impact Analysis

The City of Fresno has adopted local plans that promote renewable energy and energy efficiency. Fresno Green—The City of Fresno's Strategy for Achieving Sustainability—was adopted in 2007 (Fresno Green). One strategy of Fresno Green is for Fresno to become a leader in renewable energy use and creation of related innovative technology and new business enterprises. This would be accomplished by the following strategies:

- Increase the use of renewable energy to meet 50 percent of the City's annual electrical consumption of kWh.
- Reduce the City's peak electrical load by 10 percent through energy efficiency, shifting the timing of energy demands, and conservation measures.

Fresno Green was the City's first effort to improve sustainability. The City of Fresno General Plan Update and GHG Reduction Plan build on this initial effort.

The City of Fresno General Plan includes goals and strategies related to energy efficiency. The following policies are applicable to the project:

- **RC-5-a Support State Goal to Reduce Statewide GHG Emissions.** As is consistent with State law, strive to meet AB 32 goal to reduce greenhouse gas emissions to 1990 levels by 2020 and strive to meet a reduction of 80 percent below 1990 levels by 2050 as stated in Executive Order S-03-05. As new statewide GHG reduction targets and dates are set by the State update the City's Greenhouse Gas Reduction Plan to include a comprehensive strategy to achieve consistency with those targets by the dates established.
- **RC-5-c GHG Reduction through Design and Operations.** Increase efforts to incorporate requirements for GHG emission reductions in land use entitlement decisions, facility design, and operational measures subject to City regulation through the following measures and strategies:
  - Promote the expansion of incentive-based programs that involve certification of projects for energy and water efficiency and resiliency. These certification programs and scoring systems may include public agency "Green" and conservation criteria, Energy Star™ certification, CALGreen Tier 1 or Tier 2, Leadership in Energy Efficient Design (LEED™) certification, etc.
  - Promote appropriate energy and water conservation standards and facilitate mixed-use projects, new incentives for infill development, and the incorporation of mass transit, bicycle and pedestrian amenities into public and private projects.

The General Plan Update includes a Greenhouse Gas Reduction Plan (GHG Plan) that provides the City's primary strategy for reducing GHG emissions. Strategies to reduce GHG emissions often rely on increases in renewable energy use and increases in energy efficiency. A discussion of the project's consistency with the GHG Plan is provided in Section 6.6.2. The project analysis found the project to be consistent with the City of Fresno General Plan and GHG Plan; therefore, the project would not conflict with or obstruct the local plan for renewable energy or energy efficiency.

The project was reviewed for consistency with State of California energy plans. The ARB 2008 Scoping Plan required by AB 32 and the ARB 2017 Scoping Plan provide the State's strategy for achieving legislated GHG reduction targets. Although the primary purpose of the Scoping Plans is to reduce GHG emissions, the strategies to achieve the GHG reduction targets rely on the use of increasing amounts of renewable fuels under the LCFS and RPS, and energy efficiency with updates to Title 24 and the CalGreen Code. The 2019 California Energy Efficiency Action Plan addresses issues pertaining to energy efficiency in California's buildings, industrial, and agricultural sectors. Buildings constructed to implement the project will meet the latest efficiency standards. Vehicles and equipment will meet the latest fuel efficiency standards and use fuels subject to the LCFS (CEC 2019).

The project is consistent with applicable plans and policies and would not result in wasteful or inefficient use of nonrenewable energy sources; therefore, impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant impact.

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SECTION 8: REFERENCES

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Appendix A: Modeling Assumptions and Results

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Appendix A: Modeling Assumptions

Copper River SEIR Modeling Assumptions

	SFR	**MFR**	**Total**		
Units in New Area	751	191	942		
Acres (Gross) New Area in Plan	108.84				
Total Residential Copper River Buildout	**2406**	**849**	**3255**		
Commercial Square Feet	254,423				
Park (Acres)	2.61				
WWTP (Acres)	3.3				
Buildout	**5 Years for Residential**	**7 years for Commercial**			
Const Start Date	10/1/2021	10/1/2021			
Buildout Date	9/30/2026	9/29/2028			
Remaining to be Built	**DU**		**Trip Gen Rate (Trips/KSF)**		
Single Family Residential	1247		9.44		
Multifamily Residential	849		7.32		
Total	**2096**				
Commercial Projects	**KSF**			**Acres**	
Sunset Center - Copper Friant					
Gas Station Conv Mkt	8	fueling positions	205.36	2.4	
Gen Office Bldg	6.872		9.74		
Shopping Center	6.872		37.75		
NWC Copper/Maple TAZ I	**KSF**				
Shopping Center	23.400		37.75	3.12	
FF Rest w DT	3.000		470.95		
Gas Station Conv Mkt	8		205.36		
NEC Copper/Maple TAZ G	**KSF**				
Gen Office Bldg	25.553		9.74	2.3	
NEC Copper/Maple TAZ K	**KSF**				
Shopping Center	11.500		37.75	2.5	Partially Constructed Center Rite Aid
Gen Office	15.000		9.74		Already Graded

NWC Copper/Willow	KSF				Buildings - Acres	Parking
Gas Station Conv Mkt	12	FP	205.36	12.92	2.03	10.89
Shopping Center	84.326		37.75			
Coffee/Donut w DT	2.25		820.38			
				23.24		

New Commercial at Buildout for CalEEMod Ru	KSF	Acres Bldgs	Parking/	Site Acres
Shopping Center (4 projects)	126.098	2.895		
General Office Building (3 projects)	47.425	1.089		
Gas Station Conv Market (3 projects)	28			
FF Restaurant w/DT	3.000	0.069		
Coffee/Donut w DT	2.25	0.052		
Acres		**4.104**	**19.136**	**23.24**

Units Remaining in Approved Tracts	Units in Map	Units Remaining	Homes Under Construction		Comments		Acres
Final Maps	1406						
Tentative Maps	21						
Apartments	492						
	1919						
Tract 5271 Single-Family	39	2	Yes	Final	Graded		
Tract 5272 Single-Family	25	7	Yes	Final	Graded		
Tract 5273 Single-Family	20	17	Yes	Final	Graded		
Tract 6126 Single-Family	94	26	Yes	Final	Graded		
Tract 6153 Single-Family	41	6	Yes	Final	Graded		
Tract 6185 Single-Family	26	12	Yes	Final	Graded		
Tract 6207 Single-Family	44	18	Yes	Final	Graded		
Tract 6106 Single-Family	64	64	No	Final	Graded No Homes		16.8
Tract 6231 Single-Family	89	89	No	Final	Graded No Homes		
	442	**241**					
Tract 6246 Single-Family	146	146	No	TM in Proc	Parcels 4, 16, 17	Graded No Hc	46.89
Tract 6275 Single-Family	38	38	No	TM in Proc	Graded No Homes		9.25
	184	**184**					
Total Already Graded	**626**	**425**					**72.94**

Tract 6238 Single-Family	47	47	No	15.86	Parcels 1, 2, 3	TM in Proc
Tract 6248 Single-Family	82	82	No	28.46	Parcel 8	TM in Proc
Tract 6250 Single-Family	52	52	No	16.21	Parcel 5	TM in Proc
Tract 6269 Single-Family	276	276	No	39.84	Parcels 9, 13	TM in Proc
Tract 6300 Single-Family	21	21	No	3.63		TM App
Other Single-Family No Map	344	344	No	75.46	Parcels 6, 7, 14 , 1	No Tm
Total Requiring Grading	**822**	**822**		**179.46**		
Total Units		**1247**				

Average Annual SF Residential Construction (5 Years)	
Units	249.4
Acres Graded w/o tracts under const.	35.9

Other SF Detached	**Acres**
Parcel 1	10.18
Parcel 2	4.53
Parcel 3	1.17
Parcel 4	2.07
Parcel 5	16.21
Parcel 6	6.11
Parcel 7	9.22
Parcel 8	28.16
Parcel 9	7.23
Parcel 13	32.61
Parcel 14	11.86
Parcel 15	48.27
Parcel 16	32.59
Parcel 17	12.23
	222.44

Multifamily Projects	**DU**	**Acres**	**Status**
Copper River Apts Copper/Friant	492	21	Nearing Completion
Outlots O&P Near Friant Rd.	103	4.53	Not Started
NWC Copper Maple Parcel 11	164	7.11	Not Started
Tract 6311 Near Copper/Willow	90	4	Not Started
Total	**849**	36.64	
Units without Copper River Apts	**357**	**15.64**	

The project will provide 849 units of multi-family housing and a variety of higher-density, compact single-family development and neighborhood shopping and services at a partially developed site

	Acres	
Parcel 19 Outlot O	1.06	
Parcel 20 Outlot O	0.93	
Parcel 21 Outlot P	2.54	
Total	**4.53**	

Max Daily Runs	**Acres**	**SF/Units**
Parcel 12 Community Comm	**9.45**	
Tract 6269	**39.84**	276

PG&E Emission Factor for 2020		**MTCO2/MWh**
	2020	290

PG&E Greenhouse Gas Emission Factors: Guidance for PG&E Customers November 2015

Consumer Products Reduction from ARB Regulation		
Emission Factor		
2026 Emissions Fresno County	26.056	Grown Only
2026 Emissions Fresno County	24.43	Grown and Controlled
Emission Reduction	1.626	
Percent Reduction	0.062404053	
Emission Factor CalEEMod	0.0000214	
Revised Emission Factor	2.00646E-05	

		Miles
Dry Cleaner	Classic 10083 N. Maple	1.2
Gas Station	Shell 10091 N. Maple	1.2
Auto Body Shop	Diamond 427 W. Bedford Ave	6
Distance to Herndon Job Center		8.9

Traffic Volumes			
Copper Ave w of Maple	EB	5,100	2011
Copper Ave w of Maple	WB	5,690	2011
Friant Rd n of Rice Rd	NB	6,380	2008
Friant Rd n of Rice Rd	SB	6,460	2008

Fresno COG 2013

Appendix A: Construction Assumptions

Copper River Construction Assumptions

Default Schedule Residential Buildout

PhaseNumber	PhaseName	PhaseType	PhaseStartDate	PhaseEndDate	NumDaysWeek	NumDays
1	Site Preparation	Site Preparation	2021/10/01	2022/03/17	5	120
2	Grading	Grading	2022/03/18	2023/05/25	5	310
3	Building Construction	Building Construction	2023/05/26	2035/04/12	5	3100
4	Paving	Paving	2035/04/13	2036/02/14	5	220
5	Architectural Coating	Architectural Coating	2036/02/15	2036/12/18	5	220

Project Schedule Residential Buildout

PhaseNumber	PhaseName	PhaseType	PhaseStartDate	PhaseEndDate	NumDaysWeek	NumDays
1	Site Preparation	Site Preparation	2021/09/01	2021/11/09	5	50
2	Grading	Grading	2021/11/10	2022/03/29	5	100
3	Building Construction	Building Construction	2022/11/11	2026/04/23	5	900
4	Paving	Paving	2026/04/24	2026/07/02	5	50
5	Architectural Coating	Architectural Coating	2026/07/03	2026/09/10	5	50

Residential Construction Equipment List

Phase Name	Offroad Equipment Type	No. of Equip.	Usage Hours/day	Default Work Days	Hours/Phase	Sched Work Days	Revised Equipment No.	Revised Hours/Phase	Horsepower	Load Factor	Fuel Use (gal)
Site Preparation	Rubber Tired Dozers	3	8	120	2880	50	7	2880	247	0.4	35,568
Site Preparation	Tractors/Loaders/Backhoes	4	8	120	3840	50	10	3840	97	0.37	18,624
Grading	Excavators	2	8	310	4960	100	6	4960	158	0.38	39,184
Grading	Graders	1	8	310	2480	100	3	2480	187	0.41	23,188
Grading	Rubber Tired Dozers	1	8	310	2480	100	3	2480	247	0.4	30,628
Grading	Scrapers	2	8	310	4960	100	6	4960	367	0.48	91,016
Grading	Tractors/Loaders/Backhoes	2	8	310	4960	100	6	4960	97	0.37	24,056
Building Construction	Cranes	1	7	3100	21700	900	3	21700	231	0.29	250,635
Building Construction	Forklifts	3	8	3100	74400	900	10	74400	89	0.2	331,080
Building Construction	Generator Sets	1	8	3100	24800	900	3	24800	84	0.74	104,160
Building Construction	Tractors/Loaders/Backhoes	3	7	3100	65100	900	10	65100	97	0.37	315,735
Building Construction	Welders	1	8	3100	24800	900	3	24800	46	0.45	57,040
Paving	Pavers	2	8	220	3520	50	9	3520	130	0.42	22,880
Paving	Paving Equipment	2	8	220	3520	50	9	3520	132	0.36	23,232
Paving	Rollers	2	8	220	3520	50	9	3520	80	0.38	14,080
Architectural Coating	Air Compressors	1	6	220	1320	50	4	1320	78	0.48	5,148
											1,386,254
Fuel Use Factor (SCAQMD	0.05	gal/bhp-hr			**249240**			**249,240**			

Default Schedule Commercial

PhaseNumber	PhaseName	PhaseType	PhaseStartDate	PhaseEndDate	NumDaysWeek	NumDays
1	Site Preparation	Site Preparation	2021/10/01	2021/10/14	5	10
2	Grading	Grading	2021/10/15	2021/12/02	5	35
3	Building Construction	Building Construction	2021/12/03	2023/05/04	5	370
4	Paving	Paving	2023/05/05	2023/06/01	5	20
5	Architectural Coating	Architectural Coating	2023/06/02	2023/06/29	5	20

Project Schedule

PhaseNumber	PhaseName	PhaseType	PhaseStartDate	PhaseEndDate	NumDaysWeek	NumDays
1	Site Preparation	Site Preparation	2021/10/01	2021/11/11	5	30
2	Grading	Grading	2021/11/12	2022/04/07	5	105
3	Building Construction	Building Construction	2022/04/08	2028/05/25	5	1600
4	Paving	Paving	2028/05/26	2028/07/20	5	40
5	Architectural Coating	Architectural Coating	2028/07/21	2028/09/29	5	51

Commercial Construction Equipment List

Revised Construction Assumptions

Phase Name	Offroad Equipment Type	No. of Equip.	Usage Hours/day	Work Days from Defaults	Work Days from Schedule	Adjusted Equipment Numbers	Adjusted Hours/Day	Revised Hours/Phase	Horsepower	Load Factor	Fuel Use (gal)
Site Preparation	Rubber Tired Dozers	3	8	10	30	3	2.7	720	247	0.4	3,557
Site Preparation	Tractors/Loaders/Backhoes	4	8	10	30	4	2.7	960	97	0.37	1,723
Grading	Excavators	2	8	35	105	2	2.7	1680	158	0.38	5,043
Grading	Graders	1	8	35	105	1	2.7	840	187	0.41	3,220
Grading	Rubber Tired Dozers	1	8	35	105	1	2.7	840	247	0.4	4,150
Grading	Scrapers	2	8	35	105	2	2.7	1680	367	0.48	14,797
Grading	Tractors/Loaders/Backhoes	2	8	35	105	2	2.7	1680	97	0.37	3,015
Building Construction	Cranes	1	7	370	1600	1	1.6	11200	231	0.29	37,514
Building Construction	Forklifts	3	8	370	1600	3	1.9	38400	89	0.2	34,176
Building Construction	Generator Sets	1	8	370	1600	1	1.9	12800	84	0.74	39,782
Building Construction	Tractors/Loaders/Backhoes	3	7	370	1600	3	1.6	33600	97	0.37	60,295
Building Construction	Welders	1	8	370	1600	1	1.9	12800	46	0.45	13,248
Paving	Pavers	2	8	20	40	2	4.0	640	130	0.42	1,747
Paving	Paving Equipment	2	8	20	40	2	4.0	640	132	0.36	1,521
Paving	Rollers	2	8	20	40	2	4.0	640	80	0.38	973
Architectural Coating	Air Compressors	1	6	20	51	1	2.4	306	78	0.48	573
								119426			**225,334**
Fuel Use Factor (SCAQMD		0.05 gal/bhp-hr									
								368,666			1,611,588

Default Schedule Tract 6269 Max Daily Run

PhaseNumber	PhaseName	PhaseType	PhaseStartDate	PhaseEndDate	NumDaysWeek	NumDays
1	Site Preparation	Site Preparation	2022/01/03	2022/02/11	5	30
2	Grading	Grading	2022/02/12	2022/05/27	5	75
3	Building Construction	Building Construction	2022/05/28	2025/03/28	5	740
4	Paving	Paving	2025/03/29	2025/06/13	5	55
5	Architectural Coating	Architectural Coating	2025/06/14	2025/08/29	5	55

Project Schedule Tract 6269 (Earliest Construction Dates)

PhaseNumber	PhaseName	PhaseType	PhaseStartDate	PhaseEndDate	NumDaysWeek	NumDays
1	Site Preparation	Site Preparation	2022/01/03	2022/01/28	5	20
2	Grading	Grading	2022/01/29	2022/03/25	5	40
3	Building Construction	Building Construction	2022/03/26	2023/05/19	5	300
4	Paving	Paving	2023/05/20	2023/06/02	5	10
5	Architectural Coating	Architectural Coating	2023/06/03	2023/08/18	5	55

Residential Construction Equipment List

Phase Name	Offroad Equipment Type	No. of Equip.	Usage Hours/day	Default Work Days	Hours/Phase	Sched Work Days	Revised Equipment No.	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	3	8	30	720	20	5	247	0.4
Site Preparation	Tractors/Loaders/Backhoes	4	8	30	960	20	6	97	0.37
Grading	Excavators	2	8	75	1200	40	4	158	0.38
Grading	Graders	1	8	75	600	40	2	187	0.41
Grading	Rubber Tired Dozers	1	8	75	600	40	2	247	0.4
Grading	Scrapers	2	8	75	1200	40	4	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8	75	1200	40	4	97	0.37
Building Construction	Cranes	1	7	740	5180	300	2	231	0.29
Building Construction	Forklifts	3	8	740	17760	300	7	89	0.2
Building Construction	Generator Sets	1	8	740	5920	300	2	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7	740	15540	300	7	97	0.37
Building Construction	Welders	1	8	740	5920	300	2	46	0.45
Paving	Pavers	2	8	55	880	10	4	130	0.42
Paving	Paving Equipment	2	8	55	880	10	4	132	0.36
Paving	Rollers	2	8	55	880	10	4	80	0.38
Architectural Coating	Air Compressors	1	6	55	330	30	2	78	0.48

Appendix A: Vehicle Fleet Mix Documentation

Truck Fleet Mix

Riverpark Truck Trip Survey Results

	sq Ft	# of Deliveries per Week	LHD Van/Car (small)	MHD (Medium)	Semi (large)
Totals	468,460	386.50	97.00	212.00	78.50
Deliveries per day		55.21	13.86	30.29	11.21
RT Trips/Day	19010.776	110.43	27.71	60.57	22.43
Trips/1,000 sf	468.46	0.236	0.059	0.129	0.048
CalEEMod Truck Fleet Fraction		0.0058	0.0015	0.0032	0.0012

	Week Day Trips/KSF	Saturday Trip/KSF	Sunday Trips/KSF	Daily Average
Strip Mall	44.32	42.04	20.43	40.58

Fleet Mix Allocation - Retail

Land Use Assumptions

LandUseType	LandUseSub	LandUseUnit	LandUseSizeMetric	LHD1 Trips	LHD2 Trips	MHD Trips	HHD Trips	Total
Retail	Shopping Ce	126.08	KSF	3.73	3.73	16.30	6.04	29.80
			Trips/KSF	0.02958	0.0295802	0.129299	0.0478772	0.23633669

ITE 9th Edition/CalEEMod

Project Trip Generation

VehicleTripsLandUseSubType	VehicleTrips	WD_TR	ST_TR	SU_TR	Daily Avg	LU SF	Trip Gen	LHD1 Frac	LHD1 Trips	LHD2 Frac	LHD2 Trips	MHD Frac	MHD Trips	HHD Frac	HHD Trips
Retail	Shopping Ce	37.75	37.75	37.75	37.75	126.08	4759.52	0.010686	50.9	0.0036	0.4492	0.03367	160.3	0.128811	613.1
Total Trips							4759.52		50.9				160.3		613.1

Adjusted Fleet Mix for No HDT Trucks	LDA	LDT1	LDT2	Total
Default Fleet Mix	0.513855	0.0288	0.174306	0.716961
Adjusted Fleet Mix	0.636033	0.035648	0.215750	0.887430
				0.170469

	LHD1 Frac	LHD2 Frac	MHD Frac	HHD Frac	Diff to Allocate
Project Est.	**0.00078**	**0.00078**	**0.00343**	**0.00127**	0.00626
Default Frac	0.010686	0.003563	0.033670	0.128811	0.176730
Allocation Fraction					**0.170469**

2028 CalEEMod Default Fleet Mix for Fresno County

	EmissionTyp	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH	
Default Fleet Mix	FleetMix	0.513855	0.0288	0.174306	0.096627	0.010686	0.003563	0.03367	0.128811	0.002309	0.001252	0.004642	0.001018	0.00046	0.999999
Revised Fleet Mix		**0.636033**	**0.035648**	**0.215750**	0.096627	**0.0007836**	**0.0007836**	**0.003425**	**0.001268**	0.002309	0.001252	0.004642	0.001018	0.00046	0.999999

Land Use Assumptions

LandUseType	LandUseSub	LandUseUnit	LandUseSizeMetric	LHD1 Trips	LHD2 Trips	MHD Trips	HHD Trips	Total
Retail	Shopping Ce	84.326	KSF	2.49	2.49	10.90	4.04	19.93
			Trips/KSF	0.02958	0.0295802	0.129299	0.0478772	0.23633669

ITE 9th Edition/CalEEMod

Project Trip Generation

VehicleTripsLandUseSubType	VehicleTrips	WD_TR	ST_TR	SU_TR	Daily Avg	LU SF	Trip Gen	LHD1 Frac	LHD1 Trips	LHD2 Frac	LHD2 Trips	MHD Frac	MHD Trips	HHD Frac	HHD Trips
Retail	Shopping Ce	37.75	37.75	37.75	37.75	23.3	879.58	0.015815	13.9	0.0045	0.1049	0.033398	29.4	0.126328	111.1
Total Trips							879.58		13.9				29.4		111.1

Adjusted Fleet Mix for No HDT Trucks	LDA	LDT1	LDT2	Total
Default Fleet Mix	0.492212	0.031147	0.16982	0.693179
Adjusted Fleet Mix	0.603968	0.038219	0.208377	0.850564
				0.157385

	LHD1 Frac	LHD2 Frac	MHD Frac	HHD Frac	Diff to Allocate
Project Est.	**0.00284**	**0.00284**	**0.01240**	**0.00459**	0.02266
Default Frac	0.015815	0.004502	0.033398	0.126328	0.180043
Allocation Fraction					**0.157385**

2022 CalEEMod Default Fleet Mix for Fresno County

	EmissionType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH	
Default Fleet Mix	FleetMix	0.492212	0.031147	0.16982	0.116157	0.015815	0.004502	0.033398	0.126328	0.002363	0.001519	0.005062	0.001083	0.000594	1
Revised Fleet Mix		**0.603968**	**0.038219**	**0.208377**	0.116157	**0.0028359**	**0.0028359**	**0.012396**	**0.004590**	0.002363	0.001519	0.005062	0.001083	0.000594	1.000000

Fleet Mix Allocation - Fast Food Restaurant

Land Use Assumptions

LandUseType	LandUseSub	LandUseUnit	LandUseSizeMetric	LHD1 Trips	LHD2 Trips	MHD Trips	HHD Trips
Recreation	FF w/DT	3	KSF	15.10	5.03	47.57	181.99
			Trips/KSF	5.03	1.68	15.86	60.66

ITE 9th Edition/CalEEMod

Project Trip Generation

VehicleTripsLandUseSubType	VehicleTrips	WD_TR	ST_TR	SU_TR	Daily Avg	LU SF	Trip Gen	LHD1 Frac	LHD1 Trips	LHD2 Frac	LHD2 Trips	MHD Frac	MHD Trips	HHD Frac	HHD Trips
Recreation	FF w/DT	470.95	470.95	470.95	470.95	3	1412.85	0.010686	15.1	0.0036	0.0107	0.03367	47.6	0.128811	182.0
Total Trips							1412.85		15.1				47.6		182.0

Adjusted Fleet Mix for No HDT Trucks	LDA	LDT1	LDT2	Total
Default Fleet Mix	0.513855	0.0288	0.174306	0.716961
Adjusted Fleet Mix	0.639737	0.035855	0.217007	0.892599
				0.175638

	LHD1 Frac	LHD2 Frac	MHD Frac	HHD Frac	Diff to Allocate
Project Est.	**0.00010**	**0.00010**	**0.00074**	**0.00016**	0.00109
Default Frac	0.010686	0.003563	0.033670	0.128811	0.176730
Allocation Fraction					**0.175638**

2028 CalEEMod Default Fleet Mix for Fresno County

	EmissionType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH	
Default Fleet Mix	FleetMix	0.513855	0.0288	0.174306	0.096627	0.010686	0.003563	0.03367	0.128811	0.002309	0.001252	0.004642	0.001018	0.00046	0.999999
Revised Fleet Mix		**0.639737**	**0.035855**	**0.217007**	0.096627	**9.545E-05**	**9.545E-05**	**0.000742**	**0.000159**	0.002309	0.001252	0.004642	0.001018	0.00046	0.999999

Riverpark Survey Restaurant Only Data

	KSF	# of Deliveries per Week	LHD Van/Car (small)	MHD (Medium)	Semi (large)	
Totals	57.20	102.00	18.00	70.00	15.00	
Deliveries per day		14.57	2.57	10.00	2.14	
RT Trips/Day	26939.282	29.14	5.14	20.00	4.29	
Trips/1,000 sf	470.95	0.509	0.090	0.350	0.075	
CalEEMod Truck Fleet Fraction		**0.0011**	**0.0002**	**0.0007**	**0.0002**	
Project Trips/Day	2.1	1.07	0.19	0.73	0.16	2.15

Commercial Max Daily Emissions

LandUseType	LandUseSub	LandUseUnit	LandUseSizeMetric	LHD1 Trips	LHD2 Trips	MHD Trips	HHD Trips
Recreation	FF w/DT	2.25	KSF	22.34	6.36	47.19	178.48
			Trips/KSF	7.45	2.12	15.73	59.49

ITE 9th Edition/CalEEMod

Project Trip Generation

VehicleTripsLandUseSubType	VehicleTrip:	WD_TR	ST_TR	SU_TR	Daily Avg	LU SF	Trip Gen	LHD1 Frac	LHD1 Trips	LHD2 Frac	LHD2 Trips	MHD Frac	MHD Trips	HHD Frac	HHD Trips
Recreation	FF w/DT	470.95	470.95	470.95	470.95	2.25	1059.6375	0.015815	16.8	0.0045	0.0101	0.033398	35.4	0.126328	133.9
Total Trips							1059.6375		16.8				35.4		133.9

	LDA	LDT1	LDT2	Total		LHD1 Frac	LHD2 Frac	MHD Frac	HHD Frac	Diff to Allocate
Adjusted Fleet Mix for No HDT Trucks	LDA	LDT1	LDT2	Total	Project Est.	**0.00010**	**0.00010**	**0.00074**	**0.00016**	0.00109
Default Fleet Mix	0.492212	0.031147	0.16982	0.693179	Default Frac	0.015815	0.004502	0.033398	0.126328	0.180043
Adjusted Fleet Mix	0.619281	0.039188	0.213661	0.872130	Allocation Fraction					**0.178951**
				0.178951						

2022 CalEEMod Default Fleet Mix for Fresno County

	EmissionTyp	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH	
Default Fleet Mix	FleetMix	0.492212	0.031147	0.16982	0.116157	0.015815	0.004502	0.033398	0.126328	0.002363	0.001519	0.005062	0.001083	0.000594	1
Revised Fleet Mix		**0.619281**	**0.039188**	**0.213661**	0.116157	**9.545E-05**	**9.545E-05**	**0.000742**	**0.000159**	0.002363	0.001519	0.005062	0.001083	0.000594	1.000000

Gas Station/Convenience Market

Land Use Assumptions

LandUseType	LandUseSub	LandUseUnit	LandUseSizeMetric	
Retail	Gas Station/	28	pumps	3 gas station/convenience stores

ITE 9th Edition/CalEEMod

Project Trip Generation

VehicleTripsLandUseSubType	VehicleTrip:	WD_TR	ST_TR	SU_TR	Daily Avg	LU SF	Trip Gen	LHD1 Frac	LHD1 Trips	LHD2 Frac	LHD2 Trips	MHD Frac	MHD Trips	HHD Frac	HHD Trips
Commercial	Gas Station	205.36	205.36	205.36	205.36	28	5750.08	0.010686	61.4	0.0036	20.4875	0.03367	193.6	0.128811	740.7
Total Trips		5750.08					5750.08		61.4				193.6		740.7

						LHD1 Frac	LHD2 Frac	MHD Frac	HHD Frac	Diff to Allocate
Adjusted Fleet Mix for No HDT Trucks	LDA	LDT1	LDT2	Total	Truck Estimate	0.010686	0.003563	9.938E-05	**0.0022687**	0.016617
Default Fleet Mix	0.513855	0.0288	0.174306	0.716961	Default Frac	0.010686	0.003563	0.03367	0.128811	0.176730
Adjusted Fleet Mix	0.628610	0.035232	0.213232	0.877074	Allocation Fraction					**0.160113**
				0.160113						

2028 CalEEMod Default Fleet Mix for Fresno County

	EmissionTyp	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH	
Default Fleet Mix	FleetMix	0.513855	0.0288	0.174306	0.096627	0.010686	0.003563	0.03367	0.128811	0.002309	0.001252	0.004642	0.001018	0.00046	0.999999
Revised Fleet Mix		**0.628610**	**0.035232**	**0.213232**	0.096627	0.010686	0.003563	**9.938E-05**	**0.002269**	0.002309	0.001252	0.004642	0.001018	0.00046	0.999999

Heavy Heavy Duty Truck Fleet Mix

	HHD	MHD
Truck Trips/Day	13.0454	0.5714
Trip Fraction	0.0022687	9.94E-05

Fuel Deliveries

Average of 3.6 fuel truck trips per day to deliver expected throughput for a high volume gas station as a conservative assumption. Small gas stations in area have throughput of under 1,000,000 gal. per year
Semi Trucks and large box trucks are too large to fuel at neighborhood gas stations

				Gallons per Month	Gallons per Year	Gallons/Day
Average Annual Throughput	3,600,000					
Fueling Truck Capacity (gallons)	5,500		Fueling Thr	300,000	3,600,000	9,863
Fueling Truck Deliveries/Year	655					
Fueling Truck Trips/year	1,309					
Fueling Truck Trips/Day/Store	3.6					
Fueling Trucks for 3 Stations	10.76					

Convenience Market Trips	**HHD Only**	**MHD Only**	**LHDT1 and 2**
Deliveries/Week/Market	2	2	6
Deliveries/Day	0.29	0.29	0.86
Conv Store Delivery Trips/day	0.57	0.57	1.71
Trips/Day for 3 stores	1.71	1.71	5.14

Refuse Haulers	
Pickups/Week/Store	2
Pickups/Day	0.29
Trips/Day	0.57
Trips/Day 3 stores	1.71
Total HHD Trips/Day	**13.05**

All other truck cateories use default assumptions which include potential fueling and deliveries with light heavy
The applicant for a similar project estimated that the entire project will receive only 8 deliveries per week from all truck classes.
Included 2 MHD deliveries per week as a conservative assumption

Compilation of Trip Generation Rates for Retail

	Truck Trips/KSF	Project KSF	Truck Trips/Day
Riverpark Shopping Center	0.236	126.08	29.75
SCAG Regional Model	0.385	126.08	48.54
NCHRP Average Retail Rate	0.910	126.08	114.73
Neighborhood Market	0.130	126.08	16.39
Big Box Retail	0.100	126.08	12.61
Total All Sources			222.03
Average of Surveys/Studies			**44.41**
Default	8.060	126.08	1016.21

Commercial Max Daily
Project Trip Generation

VehicleTripsLandUseSubType	**VehicleTrip:**	**WD_TR**	**ST_TR**	**SU_TR**	**Daily Avg**	**LU SF**	**Trip Gen**	**LHD1 Frac**	**LHD1 Trips**	**LHD2 Frac**	**LHD2 Trips**	**MHD Frac**	**MHD Trips**	**HHD Frac**	**HHD Trips**
Commercial	Gas Station	205.36	205.36	205.36	205.36	12	2464.32	0.015815	39.0	0.0045	11.0944	0.033398	82.3	0.126328	311.3
Total Trips		0					2464.32		39.0				82.3		311.3
										LHD1 Frac	**LHD2 Frac**	**MHD Frac**	**HHD Frac**	**Diff to Allocate**	
Adjusted Fleet Mix for No HDT Trucks		**LDA**	**LDT1**	**LDT2**	**Total**			Truck Estimate		0.015815	0.004502	**9.938E-05**	**0.0022687**	0.022685	
Default Fleet Mix		0.492212	0.031147	0.16982	0.693179			Default Frac		0.015815	0.004502	0.033398	0.126328	0.180043	
Adjusted Fleet Mix		0.603949	0.038218	0.208371	0.850537			Allocation Fraction						**0.157358**	
					0.157358										

2022 CalEEMod Default Fleet Mix for Fresno County

	EmissionTyp	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH	
Default Fleet Mix	FleetMix	0.492212	0.031147	0.16982	0.116157	0.015815	0.004502	0.033398	0.126328	0.002363	0.001519	0.005062	0.001083	0.000594	1
Revised Fleet Mix		**0.603949**	**0.038218**	**0.208371**	0.116157	0.015815	0.004502	**9.938E-05**	**0.002269**	0.002363	0.001519	0.005062	0.001083	0.000594	1

Fleet Mix Allocation - Office Uses

Land Use Assumptions

LandUseType	**LandUseSub**	**LandUseUni**	**LandUseSizeMetric**
Commercial	Office	47.425	KSF

ITE 9th Edition/CalEEMod

Project Trip Generation

VehicleTripsLandUseSubType	**VehicleTrip**	**WD_TR**	**ST_TR**	**SU_TR**	**Daily Avg**	**LU SF**	**Trip Gen**	**LHD1 Frac**	**LHD1 Trips**	**LHD2 Frac**	**LHD2 Trips**	**MHD Frac**	**MHD Trips**	**HHD Frac**	HHD Trips
Commercial	Office	9.74	9.74	9.74	9.74	47.425	461.9195	0.010686	4.9	0.0036	0.1690	0.03367	15.6	0.128811	59.5
Total Trips							461.9195		4.9				15.6		

Adjusted Fleet Mix for No HDT Trucks	**LDA**	**LDT1**	**LDT2**	**Total**
Default Fleet Mix	0.513855	0.0288	0.174306	0.716961
Adjusted Fleet Mix	0.636689	0.035684	0.215973	0.888346
				0.171385

	LHD1 Frac	**LHD2 Frac**	**MHD Frac**	**HHD Frac**	**Diff to Allocate**
Project Fraction	0.0038501	0.0009625	1.925E-05	0.000513	0.005345
Default Fraction	0.010686	0.003563	0.03367	0.128811	0.176730
Allocation Fraction					**0.171385**

2028 CalEEMod Default Fleet Mix for Fresno County

	EmissionTyp	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Default Fleet Mix	FleetMix	0.513855	0.0288	0.174306	0.096627	0.010686	0.003563	0.03367	0.128811	0.002309	0.001252	0.004642	0.001018	0.00046
Revised Fleet Mix		**0.63669**	**0.03568**	**0.21597**	0.09663	**0.00385**	**0.00096**	**0.00002**	**0.00051**	0.00231	0.00125	0.00464	0.00102	0.00046

Madera County H&HS Survey Data

	Trips/KSF Madera H&HS Estimate	**Project Office Truck Trips**	**Fleet Fraction**
LHD1 Trucks	0.038	1.778	0.00385
LHD2 Trucks	0.009	0.445	0.00096
MHD Trucks	0.000	0.009	0.00002
HHD Trucks	0.005	0.237	0.00051
		2.469	**0.00535**

Truck trip data compiled for existing Madera County Health Department offices in 2017 to support analysis prepared for new offices

Truck Trips Identified by Madera County Health Department for Existing Facilities

Package Delivery Trucks LHDT1

Trip Purpose	Deliveries/ Mo	Deliveries/ Week	Deliveries/ Day	Trips/Day
Package Delivery Services		**15**	**3**	**6**
FedEx, UPS, GSO, USPS, Other				

The County averages about 5 deliveries per week from all delivery services. GSO and USPS use smaller gasoline vehicles for most deliveries.

Service Trucks LHD2

Trip Purpose	Deliveries/ Mo	Deliveries/ Week	Deliveries/ Day	Trips/Day	
Floor Mats/Linen Service		3	0.60	1.20	Ameripride
Water Service Sparkletts	1		0.05	0.09	Assuming 22 workdays per month
Vending Machine Service		2	0.40	0.80	One delivery per week by CocaCola
PG&E/Telephone Service Trucks	1		0.05	0.09	
Building Repair and Maint.	0.33		0.02	0.03	4 per year with County maint staff and trucks
Office Depot	2		0.09	0.18	Office Supplies/Paper
Total for Service and Supplies	**4.33**	**5**	**1.20**	**2.39**	

Copy repair and janitorial service supplies use light duty vans.

Large Delivery Trucks MHD

Trip Purpose	Deliveries/ Mo	Deliveries/ Week	Deliveries/ Day	Trips/Day	
Large furniture/equipment	0.33		0.02	0.03	4 per year on average

The County seldom gets deliveries with large trucks

Refuse Hauling Trucks HHD

Trip Purpose	Deliveries/ Mo	Pick Ups/ Week	Pickups/ Day	Trips/Day
Trash Pick Up		2	0.40	0.80
Trash hauling by Red Rock Company				

	Trips/day County Estimate	Trips/KSF County Estimate	CalEEMod Fleet Fraction
LHD1 Trips	6	0.0375	0.00122
LHD2 Trips	1.5	0.0094	0.00030
MHD Trips	0.03	0.0002	0.00001
HHD Trips	0.8	0.0050	0.00016
Totals	**8.33**		

Total Trips per Weekday From Madera H&HS Project Traffic Study	4930

Appendix A: Energy Analysis Assumptions and Calculations

Energy Analysis

Construction

Fuel Use	Gallons	Hours
Residential	1,386,254	249,240
Commercial	225,334	119,426
Total	**1,611,588**	**368,666**

Fuel Use Factor (SCAQMD 0.05 gal/bhp-hr

1247 SFR and 849 MFR

Residential	Days/Phase	Worker Trips	Worker Trips/Project	Vendor Trips/day	Vendor Trips/Project	Hauling Trips/day	Hauling Trips/Phase	Worker Trip Length	Vendor Trip Length	Hauling Trip Length
Site Preparation	50	18	900	0	0	0	0	10.8	7.3	20
Grading	100	20	2000	0	0	0	0			
Building Construction	900	1060	954000	224	3808	0	0			
Paving	50	15	750	0	0	0	0			
Architecture	50	12	600	0	0	0	0			
Totals		**1125**	**958250**	**224**	**3808**	**0**	**0**			
								Total		
VMT/Year			10,349,100		27,798		0	**10,376,898**		

Trips for Bldg Construction based on 0.36 trips/du/day for SFR and 0.72 trips/du/day for MFR from CalEEMod jAppendix A

Commercial	Days/Phase	Worker Trips/day	Worker Trips/Phase	Vendor Trips/day	Vendor Trips/Phase	Hauling Trips/day	Hauling Trips/Phase	Worker Trip Length	Vendor Trip Length	Hauling Trip Length
Site Preparation	30	18	540	0	0	0	0	10.8	7.3	20
Grading	105	20	2100	0	0	0	0			
Building Construction	1600	409	654400	167	2839	0	0			
Paving	40	15	600	0	0	0	0			
Architecture	51	82	4182	0	0	0	0			
Totals		**544**	**661822**	**167**	**2839**	**0**	**0**			
								Total		
VMT/Year			7,147,678		20,725		0	**7,168,402**		

Daily trips per 1,000 sf commercial 0.32

Total VMT All Phases	Worker	Vendor	Total	
Residential	10,349,100	27,798	10,376,898	Over 5 Years
Commercial	7,147,678	20,725	7,168,402	Over 7 Years
Total	**17,496,778**	**48,523**	**17,545,301**	

Vender Truck MPG	8.78	
Vender Fuel Use (gal)	5,527	Diesel/Gas
Worker Vehicles MPG	33.8	
Worker Fuel Use (gal)	517,656.1	Gas/Diesel
Total	**523,182.7**	

Operational VMT	VMT/Year	
Residential	47,044,149	
Commercial	15,234,171	
Total	62,278,320	
Fuel Use mi/gal	24.24	All Fuels
Fuel Use (gal)	**2,569,238**	

Electricity Usage

	kWh/yr
Residential	14,767,650
Commmercial	1,889,485
Total	**16,657,135**

	kWh/yr	Units	kWh/unit/yr
Apartments	3,929,950	849	4,628.92
Single Family	10,837,700	1247	8,691.02
	14,767,650		

Conv Mkt Gas	31,387
FF W DT	63,608
FF W DT	84,810
Gen Off	419,237
Parking	291,747
Shopping Center	998,696
Total	**1,889,485**

Water Usage

Apartments	Mgal/yr	Intensity Factor Supply (kWhr/Mgal)	Intensity Factor Treat (kWhr/Mgal)	Intensity Factor Distribute (kWhr/Mgal)	Intensity Factor WW Treatment (kWhr/Mgal)	Total Intensity (kWhr/Mgal)	Electricity Usage kWh/Yr.
Indoor Water Usage	44.2526	2,117	111	1,272	1,911	5,411	239,451
Outdoor Water Usage	27.8964	2,117	111	1,272		3,500	97,637
	72.149						**337,088**
Single Family							
Indoor Water Usage	64.9977	2,117	111	1,272	1,911	5,411	351,703
Outdoor Water Usage	40.9768	2,117	111	1,272		3,500	143,419
	105.9745						**495,121**
Total	**178.124**						**832,210**

Apartments	Mgal/yr	Intensity Factor Supply (kWhr/Mgal)	Intensity Factor Treat (kWhr/Mgal)	Intensity Factor Distribute (kWhr/Mgal)	Intensity Factor WW Treatment (kWhr/Mgal)	Total Intensity (kWhr/Mgal)	Electricity Usage kWh/Yr.
Conv Mkt Gas Indoor	0.292801	2,117	111	1,272	1,911	5,411	1,584
Conv Mkt Gas Outdoor	0.0179459	2,117	111	1,272		3,500	63
							1,647
FF W DT Indoor	0.682951	2,117	111	1,272	1,911	5,411	3,695
FF W DT Outdoor	0.0435926	2,117	111	1,272		3,500	153
							3,848
FF W DT Indoor	0.910601	2,117	111	1,272	1,911	5,411	4,927
FF W DT Outdoor	0.0581235	2,117	111	1,272		3,500	203
							5,131
Gen Off Indoor	8.42813	2,117	111	1,272	1,911	5,411	45,605
Gen Off Outdoor	5.16563	2,117	111	1,272		3,500	18,080
							63,684
Shopping Center Indoor	9.34054	2,117	111	1,272	1,911	5,411	50,542
Shopping Center Outdoor	5.72485	2,117	111	1,272		3,500	20,037
							70,579
Total	**30.665165**						**144,889**
							977,098
Indoor Water Use	128.905323						697,506.7

Natural Gas Usage	**kBTU/yr**
Residential	41,928,900
Commercial	2,669,986

Commercial	**kBTU/yr**
Conv Mkt Gas	41,940.30
FF W DT	47235
FF W DT	630180
Gen Off	612731
Parking	0
Shopping Center	1,337,900
Total	**2,669,986.30**
	44,598,886.30

Residential	**kBTU/yr**	**Units**	**kBTU/unit/yr.**
Apartments	11,283,000	849	13,290
Single Family	30,645,900	1247	24,576
	41,928,900		

EMFAC2017 (v1.0.2) Emissions Inventory

Region Type: County
Region: FRESNO
Calendar Year: 2026
Season: Annual

Vehicle Classification: EMFAC2011 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

Region	Calendar Y	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel Consumption
FRESNO	2026	All Other Buses	Aggregated	Aggregated	DSL	199.0	11,728.1	1,671.6	1.16
FRESNO	2026	LDA	Aggregated	Aggregated	GAS	412,550.6	15,061,057.2	1,940,448.8	428.44
FRESNO	2026	LDA	Aggregated	Aggregated	DSL	4,064.2	158,580.3	19,463.3	2.77
FRESNO	2026	LDA	Aggregated	Aggregated	ELEC	13,349.4	558,170.1	65,820.7	0.00
FRESNO	2026	LDT1	Aggregated	Aggregated	GAS	43,080.8	1,462,312.6	196,162.1	49.24
FRESNO	2026	LDT1	Aggregated	Aggregated	DSL	17.0	273.0	54.5	0.01
FRESNO	2026	LDT1	Aggregated	Aggregated	ELEC	586.4	25,877.4	2,942.2	0.00
FRESNO	2026	LDT2	Aggregated	Aggregated	GAS	140,072.2	4,852,062.4	645,584.9	172.44
FRESNO	2026	LDT2	Aggregated	Aggregated	DSL	935.7	36,970.5	4,537.2	0.87
FRESNO	2026	LDT2	Aggregated	Aggregated	ELEC	2,401.6	72,227.9	11,984.5	0.00
FRESNO	2026	LHD1	Aggregated	Aggregated	GAS	9,631.3	314,800.1	143,491.8	35.86
FRESNO	2026	LHD1	Aggregated	Aggregated	DSL	10,119.7	328,641.4	127,293.1	17.46
FRESNO	2026	LHD2	Aggregated	Aggregated	GAS	1,638.4	51,084.0	24,409.9	6.73
FRESNO	2026	LHD2	Aggregated	Aggregated	DSL	3,658.6	119,517.8	46,020.3	7.11
FRESNO	2026	MCY	Aggregated	Aggregated	GAS	18,933.2	141,268.9	37,866.4	3.74
FRESNO	2026	MDV	Aggregated	Aggregated	GAS	116,311.3	3,635,283.3	522,925.8	162.97
FRESNO	2026	MDV	Aggregated	Aggregated	DSL	2,812.1	102,464.6	13,300.8	3.33
FRESNO	2026	MDV	Aggregated	Aggregated	ELEC	1,561.6	47,985.5	7,848.4	0.00
FRESNO	2026	MH	Aggregated	Aggregated	GAS	1,516.2	13,649.9	151.7	2.67
FRESNO	2026	MH	Aggregated	Aggregated	DSL	740.3	6,156.1	74.0	0.60
FRESNO	2026	Motor Coach	Aggregated	Aggregated	DSL	65.9	8,452.3	962.2	1.23
FRESNO	2026	OBUS	Aggregated	Aggregated	GAS	304.4	14,262.3	6,090.1	2.85
FRESNO	2026	PTO	Aggregated	Aggregated	DSL	0.0	16,227.4	0.0	2.99
FRESNO	2026	SBUS	Aggregated	Aggregated	GAS	98.8	5,238.3	395.1	0.53

FRESNO	2026	SBUS	Aggregated	Aggregated	DSL	1,070.9	33,197.8	12,358.2	4.05
FRESNO	2026	T6 Ag	Aggregated	Aggregated	DSL	63.7	544.6	280.1	0.06
FRESNO	2026	T6 CAIRP heavy	Aggregated	Aggregated	DSL	173.3	31,983.6	2,530.7	2.53
FRESNO	2026	T6 CAIRP small	Aggregated	Aggregated	DSL	92.0	4,460.9	1,343.5	0.39
FRESNO	2026	T6 instate construct	Aggregated	Aggregated	DSL	645.1	40,296.2	2,916.3	4.58
FRESNO	2026	T6 instate construct	Aggregated	Aggregated	DSL	2,482.1	130,168.2	11,221.5	14.51
FRESNO	2026	T6 instate heavy	Aggregated	Aggregated	DSL	2,065.7	237,577.9	23,838.1	21.86
FRESNO	2026	T6 instate small	Aggregated	Aggregated	DSL	4,774.1	237,093.8	55,092.0	22.40
FRESNO	2026	T6 OOS heavy	Aggregated	Aggregated	DSL	99.2	18,308.0	1,448.9	1.45
FRESNO	2026	T6 OOS small	Aggregated	Aggregated	DSL	54.2	2,615.8	791.0	0.23
FRESNO	2026	T6 Public	Aggregated	Aggregated	DSL	446.0	6,752.0	1,353.0	0.90
FRESNO	2026	T6 utility	Aggregated	Aggregated	DSL	116.3	1,931.7	1,337.2	0.19
FRESNO	2026	T6TS	Aggregated	Aggregated	GAS	924.7	53,521.9	18,501.4	10.42
FRESNO	2026	T7 Ag	Aggregated	Aggregated	DSL	78.9	747.1	347.0	0.13
FRESNO	2026	T7 CAIRP	Aggregated	Aggregated	DSL	2,750.0	512,500.5	40,149.9	68.24
FRESNO	2026	T7 CAIRP constructi	Aggregated	Aggregated	DSL	158.2	28,945.1	715.0	4.50
FRESNO	2026	T7 NNOOS	Aggregated	Aggregated	DSL	3,332.8	624,739.5	48,658.3	78.38
FRESNO	2026	T7 NOOS	Aggregated	Aggregated	DSL	1,097.1	201,368.3	16,017.2	27.54
FRESNO	2026	T7 other port	Aggregated	Aggregated	DSL	53.9	10,152.8	409.6	1.57
FRESNO	2026	T7 POAK	Aggregated	Aggregated	DSL	292.5	42,661.0	2,223.3	6.87
FRESNO	2026	T7 POLA	Aggregated	Aggregated	DSL	295.9	43,134.3	2,249.0	7.06
FRESNO	2026	T7 Public	Aggregated	Aggregated	DSL	960.1	19,418.8	2,912.3	3.21
FRESNO	2026	T7 Single	Aggregated	Aggregated	DSL	1,157.5	81,724.6	13,357.5	11.78
FRESNO	2026	T7 single constructi	Aggregated	Aggregated	DSL	1,024.7	71,807.4	4,632.6	12.11
FRESNO	2026	T7 SWCV	Aggregated	Aggregated	DSL	391.6	15,975.0	1,527.2	6.12
FRESNO	2026	T7 SWCV	Aggregated	Aggregated	NG	61.4	2,504.8	239.5	1.04
FRESNO	2026	T7 tractor	Aggregated	Aggregated	DSL	6,072.6	755,655.0	77,121.8	92.25
FRESNO	2026	T7 tractor construct	Aggregated	Aggregated	DSL	871.2	59,234.8	3,938.8	10.08
FRESNO	2026	T7 utility	Aggregated	Aggregated	DSL	37.1	752.8	426.9	0.12
FRESNO	2026	T7IS	Aggregated	Aggregated	GAS	3.4	506.0	67.1	0.11
FRESNO	2026	UBUS	Aggregated	Aggregated	GAS	83.9	7,233.5	335.6	1.55
FRESNO	2026	UBUS	Aggregated	Aggregated	DSL	27.1	2,970.0	108.4	0.40
FRESNO	2026	UBUS	Aggregated	Aggregated	NG	122.2	13,585.9	488.7	3.10
							30,338,360.9		1,323
Overall Fuel Economy All Fuels						MPG	22.94		

Truck Only Fleet Average Fuel Economy

FRESNO	2026	LHD1	Aggregated	Aggregated	GAS	9,631.3	314,800.1	143,491.8	35.86
FRESNO	2026	LHD1	Aggregated	Aggregated	DSL	10,119.7	328,641.4	127,293.1	17.46
FRESNO	2026	LHD2	Aggregated	Aggregated	GAS	1,638.4	51,084.0	24,409.9	6.73
FRESNO	2026	LHD2	Aggregated	Aggregated	DSL	3,658.6	119,517.8	46,020.3	7.11
FRESNO	2026	T6 Ag	Aggregated	Aggregated	DSL	64	545	280	0.06
FRESNO	2026	T6 CAIRP heavy	Aggregated	Aggregated	DSL	173	31,984	2,531	2.53
FRESNO	2026	T6 CAIRP small	Aggregated	Aggregated	DSL	92	4,461	1,344	0.39
FRESNO	2026	T6 instate construct	Aggregated	Aggregated	DSL	645	40,296	2,916	4.58
FRESNO	2026	T6 instate construct	Aggregated	Aggregated	DSL	2,482	130,168	11,221	14.51
FRESNO	2026	T6 instate heavy	Aggregated	Aggregated	DSL	2,066	237,578	23,838	21.86
FRESNO	2026	T6 instate small	Aggregated	Aggregated	DSL	4,774	237,094	55,092	22.40
FRESNO	2026	T6 OOS heavy	Aggregated	Aggregated	DSL	99	18,308	1,449	1.45
FRESNO	2026	T6 OOS small	Aggregated	Aggregated	DSL	54	2,616	791	0.23
FRESNO	2026	T6 Public	Aggregated	Aggregated	DSL	446	6,752	1,353	0.90
FRESNO	2026	T6 utility	Aggregated	Aggregated	DSL	116	1,932	1,337	0.19
FRESNO	2026	T6TS	Aggregated	Aggregated	GAS	925	53,522	18,501	10.42
FRESNO	2026	T7 Ag	Aggregated	Aggregated	DSL	79	747	347	0.13
FRESNO	2026	T7 CAIRP	Aggregated	Aggregated	DSL	2,750	512,501	40,150	68.24
FRESNO	2026	T7 CAIRP constructi	Aggregated	Aggregated	DSL	158	28,945	715	4.50
FRESNO	2026	T7 NNOOS	Aggregated	Aggregated	DSL	3,333	624,740	48,658	78.38
FRESNO	2026	T7 NOOS	Aggregated	Aggregated	DSL	1,097	201,368	16,017	27.54
FRESNO	2026	T7 other port	Aggregated	Aggregated	DSL	54	10,153	410	1.57
FRESNO	2026	T7 POAK	Aggregated	Aggregated	DSL	293	42,661	2,223	6.87
FRESNO	2026	T7 POLA	Aggregated	Aggregated	DSL	296	43,134	2,249	7.06
FRESNO	2026	T7 Public	Aggregated	Aggregated	DSL	960	19,419	2,912	3.21
FRESNO	2026	T7 Single	Aggregated	Aggregated	DSL	1,158	81,725	13,358	11.78
FRESNO	2026	T7 single constructi	Aggregated	Aggregated	DSL	1,025	71,807	4,633	12.11
FRESNO	2026	T7 SWCV	Aggregated	Aggregated	DSL	392	15,975	1,527	6.12
FRESNO	2026	T7 SWCV	Aggregated	Aggregated	NG	61	2,505	240	1.04
FRESNO	2026	T7 tractor	Aggregated	Aggregated	DSL	6,073	755,655	77,122	92.25
FRESNO	2026	T7 tractor construct	Aggregated	Aggregated	DSL	871	59,235	3,939	10.08
FRESNO	2026	T7 utility	Aggregated	Aggregated	DSL	37	753	427	0.12
FRESNO	2026	T7IS	Aggregated	Aggregated	GAS	3	506	67	0.11

FRESNO	2026	UBUS	Aggregated	Aggregated	GAS	84	7,233	336	1.55
FRESNO	2026	UBUS	Aggregated	Aggregated	DSL	27	2,970	108	0.40
FRESNO	2026	UBUS	Aggregated	Aggregated	NG	122	13,586	489	3.10
							4,074,915		482.85
Truck Fleet Fuel Efficiency						MPG	**8.44**		482,853

Passenger Car and Light Truck Fleet Efficiency

FRESNO	2026	LDA	Aggregated	Aggregated	GAS	412,551	15,061,057	1,940,449	428.44
FRESNO	2026	LDA	Aggregated	Aggregated	DSL	4,064	158,580	19,463	2.77
FRESNO	2026	LDA	Aggregated	Aggregated	ELEC	13,349	558,170	65,821	0.00
FRESNO	2026	LDT1	Aggregated	Aggregated	GAS	43,081	1,462,313	196,162	49.24
FRESNO	2026	LDT1	Aggregated	Aggregated	DSL	17	273	55	0.01
FRESNO	2026	LDT1	Aggregated	Aggregated	ELEC	586	25,877	2,942	0.00
FRESNO	2026	LDT2	Aggregated	Aggregated	GAS	140,072	4,852,062	645,585	172.44
FRESNO	2026	LDT2	Aggregated	Aggregated	DSL	936	36,971	4,537	0.87
FRESNO	2026	LDT2	Aggregated	Aggregated	ELEC	2,402	72,228	11,984	0.00
FRESNO	2026	MDV	Aggregated	Aggregated	GAS	116,311.3	3,635,283.3	522,925.8	162.97
FRESNO	2026	MDV	Aggregated	Aggregated	DSL	2,812.1	102,464.6	13,300.8	3.33
FRESNO	2026	MDV	Aggregated	Aggregated	ELEC	1,561.6	47,985.5	7,848.4	0.00
							26,013,265		820.07
									820,068
Passenger Car and Light Truck Fleet Efficiency						MPG	**31.72**		

Residential Fleet Mix Average Fuel Efficiency

FleetMixLa	LDA	LDT1	LDT2	MDV	Fraction		LHD1	LHD2	MHD	HHD	Fraction
Single Fam	0.5244	0.212	0.1677	0.0563	0.9604		0.0008	0.0009	0.0076	0.0212	0.0305
MPG					31.72						8.44
Weighted Average		30.72			30.46						0.26

Commercial Project Fuel Efficiency

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: County
Region: FRESNO
Calendar Year: 2028

Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

Region	Calendar Y	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel Consumption
FRESNO	2028	All Other Buses	Aggregated	Aggregated	DSL	218.3	12,512.5	1,833.4	1.19
FRESNO	2028	LDA	Aggregated	Aggregated	GAS	432,490.6	15,470,922.1	2,031,759.1	419.18
FRESNO	2028	LDA	Aggregated	Aggregated	DSL	4,514.1	171,804.6	21,611.9	2.88
FRESNO	2028	LDA	Aggregated	Aggregated	ELEC	16,870.0	681,286.3	82,668.5	0.00
FRESNO	2028	LDT1	Aggregated	Aggregated	GAS	44,943.0	1,508,160.6	205,120.1	48.41
FRESNO	2028	LDT1	Aggregated	Aggregated	DSL	9.0	206.2	33.3	0.01
FRESNO	2028	LDT1	Aggregated	Aggregated	ELEC	801.5	33,833.0	3,984.8	0.00
FRESNO	2028	LDT2	Aggregated	Aggregated	GAS	144,805.4	4,932,849.0	667,040.5	164.90
FRESNO	2028	LDT2	Aggregated	Aggregated	DSL	1,076.7	41,137.3	5,194.1	0.93
FRESNO	2028	LDT2	Aggregated	Aggregated	ELEC	3,194.8	91,979.2	15,803.1	0.00
FRESNO	2028	LHD1	Aggregated	Aggregated	GAS	9,429.7	306,713.2	140,489.0	33.88
FRESNO	2028	LHD1	Aggregated	Aggregated	DSL	9,896.7	316,594.6	124,488.2	16.29
FRESNO	2028	LHD2	Aggregated	Aggregated	GAS	1,575.1	48,697.5	23,467.2	6.24
FRESNO	2028	LHD2	Aggregated	Aggregated	DSL	3,666.2	117,250.2	46,116.6	6.76
FRESNO	2028	MCY	Aggregated	Aggregated	GAS	19,112.7	139,836.5	38,225.4	3.70
FRESNO	2028	MDV	Aggregated	Aggregated	GAS	113,949.4	3,516,818.4	512,240.7	148.01
FRESNO	2028	MDV	Aggregated	Aggregated	DSL	3,016.7	106,717.9	14,236.0	3.30
FRESNO	2028	MDV	Aggregated	Aggregated	ELEC	2,154.5	63,188.6	10,723.9	0.00
FRESNO	2028	MH	Aggregated	Aggregated	GAS	1,448.5	13,275.8	144.9	2.51
FRESNO	2028	MH	Aggregated	Aggregated	DSL	742.1	6,111.3	74.2	0.58
FRESNO	2028	Motor Coach	Aggregated	Aggregated	DSL	71.9	8,706.4	1,050.2	1.23
FRESNO	2028	OBUS	Aggregated	Aggregated	GAS	293.3	13,503.6	5,868.1	2.61
FRESNO	2028	PTO	Aggregated	Aggregated	DSL	0.0	16,704.5	0.0	3.00
FRESNO	2028	SBUS	Aggregated	Aggregated	GAS	111.7	5,825.2	446.9	0.58
FRESNO	2028	SBUS	Aggregated	Aggregated	DSL	1,056.9	32,721.2	12,195.9	3.92
FRESNO	2028	T6 Ag	Aggregated	Aggregated	DSL	60.4	413.0	265.6	0.05
FRESNO	2028	T6 CAIRP heavy	Aggregated	Aggregated	DSL	182.4	32,943.1	2,662.9	2.48
FRESNO	2028	T6 CAIRP small	Aggregated	Aggregated	DSL	98.0	4,595.9	1,430.6	0.38
FRESNO	2028	T6 instate construct	Aggregated	Aggregated	DSL	676.3	41,193.8	3,057.3	4.61
FRESNO	2028	T6 instate construct	Aggregated	Aggregated	DSL	2,622.0	133,067.7	11,853.9	14.33
FRESNO	2028	T6 instate heavy	Aggregated	Aggregated	DSL	2,241.2	238,870.9	25,862.8	21.36
FRESNO	2028	T6 instate small	Aggregated	Aggregated	DSL	5,151.5	247,929.5	59,447.7	22.62
FRESNO	2028	T6 OOS heavy	Aggregated	Aggregated	DSL	104.3	18,855.7	1,522.7	1.42
FRESNO	2028	T6 OOS small	Aggregated	Aggregated	DSL	57.7	2,698.7	843.1	0.22

FRESNO	2028	T6 Public	Aggregated	Aggregated	DSL	423.2	6,414.2	1,283.7	0.83
FRESNO	2028	T6 utility	Aggregated	Aggregated	DSL	118.4	1,963.3	1,361.1	0.19
FRESNO	2028	T6TS	Aggregated	Aggregated	GAS	945.8	54,581.4	18,923.1	10.26
FRESNO	2028	T7 Ag	Aggregated	Aggregated	DSL	87.3	749.0	383.9	0.13
FRESNO	2028	T7 CAIRP	Aggregated	Aggregated	DSL	2,733.5	527,851.1	39,908.5	65.82
FRESNO	2028	T7 CAIRP constructi	Aggregated	Aggregated	DSL	161.1	29,589.9	728.2	4.37
FRESNO	2028	T7 NNOOS	Aggregated	Aggregated	DSL	3,519.2	643,442.7	51,380.0	76.68
FRESNO	2028	T7 NOOS	Aggregated	Aggregated	DSL	1,091.5	207,402.8	15,935.2	26.58
FRESNO	2028	T7 other port	Aggregated	Aggregated	DSL	49.0	10,492.4	372.1	1.55
FRESNO	2028	T7 POAK	Aggregated	Aggregated	DSL	268.0	47,114.6	2,036.9	7.25
FRESNO	2028	T7 POLA	Aggregated	Aggregated	DSL	296.7	47,249.9	2,254.7	7.54
FRESNO	2028	T7 Public	Aggregated	Aggregated	DSL	1,037.8	20,999.4	3,147.9	3.34
FRESNO	2028	T7 Single	Aggregated	Aggregated	DSL	1,166.6	84,127.1	13,462.1	11.82
FRESNO	2028	T7 single constructi	Aggregated	Aggregated	DSL	1,038.4	73,407.0	4,694.7	12.03
FRESNO	2028	T7 SWCV	Aggregated	Aggregated	DSL	377.4	15,394.5	1,471.7	5.69
FRESNO	2028	T7 SWCV	Aggregated	Aggregated	NG	60.0	2,448.8	234.1	0.99
FRESNO	2028	T7 tractor	Aggregated	Aggregated	DSL	6,507.7	781,809.8	82,647.9	91.80
FRESNO	2028	T7 tractor construct	Aggregated	Aggregated	DSL	879.0	60,554.3	3,973.9	10.00
FRESNO	2028	T7 utility	Aggregated	Aggregated	DSL	37.8	765.1	434.4	0.12
FRESNO	2028	T7IS	Aggregated	Aggregated	GAS	3.5	514.9	70.8	0.11
FRESNO	2028	UBUS	Aggregated	Aggregated	GAS	86.0	7,411.1	343.8	1.49
FRESNO	2028	UBUS	Aggregated	Aggregated	DSL	28.8	3,209.8	115.3	0.42
FRESNO	2028	UBUS	Aggregated	Aggregated	NG	124.1	13,752.7	496.4	3.14
							31,019,169.7	**4,317,423.1**	**1,279.74**
						MPG	**24.24**		

Region	Calendar Y	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel Consumption
FRESNO	2028	LHD1	Aggregated	Aggregated	GAS	9,429.7	306,713.2	140,489.0	33.88
FRESNO	2028	LHD1	Aggregated	Aggregated	DSL	9,896.7	316,594.6	124,488.2	16.29
FRESNO	2028	LHD2	Aggregated	Aggregated	GAS	1,575.1	48,697.5	23,467.2	6.24
FRESNO	2028	LHD2	Aggregated	Aggregated	DSL	3,666.2	117,250.2	46,116.6	6.76
FRESNO	2028	T6 Ag	Aggregated	Aggregated	DSL	60.4	413.0	265.6	0.05
FRESNO	2028	T6 CAIRP heavy	Aggregated	Aggregated	DSL	182.4	32,943.1	2,662.9	2.48
FRESNO	2028	T6 CAIRP small	Aggregated	Aggregated	DSL	98.0	4,595.9	1,430.6	0.38
FRESNO	2028	T6 instate construct	Aggregated	Aggregated	DSL	676.3	41,193.8	3,057.3	4.61
FRESNO	2028	T6 instate construct	Aggregated	Aggregated	DSL	2,622.0	133,067.7	11,853.9	14.33
FRESNO	2028	T6 instate heavy	Aggregated	Aggregated	DSL	2,241.2	238,870.9	25,862.8	21.36
FRESNO	2028	T6 instate small	Aggregated	Aggregated	DSL	5,151.5	247,929.5	59,447.7	22.62
FRESNO	2028	T6 OOS heavy	Aggregated	Aggregated	DSL	104.3	18,855.7	1,522.7	1.42

FRESNO	2028	T6 OOS small	Aggregated	Aggregated	DSL	57.7	2,698.7	843.1	0.22
FRESNO	2028	T6 Public	Aggregated	Aggregated	DSL	423.2	6,414.2	1,283.7	0.83
FRESNO	2028	T6 utility	Aggregated	Aggregated	DSL	118.4	1,963.3	1,361.1	0.19
FRESNO	2028	T6TS	Aggregated	Aggregated	GAS	945.8	54,581.4	18,923.1	10.26
FRESNO	2028	T7 Ag	Aggregated	Aggregated	DSL	87.3	749.0	383.9	0.13
FRESNO	2028	T7 CAIRP	Aggregated	Aggregated	DSL	2,733.5	527,851.1	39,908.5	65.82
FRESNO	2028	T7 CAIRP constructi	Aggregated	Aggregated	DSL	161.1	29,589.9	728.2	4.37
FRESNO	2028	T7 NNOOS	Aggregated	Aggregated	DSL	3,519.2	643,442.7	51,380.0	76.68
FRESNO	2028	T7 NOOS	Aggregated	Aggregated	DSL	1,091.5	207,402.8	15,935.2	26.58
FRESNO	2028	T7 other port	Aggregated	Aggregated	DSL	49.0	10,492.4	372.1	1.55
FRESNO	2028	T7 POAK	Aggregated	Aggregated	DSL	268.0	47,114.6	2,036.9	7.25
FRESNO	2028	T7 POLA	Aggregated	Aggregated	DSL	296.7	47,249.9	2,254.7	7.54
FRESNO	2028	T7 Public	Aggregated	Aggregated	DSL	1,037.8	20,999.4	3,147.9	3.34
FRESNO	2028	T7 Single	Aggregated	Aggregated	DSL	1,166.6	84,127.1	13,462.1	11.82
FRESNO	2028	T7 single constructi	Aggregated	Aggregated	DSL	1,038.4	73,407.0	4,694.7	12.03
FRESNO	2028	T7 SWCV	Aggregated	Aggregated	DSL	377.4	15,394.5	1,471.7	5.69
FRESNO	2028	T7 SWCV	Aggregated	Aggregated	NG	60.0	2,448.8	234.1	0.99
FRESNO	2028	T7 tractor	Aggregated	Aggregated	DSL	6,507.7	781,809.8	82,647.9	91.80
FRESNO	2028	T7 tractor construct	Aggregated	Aggregated	DSL	879.0	60,554.3	3,973.9	10.00
FRESNO	2028	T7 utility	Aggregated	Aggregated	DSL	37.8	765.1	434.4	0.12
FRESNO	2028	T7IS	Aggregated	Aggregated	GAS	3.5	514.9	70.8	0.11
FRESNO	2028	UBUS	Aggregated	Aggregated	GAS	86.0	7,411.1	343.8	1.49
FRESNO	2028	UBUS	Aggregated	Aggregated	DSL	28.8	3,209.8	115.3	0.42
FRESNO	2028	UBUS	Aggregated	Aggregated	NG	124.1	13,752.7	496.4	3.14
							4,151,069.5	**687,168.1**	**472.80**
						MPG	**8.78**		

Region	Calendar Y	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel Consumption
FRESNO	2028	LDA	Aggregated	Aggregated	GAS	432,491	15,470,922.14	2,031,759.09	419.18
FRESNO	2028	LDA	Aggregated	Aggregated	DSL	4,514	171,804.57	21,611.90	2.88
FRESNO	2028	LDA	Aggregated	Aggregated	ELEC	16,870	681,286.34	82,668.50	0.00
FRESNO	2028	LDT1	Aggregated	Aggregated	GAS	44,943	1,508,160.63	205,120.06	48.41
FRESNO	2028	LDT1	Aggregated	Aggregated	DSL	9	206.19	33.33	0.01
FRESNO	2028	LDT1	Aggregated	Aggregated	ELEC	801	33,832.97	3,984.77	0.00
FRESNO	2028	LDT2	Aggregated	Aggregated	GAS	144,805	4,932,849.03	667,040.49	164.90
FRESNO	2028	LDT2	Aggregated	Aggregated	DSL	1,077	41,137.29	5,194.05	0.93
FRESNO	2028	LDT2	Aggregated	Aggregated	ELEC	3,195	91,979.25	15,803.05	0.00
FRESNO	2028	MDV	Aggregated	Aggregated	GAS	113,949	3,516,818.41	512,240.72	148.01

FRESNO	2028	MDV	Aggregated	Aggregated	DSL	3,017	106,717.93	14,236.03	3.30
FRESNO	2028	MDV	Aggregated	Aggregated	ELEC	2,155	63,188.63	10,723.86	0.00
							26,618,903.39	**3,570,415.86**	**787.62**
							33.80		

Appendix A: Emissions Summary

Emission Summary

Residential Const Emissions (Unmitigated Annual)	ROG	NOX	CO	SO2	PM10	PM2.5	PM10 Ex
			Tons per Year				
2021	0.47	5.04	3.05	0.01	0.93	0.57	0.23
2022	0.52	4.97	4.16	0.01	0.70	0.38	0.20
2023	1.18	8.60	10.01	0.03	1.59	0.63	0.30
2024	1.11	8.23	9.80	0.03	1.57	0.60	0.26
2025	1.03	7.76	9.50	0.03	1.53	0.56	0.23
2026	13.03	3.48	4.81	0.01	0.57	0.24	0.12
Total	**17.34**	**38.10**	**41.33**	**0.11**	**6.89**	**2.98**	**1.35**
Average Annual Construction Emissions (5 years)	**3.47**	**7.62**	**8.27**	**0.02**	**1.38**	**0.60**	**0.27**

Commercial Const Emissions (Unmitigated Annual)	ROG	NOX	CO	SO2	PM10	PM2.5	PM10 Ex
			Tons per Year				
2021	0.05	0.49	0.31	0.00	0.11	0.06	0.02
2022	0.27	2.59	1.87	0.01	0.52	0.17	0.04
2023	0.27	2.35	1.89	0.01	0.59	0.18	0.03
2024	0.26	2.31	1.80	0.01	0.60	0.18	0.02
2025	0.24	2.25	1.70	0.01	0.59	0.17	0.02
2026	0.23	2.23	1.63	0.01	0.59	0.17	0.02
2027	0.22	2.21	1.56	0.01	0.59	0.17	0.02
2028	0.85	0.97	0.80	0.00	0.26	0.08	0.01
Total	**2.41**	**15.40**	**11.54**	**0.06**	**3.85**	**1.19**	**0.19**
Average Annual Construction Emissions (7 years)	**0.34**	**2.20**	**1.65**	**0.01**	**0.55**	**0.17**	**0.03**
Combined Annual Average Construction Emissions	**3.81**	**9.82**	**9.91**	**0.03**	**1.93**	**0.44**	**0.03**
Emission Reduction with Rule 9510 ISR Compliance		**7.86**			**1.91**		0.01

Residential			Tons Per Year			
Operational Emissions (Unmitigated)	**ROG**	**NOX**	**CO**	**SO2**	**PM10**	**PM2.5**
Area	17.14	1.55	51.99	0.12	6.04	6.04
Energy	0.24	2.06	0.87	0.01	0.17	0.17
Mobile	4.31	14.45	48.01	0.18	19.68	5.36
Total	**21.69**	**18.06**	**100.87**	**0.32**	**25.89**	**11.57**

Residential	Tons Per Year					
Operational Emissions (Mitigated)	**ROG**	**NOX**	**CO**	**SO2**	**PM10**	**PM2.5**
Area	13.16	0.96	15.88	0.01	0.15	0.15
Energy	0.23	1.94	0.82	0.01	0.16	0.16
Mobile	4.20	13.74	44.35	0.16	17.77	4.83
Total All Phases	**17.60**	**16.64**	**61.05**	**0.18**	**18.07**	**5.13**

With onsite design features and natural gas fireplaces

Commercial	Tons Per Year					
Operational Emissions (Unmitigated)	**ROG**	**NOX**	**CO**	**SO2**	**PM10**	**PM2.5**
Area	0.91	0.00	0.00	0.00	0.00	0.00
Energy	0.02	0.15	0.13	0.00	0.01	0.01
Mobile	2.14	2.22	15.70	0.05	5.92	1.60
Total	**3.07**	**2.38**	**15.83**	**0.05**	**5.93**	**1.61**

Commercial	Tons Per Year					
Operational Emissions (Mitigated)	**ROG**	**NOX**	**CO**	**SO2**	**PM10**	**PM2.5**
Area	0.85	0.00	0.00	0.00	0.00	0.00
Energy	0.02	0.15	0.13	0.00	0.01	0.01
Mobile	2.09	2.05	14.26	0.04	5.03	1.36
Total	**2.96**	**2.21**	**14.39**	**0.04**	**5.04**	**1.38**

Combined Project Residential and Commercial at Buildout

	Tons Per Year					
Operational Emissions (Unmitigated)	**ROG**	**NOX**	**CO**	**SO2**	**PM10**	**PM2.5**
Area	18.05	1.55	51.99	0.12	6.04	6.04
Energy	0.26	2.21	1.00	0.01	0.18	0.18
Mobile	6.45	16.67	63.71	0.23	25.60	6.96
Total	**24.76**	**20.43**	**116.70**	**0.37**	**31.82**	**13.18**
Rule 9510 ISR Compliance (33% Nox, 50% PM10)	**24.76**	**13.62**	**116.70**	**0.37**	**15.91**	**13.18**

Residential Project (Tract 6269)

Max Daily Construction Emissions		**Pounds per Day**					
		ROG	**NOX**	**CO**	**SO2**	**PM10**	**PM2.5**
	2022	7.33	77.73	58.62	0.13	16.33	9.91
	2023	73.75	33.73	38.37	0.07	2.55	1.71
Max Daily Construction Emissions any Year		**73.75**	**77.73**	**58.62**	**0.13**	**16.33**	**9.91**

Commercial (Copper and Willow)

Max Daily Construction Emissions		**Pounds per Day**					
		ROG	**NOX**	**CO**	**SO2**	**PM10**	**PM2.5**
	2022	3.71	38.88	29.58	0.07	9.89	5.99
	2023	36.86	22.41	22.92	0.07	3.21	1.35
Max Daily Construction Emissions any Year		**36.86**	**38.88**	**29.58**	**0.07**	**9.89**	**5.99**

Operations (Residential)	**Pounds per Day**					
Maximum Daily Emissions (Tract 6269)	**ROG**	**NOX**	**CO**	**SO2**	**PM10**	**PM2.5**
Area	12.72	2.78	23.87	0.02	0.33	0.33
Energy	0.20	1.71	0.73	0.01	0.14	0.14
Mobile	5.79	15.54	53.17	0.16	14.86	4.06
Total	**18.71**	**20.04**	**77.76**	**0.19**	**15.33**	**4.53**
Onsite Mobile Emissions within 0.5 mile	0.40	1.06	3.64	0.01	1.02	0.28
Total Onsite Emissions	**13.32**	**5.56**	**28.24**	**0.04**	**1.49**	**0.75**

Operations (Commercial)	**Pounds per Day**					
Maximum Daily Emissions (Copper and Willow)	**ROG**	**NOX**	**CO**	**SO2**	**PM10**	**PM2.5**
Area	2.26	0.00	0.01	0.00	0.00	0.00
Energy	0.04	0.37	0.31	0.00	0.03	0.03
Mobile	12.07	12.18	67.10	0.17	15.23	4.14
Total	**14.37**	**12.56**	**67.43**	**0.17**	**15.26**	**4.17**
Onsite Mobile Emissions within 0.5 mile	0.83	0.83	4.60	0.01	1.04	0.28
Total Onsite Emissions	**3.13**	**1.21**	**4.92**	**0.01**	**1.07**	**0.31**

Mobile reduced by multiplying emissions by 0.5/7.3 mile trip length from CalEEMod

Construction GHG Emissions

Year		**Tons/Year CO2e (Residential)**	**Tons/Year CO2e (Commercial)**	**Tons/Year CO2e (Total)**
	2021	519.89	54.65	574.54
	2022	877.91	795.35	1673.26
	2023	2,566.51	962.05	3528.56
	2024	2,546.98	952.18	3499.15
	2025	2,499.37	931.92	3,431.29
	2026	1,050.54	918.76	1,969.30
	2027	0.00	905.55	905.55
	2028	0.00	391.48	391.48
Total		**10,061.19**	**5911.94**	**15,973.13**
Amortized over 30 years		**335.37**	**197.06**	**532.44**

Total at Buildout Operational GHG Residential 2026

	BAU MTCO2e per Year	**2026 MTCO2e/ year**	**Reduction Fraction**	
Area	1,820.34	939.43	48.39%	
Energy	6,744.79	4,212.38	37.5%	
Mobile	23,685.66	12,734.36	46.2%	
Waste	842.01	631.51	25.0%	
Water	489.70	258.95	47.1%	
Total	**33,582.50**	**18,776.62**	**44.1%**	
Construction	**335.37**	**335.37**	0.0%	
Total with Amortized Construction	**33,917.87**	**19,111.99**	**43.7%**	**39.3%**
Reduction from BAU		**14,805.88**	**21.7%**	**29.7%**
			22.0%	14.0%
Mobile from CalEEMod		15,159.95		
LCFS Estimate for 2026 (16%)		0.84		
Mobile with LCFS		12,734.36		

Operational GHG Emissions Commercial in 2028

	BAU MTCO2e per Year	2028 MTCO2e/ year	Reduction Fraction	
Area	0.00	0.00	4.66%	
Energy	717.97	416.45	42.0%	
Mobile	8,413.74	3,009.10	64.2%	
Waste	119.18	89.39	25.0%	
Water	69.24	36.82	46.8%	
Total	9,320.13	**3,551.75**	**61.9%**	
Construction	197.06	197.06	0.0%	
Total with Amortized Construction	**9,517.20**	**3,748.82**	**60.6%**	**60.6%**
Reduction from BAU		**5,768.38**	**21.7%**	**29%**
			38.91%	**31.61%**
Mobile from CalEEMod		3669.63		
LCFS in 2028 reduction 180% not in CalEEMod		0.82		
Mobile with LCFS		3,009.10		

Operational GHG Emissions Combined Project in 2028

	BAU MTCO2e per Year	2028 MTCO2e/ year	Reduction Fraction	
Area	1,820.35	939.43	48.39%	
Energy	7,462.76	4,628.82	38.0%	
Mobile	32,099.40	15,743.46	51.0%	
Waste	961.19	720.89	25.0%	
Water	558.94	295.77	47.1%	
Total	**42,902.63**	**22,328.37**	**48.0%**	
Construction	51.99	51.99	0.0%	
Total with Amortized Construction	**42,954.62**	**22,380.37**	**47.9%**	**47.9%**
Reduction from BAU		**20,574.26**	**21.7%**	**29%**
			26.20%	**18.90%**

Total at Buildout Operational GHG Residential 2030

	BAU MTCO2e per Year	2030 MTCO2e/ year	Reduction Fraction	
Area	1,820.34	939.43	48.39%	
Energy	6,744.79	4,212.38	37.5%	
Mobile	23,685.66	10,958.03	53.7%	
Waste	842.01	631.51	25.0%	
Water	489.70	258.95	47.1%	
Total	33,582.50	**17,000.29**	**49.4%**	
Construction	335.37	**335.37**	0.0%	
Total with Amortized Construction	33,917.87	17,335.66	**48.9%**	**48.9%**
Reduction from BAU		**16,582.21**	**21.7%**	**29.7%**
			27.2%	19.2%
Mobile from CalEEMod		13,697.54		
LCFS Estimate for 2030 (20%)		0.8		
Mobile with LCFS		10,958.03		

Operational GHG Emissions Commercial in 2030

	BAU MTCO2e per Year	2030 MTCO2e/ year	Reduction Fraction	
Area	0.00	0.00	4.66%	
Energy	717.97	416.45	42.0%	
Mobile	8,413.74	2,781.03	66.9%	
Waste	119.18	89.39	25.0%	
Water	69.24	36.82	46.8%	
Total	9,320.13	**3,323.68**	**64.3%**	
Construction	197.06	197.06	0.0%	
Total with Amortized Construction	**9,517.20**	**3,520.75**	**63.0%**	**63.0%**
Reduction from BAU		**5,996.45**	**21.7%**	**29%**
			41.31%	**34.01%**
Mobile from CalEEMod		3,476.28		
LCFS in 2030 reduction 20% not in CalEEMod		0.8		
Mobile with LCFS		2,781.03		

Operational GHG Emissions Combined Project in 2030

	BAU MTCO2e per Year	2030 MTCO2e/ year	Reduction Fraction	
Area	1,820.35	939.43	48.39%	
Energy	7,462.76	4,628.82	38.0%	
Mobile	32,099.40	13,739.06	57.2%	
Waste	961.19	720.89	25.0%	
Water	558.94	295.77	47.1%	
Total	**42,902.63**	**20,323.97**	**52.6%**	
Construction	532.44	532.44	0.0%	
Total with Amortized Construction	**43,435.07**	**20,856.41**	**52.0%**	**52.0%**
Reduction from BAU		**22,578.66**	**21.7%**	**29%**
			30.28%	**23.00%**

Appendix A: CalEEMod Output

CalEEMod Output

Residential Construction and Operations 2026 (Annual)

Copper River Ranch SEIR Residential Buldout

Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	849.00	Dwelling Unit	15.64	849,000.00	2428
Single Family Housing	1,247.00	Dwelling Unit	179.46	2,244,600.00	3566

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 45

Climate Zone 3 **Operational Year** 2026

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 290 **CH4 Intensity (lb/MWhr)** 0.022 **N2O Intensity (lb/MWhr)** 0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E Intensity Factors

Land Use - Apartments 15.64 acres w/o Copper Friant 21 acres. SFR 179.46 for tracts not yet graded.

Construction Phase - 5 Year Buildout Schedule

Off-road Equipment - Increased equipment no. to account for shorter schedule while retaining default hours of use.

Off-road Equipment - Increased equipment no. to retain default equipment hours for shorter schedule.

Off-road Equipment - Increased equipment no. to account for shorter project schedule and default usage hours.

Off-road Equipment - Increased equipment no. to account for shorter schedule and retain default hours.

Off-road Equipment - Equipment no. increased to account for shorter schedule and default hours of use.

Architectural Coating - Rule 4601 Architectural Coatings compliance

Vehicle Trips - ITE 10th Edition Trip Generation Rates

Woodstoves -

Consumer Products - ARB Consumer Products Regulations 2012 to 2026 6.2%

Area Coating - Rule 4601 Architectural Coatings compliance

Construction Off-road Equipment Mitigation - Reg VIII compliance

Mobile Land Use Mitigation -

Area Mitigation -

Energy Mitigation - 2019 Title 24

Water Mitigation -

Waste Mitigation - CalRecycle 75% diversion mandate

Fleet Mix - SJVAPCD Residential Fleet Mix 2026

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Residential_Exterior	150.00	65.00
tblArchitecturalCoating	EF_Residential_Interior	150.00	65.00
tblAreaCoating	Area_EF_Residential_Exterior	150	65
tblAreaCoating	Area_EF_Residential_Interior	150	65
tblConstructionPhase	NumDays	310.00	100.00

tblConstructionPhase	NumDays	3,100.00	900.00
tblConstructionPhase	NumDays	220.00	50.00
tblConstructionPhase	NumDays	220.00	50.00
tblConsumerProducts	ROG_EF	2.14E-05	2.01E-05
tblFleetMix	HHD	0.13	0.02
tblFleetMix	HHD	0.13	0.02
tblFleetMix	LDA	0.51	0.52
tblFleetMix	LDA	0.51	0.52
tblFleetMix	LDT1	0.03	0.21
tblFleetMix	LDT1	0.03	0.21
tblFleetMix	LDT2	0.17	0.17
tblFleetMix	LDT2	0.17	0.17
tblFleetMix	LHD1	0.01	8.0000e-004
tblFleetMix	LHD1	0.01	8.0000e-004
tblFleetMix	LHD2	3.7920e-003	9.0000e-004
tblFleetMix	LHD2	3.7920e-003	9.0000e-004
tblFleetMix	MCY	4.7530e-003	2.5000e-003
tblFleetMix	MCY	4.7530e-003	2.5000e-003
tblFleetMix	MDV	0.10	0.07
tblFleetMix	MDV	0.10	0.07
tblFleetMix	MH	4.9300e-004	2.3000e-003
tblFleetMix	MH	4.9300e-004	2.3000e-003
tblFleetMix	MHD	0.03	7.5000e-003
tblFleetMix	MHD	0.03	7.5000e-003
tblFleetMix	OBUS	2.3220e-003	0.00
tblFleetMix	OBUS	2.3220e-003	0.00
tblFleetMix	SBUS	1.0390e-003	2.0000e-004

tblFleetMix	SBUS	1.0390e-003	2.0000e-004
tblFleetMix	UBUS	1.3160e-003	4.4000e-003
tblFleetMix	UBUS	1.3160e-003	4.4000e-003
tblGrading	AcresOfGrading	750.00	250.00
tblLandUse	LotAcreage	53.06	15.64
tblLandUse	LotAcreage	404.87	179.46
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	7.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	10.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	10.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	10.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	9.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	9.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	9.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblTripsAndVMT	WorkerTripNumber	43.00	18.00
tblTripsAndVMT	WorkerTripNumber	60.00	20.00

tblTripsAndVMT	WorkerTripNumber	68.00	15.00
tblVehicleTrips	HO_TTP	35.70	36.00
tblVehicleTrips	HO_TTP	35.70	36.00
tblVehicleTrips	HS_TTP	15.90	16.00
tblVehicleTrips	HS_TTP	15.90	16.00
tblVehicleTrips	HW_TTP	48.40	48.00
tblVehicleTrips	HW_TTP	48.40	48.00
tblVehicleTrips	ST_TR	7.16	8.14
tblVehicleTrips	ST_TR	9.91	9.54
tblVehicleTrips	SU_TR	6.07	6.28
tblVehicleTrips	SU_TR	8.62	8.55
tblVehicleTrips	WD_TR	6.59	7.32
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.4721	5.0407	3.0527	5.8700e-003	1.5363	0.2343	1.7707	0.7841	0.2156	0.9996	0.0000	515.7589	515.7589	0.1652	0.0000	519.8876
2022	0.5182	4.9740	4.1574	9.8300e-003	0.8768	0.2004	1.0772	0.3718	0.1853	0.5571	0.0000	872.6222	872.6222	0.2117	0.0000	877.9143
2023	1.1754	8.6046	10.0055	0.0284	1.2947	0.2980	1.5927	0.3486	0.2800	0.6286	0.0000	2,558.7479	2,558.7479	0.3105	0.0000	2,566.5097
2024	1.1103	8.2349	9.7991	0.0282	1.3046	0.2640	1.5687	0.3513	0.2480	0.5992	0.0000	2,539.2205	2,539.2205	0.3103	0.0000	2,546.9770
2025	1.0349	7.7580	9.5042	0.0277	1.2997	0.2270	1.5266	0.3499	0.2132	0.5631	0.0000	2,491.7024	2,491.7024	0.3065	0.0000	2,499.3654
2026	13.0324	3.4838	4.8115	0.0117	0.4487	0.1229	0.5716	0.1207	0.1148	0.2355	0.0000	1,046.3037	1,046.3037	0.1695	0.0000	1,050.5409
Maximum	**13.0324**	**8.6046**	**10.0055**	**0.0284**	**1.5363**	**0.2980**	**1.7707**	**0.7841**	**0.2800**	**0.9996**	**0.0000**	**2,558.7479**	**2,558.7479**	**0.3105**	**0.0000**	**2,566.5097**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.4721	5.0407	3.0527	5.8700e-003	0.6950	0.2343	0.9293	0.3538	0.2156	0.5694	0.0000	515.7583	515.7583	0.1652	0.0000	519.8870
2022	0.5182	4.9740	4.1574	9.8300e-003	0.4959	0.2004	0.6963	0.1946	0.1853	0.3799	0.0000	872.6214	872.6214	0.2117	0.0000	877.9136
2023	1.1754	8.6046	10.0055	0.0284	1.2947	0.2980	1.5927	0.3486	0.2800	0.6286	0.0000	2,558.7468	2,558.7468	0.3105	0.0000	2,566.5085
2024	1.1103	8.2349	9.7991	0.0282	1.3046	0.2640	1.5687	0.3513	0.2480	0.5992	0.0000	2,539.2194	2,539.2194	0.3103	0.0000	2,546.9758
2025	1.0349	7.7580	9.5042	0.0277	1.2997	0.2270	1.5266	0.3499	0.2132	0.5631	0.0000	2,491.7012	2,491.7012	0.3065	0.0000	2,499.3642
2026	13.0324	3.4838	4.8115	0.0117	0.4487	0.1229	0.5716	0.1207	0.1148	0.2355	0.0000	1,046.3031	1,046.3031	0.1695	0.0000	1,050.5403
Maximum	**13.0324**	**8.6046**	**10.0055**	**0.0284**	**1.3046**	**0.2980**	**1.5927**	**0.3538**	**0.2800**	**0.6286**	**0.0000**	**2,558.7468**	**2,558.7468**	**0.3105**	**0.0000**	**2,566.5085**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**18.08**	**0.00**	**15.08**	**26.11**	**0.00**	**16.95**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**10-1-2021**	**12-31-2021**	4.3223	4.3223
2	**1-1-2022**	**3-31-2022**	4.0081	4.0081
5	**10-1-2022**	**12-31-2022**	1.5641	1.5641
6	**1-1-2023**	**3-31-2023**	2.4294	2.4294
7	**4-1-2023**	**6-30-2023**	2.4514	2.4514

8	**7-1-2023**	**9-30-2023**	2.4784	2.4784
9	**10-1-2023**	**12-31-2023**	2.4834	2.4834
10	**1-1-2024**	**3-31-2024**	2.3289	2.3289
11	**4-1-2024**	**6-30-2024**	2.3242	2.3242
12	**7-1-2024**	**9-30-2024**	2.3498	2.3498
13	**10-1-2024**	**12-31-2024**	2.3545	2.3545
14	**1-1-2025**	**3-31-2025**	2.1753	2.1753
15	**4-1-2025**	**6-30-2025**	2.1951	2.1951
16	**7-1-2025**	**9-30-2025**	2.2192	2.2192
17	**10-1-2025**	**12-31-2025**	2.2236	2.2236
18	**1-1-2026**	**3-31-2026**	2.1592	2.1592
19	**4-1-2026**	**6-30-2026**	1.5903	1.5903
20	**7-1-2026**	**9-30-2026**	12.7688	12.7688
		Highest	12.7688	12.7688

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	17.1410	1.5522	51.9904	0.1236		6.0401	6.0401		6.0401	6.0401	788.7352	933.4247	1,722.1599	3.7289	0.0167	1,820.3437
Energy	0.2405	2.0553	0.8746	0.0131		0.1662	0.1662		0.1662	0.1662	0.0000	4,339.7187	4,339.7187	0.1943	0.0774	4,367.6471
Mobile	4.3121	14.4482	48.0067	0.1809	19.5415	0.1411	19.6827	5.2281	0.1311	5.3592	0.0000	16,655.9325	16,655.9325	0.9176	0.0000	16,678.8721
Waste						0.0000	0.0000		0.0000	0.0000	339.8678	0.0000	339.8678	20.0856	0.0000	842.0080
Water						0.0000	0.0000		0.0000	0.0000	43.3251	136.8390	180.1641	4.4603	0.1074	323.6857
Total	**21.6936**	**18.0557**	**100.8718**	**0.3176**	**19.5415**	**6.3474**	**25.8890**	**5.2281**	**6.3374**	**11.5655**	**1,171.9281**	**22,065.9149**	**23,237.8430**	**29.3867**	**0.2015**	**24,032.5567**

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	13.1649	0.9631	15.8819	5.8300e-003		0.1497	0.1497		0.1497	0.1497	0.0000	933.4247	933.4247	0.0418	0.0167	939.4291
Energy	0.2266	1.9366	0.8241	0.0124		0.1566	0.1566		0.1566	0.1566	0.0000	4,185.3837	4,185.3837	0.1904	0.0746	4,212.3765
Mobile	4.2045	13.7359	44.3460	0.1644	17.6362	0.1291	17.7653	4.7183	0.1199	4.8383	0.0000	15,138.4963	15,138.4963	0.8583	0.0000	15,159.9546
Waste						0.0000	0.0000		0.0000	0.0000	254.9008	0.0000	254.9008	15.0642	0.0000	631.5060
Water						0.0000	0.0000		0.0000	0.0000	34.6601	109.4712	144.1313	3.5682	0.0859	258.9485
Total	**17.5960**	**16.6357**	**61.0520**	**0.1826**	**17.6362**	**0.4353**	**18.0716**	**4.7183**	**0.4262**	**5.1445**	**289.5609**	**20,366.7758**	**20,656.3367**	**19.7229**	**0.1772**	**21,202.2147**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**18.89**	**7.86**	**39.48**	**42.52**	**9.75**	**93.14**	**30.20**	**9.75**	**93.28**	**55.52**	**75.29**	**7.70**	**11.11**	**32.88**	**12.06**	**11.78**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	9/1/2021	11/9/2021	5	120	
2	Grading	Grading	11/10/2021	3/29/2022	5	100	
3	Building Construction	Building Construction	11/11/2022	4/23/2026	5	900	
4	Paving	Paving	4/24/2026	7/2/2026	5	50	
5	Architectural Coating	Architectural Coating	7/3/2026	9/10/2026	5	50	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 250

Acres of Paving: 0

Residential Indoor: 6,264,540; Residential Outdoor: 2,088,180; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Copper River Ranch SEIR Residential Buldout - Fresno County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	7	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	10	8.00	97	0.37
Grading	Excavators	6	8.00	158	0.38
Grading	Graders	3	8.00	187	0.41
Grading	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	6	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	6	8.00	97	0.37
Building Construction	Cranes	3	7.00	231	0.29
Building Construction	Forklifts	10	8.00	89	0.20
Building Construction	Generator Sets	3	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	10	7.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Pavers	9	8.00	130	0.42
Paving	Paving Equipment	9	8.00	132	0.36
Paving	Rollers	9	8.00	80	0.38
Architectural Coating	Air Compressors	4	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	17	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	24	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	29	1,060.00	224.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	27	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	4	212.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0539	0.0000	1.0539	0.5793	0.0000	0.5793	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2299	2.3939	1.2717	2.2700e-003		0.1211	0.1211		0.1114	0.1114	0.0000	199.5912	199.5912	0.0646	0.0000	201.2050
Total	**0.2299**	**2.3939**	**1.2717**	**2.2700e-003**	**1.0539**	**0.1211**	**1.1750**	**0.5793**	**0.1114**	**0.6907**	**0.0000**	**199.5912**	**199.5912**	**0.0646**	**0.0000**	**201.2050**

3.2 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7900e-003	1.1000e-003	0.0114	3.0000e-005	3.6000e-003	2.0000e-005	3.6200e-003	9.6000e-004	2.0000e-005	9.8000e-004	0.0000	3.0070	3.0070	7.0000e-005	0.0000	3.0089
Total	**1.7900e-003**	**1.1000e-003**	**0.0114**	**3.0000e-005**	**3.6000e-003**	**2.0000e-005**	**3.6200e-003**	**9.6000e-004**	**2.0000e-005**	**9.8000e-004**	**0.0000**	**3.0070**	**3.0070**	**7.0000e-005**	**0.0000**	**3.0089**

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					0.4742	0.0000	0.4742	0.2607	0.0000	0.2607	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2299	2.3939	1.2717	2.2700e-003		0.1211	0.1211		0.1114	0.1114	0.0000	199.5910	199.5910	0.0646	0.0000	201.2048
Total	**0.2299**	**2.3939**	**1.2717**	**2.2700e-003**	**0.4742**	**0.1211**	**0.5954**	**0.2607**	**0.1114**	**0.3721**	**0.0000**	**199.5910**	**199.5910**	**0.0646**	**0.0000**	**201.2048**

3.2 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7900e-003	1.1000e-003	0.0114	3.0000e-005	3.6000e-003	2.0000e-005	3.6200e-003	9.6000e-004	2.0000e-005	9.8000e-004	0.0000	3.0070	3.0070	7.0000e-005	0.0000	3.0089
Total	**1.7900e-003**	**1.1000e-003**	**0.0114**	**3.0000e-005**	**3.6000e-003**	**2.0000e-005**	**3.6200e-003**	**9.6000e-004**	**2.0000e-005**	**9.8000e-004**	**0.0000**	**3.0070**	**3.0070**	**7.0000e-005**	**0.0000**	**3.0089**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4758	0.0000	0.4758	0.2030	0.0000	0.2030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2389	2.6448	1.7601	3.5400e-003		0.1132	0.1132		0.1041	0.1041	0.0000	310.6214	310.6214	0.1005	0.0000	313.1329
Total	**0.2389**	**2.6448**	**1.7601**	**3.5400e-003**	**0.4758**	**0.1132**	**0.5890**	**0.2030**	**0.1041**	**0.3071**	**0.0000**	**310.6214**	**310.6214**	**0.1005**	**0.0000**	**313.1329**

3.3 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5200e-003	9.3000e-004	9.5800e-003	3.0000e-005	3.0400e-003	2.0000e-005	3.0600e-003	8.1000e-004	2.0000e-005	8.2000e-004	0.0000	2.5393	2.5393	6.0000e-005	0.0000	2.5408
Total	**1.5200e-003**	**9.3000e-004**	**9.5800e-003**	**3.0000e-005**	**3.0400e-003**	**2.0000e-005**	**3.0600e-003**	**8.1000e-004**	**2.0000e-005**	**8.2000e-004**	**0.0000**	**2.5393**	**2.5393**	**6.0000e-005**	**0.0000**	**2.5408**

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					0.2141	0.0000	0.2141	0.0914	0.0000	0.0914	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2389	2.6448	1.7601	3.5400e-003		0.1132	0.1132		0.1041	0.1041	0.0000	310.6210	310.6210	0.1005	0.0000	313.1326
Total	**0.2389**	**2.6448**	**1.7601**	**3.5400e-003**	**0.2141**	**0.1132**	**0.3273**	**0.0914**	**0.1041**	**0.1955**	**0.0000**	**310.6210**	**310.6210**	**0.1005**	**0.0000**	**313.1326**

3.3 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5200e-003	9.3000e-004	9.5800e-003	3.0000e-005	3.0400e-003	2.0000e-005	3.0600e-003	8.1000e-004	2.0000e-005	8.2000e-004	0.0000	2.5393	2.5393	6.0000e-005	0.0000	2.5408
Total	**1.5200e-003**	**9.3000e-004**	**9.5800e-003**	**3.0000e-005**	**3.0400e-003**	**2.0000e-005**	**3.0600e-003**	**8.1000e-004**	**2.0000e-005**	**8.2000e-004**	**0.0000**	**2.5393**	**2.5393**	**6.0000e-005**	**0.0000**	**2.5408**

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					0.6926	0.0000	0.6926	0.3222	0.0000	0.3222	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3371	3.6124	2.7009	5.7700e-003		0.1520	0.1520		0.1399	0.1399	0.0000	507.1718	507.1718	0.1640	0.0000	511.2725
Total	**0.3371**	**3.6124**	**2.7009**	**5.7700e-003**	**0.6926**	**0.1520**	**0.8447**	**0.3222**	**0.1399**	**0.4620**	**0.0000**	**507.1718**	**507.1718**	**0.1640**	**0.0000**	**511.2725**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-003	1.3500e-003	0.0143	4.0000e-005	4.9600e-003	3.0000e-005	4.9900e-003	1.3200e-003	3.0000e-005	1.3500e-003	0.0000	3.9942	3.9942	9.0000e-005	0.0000	3.9965
Total	**2.3000e-003**	**1.3500e-003**	**0.0143**	**4.0000e-005**	**4.9600e-003**	**3.0000e-005**	**4.9900e-003**	**1.3200e-003**	**3.0000e-005**	**1.3500e-003**	**0.0000**	**3.9942**	**3.9942**	**9.0000e-005**	**0.0000**	**3.9965**

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					0.3117	0.0000	0.3117	0.1450	0.0000	0.1450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3371	3.6124	2.7009	5.7700e-003		0.1520	0.1520		0.1399	0.1399	0.0000	507.1712	507.1712	0.1640	0.0000	511.2719
Total	**0.3371**	**3.6124**	**2.7009**	**5.7700e-003**	**0.3117**	**0.1520**	**0.4637**	**0.1450**	**0.1399**	**0.2849**	**0.0000**	**507.1712**	**507.1712**	**0.1640**	**0.0000**	**511.2719**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-003	1.3500e-003	0.0143	4.0000e-005	4.9600e-003	3.0000e-005	4.9900e-003	1.3200e-003	3.0000e-005	1.3500e-003	0.0000	3.9942	3.9942	9.0000e-005	0.0000	3.9965
Total	**2.3000e-003**	**1.3500e-003**	**0.0143**	**4.0000e-005**	**4.9600e-003**	**3.0000e-005**	**4.9900e-003**	**1.3200e-003**	**3.0000e-005**	**1.3500e-003**	**0.0000**	**3.9942**	**3.9942**	**9.0000e-005**	**0.0000**	**3.9965**

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	0.0968	0.8886	0.9396	1.5300e-003		0.0464	0.0464		0.0436	0.0436	0.0000	131.8530	131.8530	0.0322	0.0000	132.6568
Total	**0.0968**	**0.8886**	**0.9396**	**1.5300e-003**		**0.0464**	**0.0464**		**0.0436**	**0.0436**	**0.0000**	**131.8530**	**131.8530**	**0.0322**	**0.0000**	**132.6568**

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	0.0113	0.4300	0.0640	1.1200e-003	0.0267	1.0500e-003	0.0278	7.7200e-003	1.0000e-003	8.7200e-003	0.0000	106.6851	106.6851	0.0126	0.0000	107.0003
Worker	0.0707	0.0415	0.4387	1.3600e-003	0.1525	9.2000e-004	0.1535	0.0405	8.5000e-004	0.0414	0.0000	122.9181	122.9181	2.8100e-003	0.0000	122.9883
Total	**0.0820**	**0.4715**	**0.5027**	**2.4800e-003**	**0.1793**	**1.9700e-003**	**0.1812**	**0.0483**	**1.8500e-003**	**0.0501**	**0.0000**	**229.6032**	**229.6032**	**0.0154**	**0.0000**	**229.9885**

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	0.0968	0.8886	0.9396	1.5300e-003		0.0464	0.0464		0.0436	0.0436	0.0000	131.8529	131.8529	0.0322	0.0000	132.6567
Total	**0.0968**	**0.8886**	**0.9396**	**1.5300e-003**		**0.0464**	**0.0464**		**0.0436**	**0.0436**	**0.0000**	**131.8529**	**131.8529**	**0.0322**	**0.0000**	**132.6567**

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	0.0113	0.4300	0.0640	1.1200e-003	0.0267	1.0500e-003	0.0278	7.7200e-003	1.0000e-003	8.7200e-003	0.0000	106.6851	106.6851	0.0126	0.0000	107.0003
Worker	0.0707	0.0415	0.4387	1.3600e-003	0.1525	9.2000e-004	0.1535	0.0405	8.5000e-004	0.0414	0.0000	122.9181	122.9181	2.8100e-003	0.0000	122.9883
Total	**0.0820**	**0.4715**	**0.5027**	**2.4800e-003**	**0.1793**	**1.9700e-003**	**0.1812**	**0.0483**	**1.8500e-003**	**0.0501**	**0.0000**	**229.6032**	**229.6032**	**0.0154**	**0.0000**	**229.9885**

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	0.6439	5.9096	6.7378	0.0111		0.2892	0.2892		0.2718	0.2718	0.0000	952.6167	952.6167	0.2308	0.0000	958.3859
Total	**0.6439**	**5.9096**	**6.7378**	**0.0111**		**0.2892**	**0.2892**		**0.2718**	**0.2718**	**0.0000**	**952.6167**	**952.6167**	**0.2308**	**0.0000**	**958.3859**

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0561	2.4268	0.3753	7.9000e-003	0.1930	2.3300e-003	0.1953	0.0558	2.2200e-003	0.0580	0.0000	751.6786	751.6786	0.0616	0.0000	753.2189
Worker	0.4754	0.2682	2.8924	9.4500e-003	1.1017	6.4900e-003	1.1082	0.2928	5.9700e-003	0.2988	0.0000	854.4526	854.4526	0.0181	0.0000	854.9049
Total	**0.5315**	**2.6950**	**3.2678**	**0.0174**	**1.2947**	**8.8200e-003**	**1.3035**	**0.3486**	**8.1900e-003**	**0.3568**	**0.0000**	**1,606.1312**	**1,606.1312**	**0.0797**	**0.0000**	**1,608.1237**

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	0.6439	5.9095	6.7378	0.0111		0.2892	0.2892		0.2718	0.2718	0.0000	952.6156	952.6156	0.2308	0.0000	958.3848
Total	**0.6439**	**5.9095**	**6.7378**	**0.0111**		**0.2892**	**0.2892**		**0.2718**	**0.2718**	**0.0000**	**952.6156**	**952.6156**	**0.2308**	**0.0000**	**958.3848**

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0561	2.4268	0.3753	7.9000e-003	0.1930	2.3300e-003	0.1953	0.0558	2.2200e-003	0.0580	0.0000	751.6786	751.6786	0.0616	0.0000	753.2189
Worker	0.4754	0.2682	2.8924	9.4500e-003	1.1017	6.4900e-003	1.1082	0.2928	5.9700e-003	0.2988	0.0000	854.4526	854.4526	0.0181	0.0000	854.9049
Total	**0.5315**	**2.6950**	**3.2678**	**0.0174**	**1.2947**	**8.8200e-003**	**1.3035**	**0.3486**	**8.1900e-003**	**0.3568**	**0.0000**	**1,606.1312**	**1,606.1312**	**0.0797**	**0.0000**	**1,608.1237**

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	0.6072	5.5652	6.7591	0.0112		0.2553	0.2553		0.2399	0.2399	0.0000	960.1387	960.1387	0.2313	0.0000	965.9213
Total	**0.6072**	**5.5652**	**6.7591**	**0.0112**		**0.2553**	**0.2553**		**0.2399**	**0.2399**	**0.0000**	**960.1387**	**960.1387**	**0.2313**	**0.0000**	**965.9213**

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	0.0550	2.4269	0.3597	7.9000e-003	0.1945	2.3200e-003	0.1968	0.0562	2.2200e-003	0.0584	0.0000	751.6945	751.6945	0.0626	0.0000	753.2604
Worker	0.4481	0.2429	2.6804	9.1500e-003	1.1102	6.3800e-003	1.1165	0.2951	5.8700e-003	0.3009	0.0000	827.3874	827.3874	0.0163	0.0000	827.7953
Total	**0.5031**	**2.6697**	**3.0401**	**0.0171**	**1.3046**	**8.7000e-003**	**1.3133**	**0.3513**	**8.0900e-003**	**0.3593**	**0.0000**	**1,579.0818**	**1,579.0818**	**0.0790**	**0.0000**	**1,581.0557**

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	0.6072	5.5651	6.7591	0.0112		0.2553	0.2553		0.2399	0.2399	0.0000	960.1375	960.1375	0.2313	0.0000	965.9201
Total	**0.6072**	**5.5651**	**6.7591**	**0.0112**		**0.2553**	**0.2553**		**0.2399**	**0.2399**	**0.0000**	**960.1375**	**960.1375**	**0.2313**	**0.0000**	**965.9201**

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	0.0550	2.4269	0.3597	7.9000e-003	0.1945	2.3200e-003	0.1968	0.0562	2.2200e-003	0.0584	0.0000	751.6945	751.6945	0.0626	0.0000	753.2604
Worker	0.4481	0.2429	2.6804	9.1500e-003	1.1102	6.3800e-003	1.1165	0.2951	5.8700e-003	0.3009	0.0000	827.3874	827.3874	0.0163	0.0000	827.7953
Total	**0.5031**	**2.6697**	**3.0401**	**0.0171**	**1.3046**	**8.7000e-003**	**1.3133**	**0.3513**	**8.0900e-003**	**0.3593**	**0.0000**	**1,579.0818**	**1,579.0818**	**0.0790**	**0.0000**	**1,581.0557**

3.4 Building Construction - 2025

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	0.5618	5.1412	6.6997	0.0111		0.2184	0.2184		0.2052	0.2052	0.0000	956.7794	956.7794	0.2292	0.0000	962.5099
Total	**0.5618**	**5.1412**	**6.6997**	**0.0111**		**0.2184**	**0.2184**		**0.2052**	**0.2052**	**0.0000**	**956.7794**	**956.7794**	**0.2292**	**0.0000**	**962.5099**

3.4 Building Construction - 2025

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	0.0536	2.3983	0.3442	7.8200e-003	0.1937	2.2800e-003	0.1960	0.0560	2.1800e-003	0.0582	0.0000	743.4958	743.4958	0.0627	0.0000	745.0622
Worker	0.4196	0.2185	2.4602	8.7500e-003	1.1059	6.2300e-003	1.1121	0.2939	5.7300e-003	0.2997	0.0000	791.4272	791.4272	0.0146	0.0000	791.7932
Total	**0.4732**	**2.6169**	**2.8045**	**0.0166**	**1.2997**	**8.5100e-003**	**1.3082**	**0.3499**	**7.9100e-003**	**0.3578**	**0.0000**	**1,534.9230**	**1,534.9230**	**0.0773**	**0.0000**	**1,536.8554**

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	0.5618	5.1412	6.6997	0.0111		0.2184	0.2184		0.2052	0.2052	0.0000	956.7783	956.7783	0.2292	0.0000	962.5088
Total	**0.5618**	**5.1412**	**6.6997**	**0.0111**		**0.2184**	**0.2184**		**0.2052**	**0.2052**	**0.0000**	**956.7783**	**956.7783**	**0.2292**	**0.0000**	**962.5088**

3.4 Building Construction - 2025

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	0.0536	2.3983	0.3442	7.8200e-003	0.1937	2.2800e-003	0.1960	0.0560	2.1800e-003	0.0582	0.0000	743.4958	743.4958	0.0627	0.0000	745.0622
Worker	0.4196	0.2185	2.4602	8.7500e-003	1.1059	6.2300e-003	1.1121	0.2939	5.7300e-003	0.2997	0.0000	791.4272	791.4272	0.0146	0.0000	791.7932
Total	**0.4732**	**2.6169**	**2.8045**	**0.0166**	**1.2997**	**8.5100e-003**	**1.3082**	**0.3499**	**7.9100e-003**	**0.3578**	**0.0000**	**1,534.9230**	**1,534.9230**	**0.0773**	**0.0000**	**1,536.8554**

3.4 Building Construction - 2026

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	0.1743	1.5955	2.0792	3.4500e-003		0.0678	0.0678		0.0637	0.0637	0.0000	296.9315	296.9315	0.0711	0.0000	298.7100
Total	**0.1743**	**1.5955**	**2.0792**	**3.4500e-003**		**0.0678**	**0.0678**		**0.0637**	**0.0637**	**0.0000**	**296.9315**	**296.9315**	**0.0711**	**0.0000**	**298.7100**

3.4 Building Construction - 2026

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	0.0163	0.7382	0.1033	2.4100e-003	0.0601	7.0000e-004	0.0608	0.0174	6.7000e-004	0.0180	0.0000	229.2521	229.2521	0.0194	0.0000	229.7371
Worker	0.1231	0.0619	0.7137	2.6300e-003	0.3432	1.9000e-003	0.3451	0.0912	1.7500e-003	0.0930	0.0000	237.9198	237.9198	4.1700e-003	0.0000	238.0240
Total	**0.1394**	**0.8001**	**0.8170**	**5.0400e-003**	**0.4033**	**2.6000e-003**	**0.4059**	**0.1086**	**2.4200e-003**	**0.1110**	**0.0000**	**467.1719**	**467.1719**	**0.0236**	**0.0000**	**467.7611**

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	0.1743	1.5955	2.0792	3.4500e-003		0.0678	0.0678		0.0637	0.0637	0.0000	296.9312	296.9312	0.0711	0.0000	298.7096
Total	**0.1743**	**1.5955**	**2.0792**	**3.4500e-003**		**0.0678**	**0.0678**		**0.0637**	**0.0637**	**0.0000**	**296.9312**	**296.9312**	**0.0711**	**0.0000**	**298.7096**

3.4 Building Construction - 2026

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	0.0163	0.7382	0.1033	2.4100e-003	0.0601	7.0000e-004	0.0608	0.0174	6.7000e-004	0.0180	0.0000	229.2521	229.2521	0.0194	0.0000	229.7371
Worker	0.1231	0.0619	0.7137	2.6300e-003	0.3432	1.9000e-003	0.3451	0.0912	1.7500e-003	0.0930	0.0000	237.9198	237.9198	4.1700e-003	0.0000	238.0240
Total	**0.1394**	**0.8001**	**0.8170**	**5.0400e-003**	**0.4033**	**2.6000e-003**	**0.4059**	**0.1086**	**2.4200e-003**	**0.1110**	**0.0000**	**467.1719**	**467.1719**	**0.0236**	**0.0000**	**467.7611**

3.5 Paving - 2026

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	0.1030	0.9654	1.6400	2.5600e-003		0.0471	0.0471		0.0433	0.0433	0.0000	225.2166	225.2166	0.0728	0.0000	227.0376
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1030**	**0.9654**	**1.6400**	**2.5600e-003**		**0.0471**	**0.0471**		**0.0433**	**0.0433**	**0.0000**	**225.2166**	**225.2166**	**0.0728**	**0.0000**	**227.0376**

3.5 Paving - 2026

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	1.0800e-003	5.4000e-004	6.2300e-003	2.0000e-005	3.0000e-003	2.0000e-005	3.0100e-003	8.0000e-004	2.0000e-005	8.1000e-004	0.0000	2.0783	2.0783	4.0000e-005	0.0000	2.0792
Total	**1.0800e-003**	**5.4000e-004**	**6.2300e-003**	**2.0000e-005**	**3.0000e-003**	**2.0000e-005**	**3.0100e-003**	**8.0000e-004**	**2.0000e-005**	**8.1000e-004**	**0.0000**	**2.0783**	**2.0783**	**4.0000e-005**	**0.0000**	**2.0792**

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	0.1030	0.9654	1.6400	2.5600e-003		0.0471	0.0471		0.0433	0.0433	0.0000	225.2164	225.2164	0.0728	0.0000	227.0373
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1030**	**0.9654**	**1.6400**	**2.5600e-003**		**0.0471**	**0.0471**		**0.0433**	**0.0433**	**0.0000**	**225.2164**	**225.2164**	**0.0728**	**0.0000**	**227.0373**

3.5 Paving - 2026

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	1.0800e-003	5.4000e-004	6.2300e-003	2.0000e-005	3.0000e-003	2.0000e-005	3.0100e-003	8.0000e-004	2.0000e-005	8.1000e-004	0.0000	2.0783	2.0783	4.0000e-005	0.0000	2.0792
Total	**1.0800e-003**	**5.4000e-004**	**6.2300e-003**	**2.0000e-005**	**3.0000e-003**	**2.0000e-005**	**3.0100e-003**	**8.0000e-004**	**2.0000e-005**	**8.1000e-004**	**0.0000**	**2.0783**	**2.0783**	**4.0000e-005**	**0.0000**	**2.0792**

3.6 Architectural Coating - 2026

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	12.5823					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0171	0.1146	0.1809	3.0000e-004		5.1500e-003	5.1500e-003		5.1500e-003	5.1500e-003	0.0000	25.5325	25.5325	1.3900e-003	0.0000	25.5674
Total	**12.5994**	**0.1146**	**0.1809**	**3.0000e-004**		**5.1500e-003**	**5.1500e-003**		**5.1500e-003**	**5.1500e-003**	**0.0000**	**25.5325**	**25.5325**	**1.3900e-003**	**0.0000**	**25.5674**

3.6 Architectural Coating - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0152	7.6400e-003	0.0881	3.2000e-004	0.0424	2.3000e-004	0.0426	0.0113	2.2000e-004	0.0115	0.0000	29.3728	29.3728	5.1000e-004	0.0000	29.3857
Total	**0.0152**	**7.6400e-003**	**0.0881**	**3.2000e-004**	**0.0424**	**2.3000e-004**	**0.0426**	**0.0113**	**2.2000e-004**	**0.0115**	**0.0000**	**29.3728**	**29.3728**	**5.1000e-004**	**0.0000**	**29.3857**

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	12.5823					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0171	0.1146	0.1809	3.0000e-004		5.1500e-003	5.1500e-003		5.1500e-003	5.1500e-003	0.0000	25.5325	25.5325	1.3900e-003	0.0000	25.5673
Total	**12.5994**	**0.1146**	**0.1809**	**3.0000e-004**		**5.1500e-003**	**5.1500e-003**		**5.1500e-003**	**5.1500e-003**	**0.0000**	**25.5325**	**25.5325**	**1.3900e-003**	**0.0000**	**25.5673**

3.6 Architectural Coating - 2026

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	0.0152	7.6400e-003	0.0881	3.2000e-004	0.0424	2.3000e-004	0.0426	0.0113	2.2000e-004	0.0115	0.0000	29.3728	29.3728	5.1000e-004	0.0000	29.3857
Total	**0.0152**	**7.6400e-003**	**0.0881**	**3.2000e-004**	**0.0424**	**2.3000e-004**	**0.0426**	**0.0113**	**2.2000e-004**	**0.0115**	**0.0000**	**29.3728**	**29.3728**	**5.1000e-004**	**0.0000**	**29.3857**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

Provide Traffic Calming Measures

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.2045	13.7359	44.3460	0.1644	17.6362	0.1291	17.7653	4.7183	0.1199	4.8383	0.0000	15,138.4963	15,138.4963	0.8583	0.0000	15,159.9546
Unmitigated	4.3121	14.4482	48.0067	0.1809	19.5415	0.1411	19.6827	5.2281	0.1311	5.3592	0.0000	16,655.9325	16,655.9325	0.9176	0.0000	16,678.8721

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	6,214.68	6,910.86	5331.72	18,101,999	16,337,054
Single Family Housing	11,771.68	11,896.38	10661.85	34,024,482	30,707,095
Total	17,986.36	18,807.24	15,993.57	52,126,481	47,044,149

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	10.80	7.30	7.50	48.00	16.00	36.00	86	11	3
Single Family Housing	10.80	7.30	7.50	48.00	16.00	36.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.521500	0.214600	0.168100	0.065900	0.000800	0.000900	0.007500	0.020300	0.000000	0.004400	0.002500	0.000200	0.002300
Single Family Housing	0.521500	0.214600	0.168100	0.065900	0.000800	0.000900	0.007500	0.020300	0.000000	0.004400	0.002500	0.000200	0.002300

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	1,942.5637	1,942.5637	0.1474	0.0335	1,956.2286
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,959.4277	1,959.4277	0.1487	0.0338	1,973.2113
NaturalGas Mitigated	0.2266	1.9366	0.8241	0.0124		0.1566	0.1566		0.1566	0.1566	0.0000	2,242.8200	2,242.8200	0.0430	0.0411	2,256.1480
NaturalGas Unmitigated	0.2405	2.0553	0.8746	0.0131		0.1662	0.1662		0.1662	0.1662	0.0000	2,380.2910	2,380.2910	0.0456	0.0436	2,394.4359

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					
Apartments Low Rise	1.20019e+007	0.0647	0.5530	0.2353	3.5300e-003		0.0447	0.0447		0.0447	0.0447	0.0000	640.4647	640.4647	0.0123	0.0117	644.2706
Single Family Housing	3.26031e+007	0.1758	1.5023	0.6393	9.5900e-003		0.1215	0.1215		0.1215	0.1215	0.0000	1,739.8263	1,739.8263	0.0334	0.0319	1,750.1653
Total		**0.2405**	**2.0553**	**0.8746**	**0.0131**		**0.1662**	**0.1662**		**0.1662**	**0.1662**	**0.0000**	**2,380.2910**	**2,380.2910**	**0.0456**	**0.0436**	**2,394.4359**

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					
Apartments Low Rise	1.1383e+007	0.0614	0.5245	0.2232	3.3500e-003		0.0424	0.0424		0.0424	0.0424	0.0000	607.4393	607.4393	0.0116	0.0111	611.0490
Single Family Housing	3.06459e+007	0.1653	1.4121	0.6009	9.0100e-003		0.1142	0.1142		0.1142	0.1142	0.0000	1,635.3807	1,635.3807	0.0313	0.0300	1,645.0990
Total		**0.2266**	**1.9366**	**0.8241**	**0.0124**		**0.1566**	**0.1566**		**0.1566**	**0.1566**	**0.0000**	**2,242.8200**	**2,242.8200**	**0.0430**	**0.0411**	**2,256.1480**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	3.97121e +006	522.3807	0.0396	9.0100e-003	526.0553
Single Family Housing	1.09246e +007	1,437.047 0	0.1090	0.0248	1,447.155 9
Total		**1,959.427 7**	**0.1487**	**0.0338**	**1,973.211 3**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	3.92995e +006	516.9522	0.0392	8.9100e-003	520.5887
Single Family Housing	1.08377e +007	1,425.611 5	0.1082	0.0246	1,435.639 9
Total		**1,942.563 7**	**0.1474**	**0.0335**	**1,956.228 6**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	13.1649	0.9631	15.8819	5.8300e-003		0.1497	0.1497		0.1497	0.1497	0.0000	933.4247	933.4247	0.0418	0.0167	939.4291
Unmitigated	17.1410	1.5522	51.9904	0.1236		6.0401	6.0401		6.0401	6.0401	788.7352	933.4247	1,722.1599	3.7289	0.0167	1,820.3437

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	1.2582					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	11.3481					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	4.0678	1.3731	36.4422	0.1228		5.9539	5.9539		5.9539	5.9539	788.7352	908.0027	1,696.7379	3.7046	0.0167	1,794.3132
Landscaping	0.4668	0.1791	15.5483	8.2000e-004		0.0863	0.0863		0.0863	0.0863	0.0000	25.4220	25.4220	0.0243	0.0000	26.0306
Total	**17.1410**	**1.5522**	**51.9904**	**0.1236**		**6.0401**	**6.0401**		**6.0401**	**6.0401**	**788.7352**	**933.4247**	**1,722.1599**	**3.7289**	**0.0167**	**1,820.3437**

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	1.2582					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	11.3481					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0918	0.7840	0.3336	5.0000e-003		0.0634	0.0634		0.0634	0.0634	0.0000	908.0027	908.0027	0.0174	0.0167	913.3985
Landscaping	0.4668	0.1791	15.5483	8.2000e-004		0.0863	0.0863		0.0863	0.0863	0.0000	25.4220	25.4220	0.0243	0.0000	26.0306
Total	**13.1649**	**0.9631**	**15.8819**	**5.8200e-003**		**0.1497**	**0.1497**		**0.1497**	**0.1497**	**0.0000**	**933.4247**	**933.4247**	**0.0417**	**0.0167**	**939.4291**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	144.1313	3.5682	0.0859	258.9485
Unmitigated	180.1641	4.4603	0.1074	323.6857

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	55.3158 / 34.873	72.9768	1.8067	0.0435	131.1112
Single Family Housing	81.2471 / 51.221	107.1873	2.6536	0.0639	192.5744
Total		**180.1641**	**4.4603**	**0.1074**	**323.6857**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	44.2526 / 27.8984	58.3814	1.4453	0.0348	104.8890
Single Family Housing	64.9977 / 40.9768	85.7499	2.1229	0.0511	154.0596
Total		**144.1313**	**3.5682**	**0.0859**	**258.9485**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	254.9008	15.0642	0.0000	631.5060
Unmitigated	339.8678	20.0856	0.0000	842.0080

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	390.54	79.2761	4.6851	0.0000	196.4032
Single Family Housing	1283.76	260.5917	15.4005	0.0000	645.6049
Total		**339.8678**	**20.0856**	**0.0000**	**842.0080**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	292.905	59.4571	3.5138	0.0000	147.3024
Single Family Housing	962.82	195.4438	11.5504	0.0000	484.2036
Total		**254.9008**	**15.0642**	**0.0000**	**631.5060**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CalEEMod Output

Commercial Construction and Operations 2028 (Annual)

Copper River SEIR Commercial Buildout 2028

Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	47.42	1000sqft	1.09	47,425.00	0
Parking Lot	19.14	Acre	19.14	833,564.16	0
Fast Food Restaurant w/o Drive Thru	2.25	1000sqft	0.05	2,250.00	0
Fast Food Restaurant with Drive Thru	3.00	1000sqft	0.07	3,000.00	0
Convenience Market With Gas Pumps	28.00	Pump	0.09	3,952.90	0
Strip Mall	126.10	1000sqft	2.89	126,098.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 45

Climate Zone 3 **Operational Year** 2028

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 290 **CH4 Intensity (lb/MWhr)** 0.022 **N2O Intensity (lb/MWhr)** 0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E Intensity Factors for 2020

Land Use - All commercial at buildout. FF w/o DT is Coffee/Donut w/DT to match TIS

Construction Phase - 7 year buildout schedule

On-road Fugitive Dust -

Architectural Coating - Rule 4601 Architectural Coatings

Vehicle Trips - Trip Generation Rates from Project TIS

Energy Use - 2019 Title 24 10.7% Electricity and 1.0% Gas

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation - Measures from recent project in Copper River.

Area Mitigation - Rule 4601 Architectural Coatings

Energy Mitigation -

Water Mitigation - Calgreen Code and MWELO water conservation requirements

Waste Mitigation - CalRecycle 75 percent diversion mandates

Fleet Mix - Truck Fleet mixes based on survey data and project specific estimates

Off-road Equipment - Reduced hours to reflect longer schedule and default hours of operation

Off-road Equipment - Reduced hours per day to reflect longer schedule while retaining default hours of use.

Off-road Equipment - Reduced hours/day to reflect longer schedule while retaining default hours of operation.

Off-road Equipment - Reduced hours/day to reflect longer schedule while retaining default hours of use.

Off-road Equipment - Reduced hour/day to reflect longer schedule while retaining default hours of use.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	65.00
tblArchitecturalCoating	EF_Nonresidential_Interior	150.00	65.00
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	65
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	150	65
tblConstructionPhase	NumDays	10.00	30.00
tblConstructionPhase	NumDays	35.00	105.00

tblConstructionPhase	NumDays	370.00	1,600.00
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	NumDays	20.00	51.00
tblEnergyUse	T24E	2.14	1.91
tblEnergyUse	T24E	6.55	5.85
tblEnergyUse	T24E	6.55	5.85
tblEnergyUse	T24E	2.62	2.34
tblEnergyUse	T24E	2.14	1.91
tblEnergyUse	T24NG	8.62	8.53
tblEnergyUse	T24NG	35.72	35.36
tblEnergyUse	T24NG	35.72	35.36
tblEnergyUse	T24NG	12.77	12.64
tblEnergyUse	T24NG	8.62	8.53
tblFleetMix	HHD	0.13	2.2690e-003
tblFleetMix	HHD	0.13	1.5900e-004
tblFleetMix	HHD	0.13	1.5900e-004
tblFleetMix	HHD	0.13	5.1000e-004
tblFleetMix	HHD	0.13	1.2680e-003
tblFleetMix	HHD	0.13	1.2680e-003
tblFleetMix	LDA	0.51	0.63
tblFleetMix	LDA	0.51	0.64
tblFleetMix	LDA	0.51	0.64
tblFleetMix	LDA	0.51	0.64
tblFleetMix	LDA	0.51	0.64
tblFleetMix	LDA	0.51	0.64
tblFleetMix	LDT1	0.03	0.04
tblFleetMix	LDT1	0.03	0.04

tblFleetMix	LDT1	0.03	0.04
tblFleetMix	LDT1	0.03	0.04
tblFleetMix	LDT1	0.03	0.04
tblFleetMix	LDT1	0.03	0.04
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LDT2	0.17	0.22
tblFleetMix	LDT2	0.17	0.22
tblFleetMix	LDT2	0.17	0.22
tblFleetMix	LDT2	0.17	0.22
tblFleetMix	LDT2	0.17	0.22
tblFleetMix	LHD1	0.01	9.5450e-005
tblFleetMix	LHD1	0.01	9.5450e-005
tblFleetMix	LHD1	0.01	3.8500e-003
tblFleetMix	LHD1	0.01	7.8360e-004
tblFleetMix	LHD1	0.01	7.8360e-004
tblFleetMix	LHD2	3.5630e-003	9.5450e-005
tblFleetMix	LHD2	3.5630e-003	9.5450e-005
tblFleetMix	LHD2	3.5630e-003	9.6000e-004
tblFleetMix	LHD2	3.5630e-003	7.8360e-004
tblFleetMix	LHD2	3.5630e-003	7.8360e-004
tblFleetMix	MHD	0.03	9.9380e-005
tblFleetMix	MHD	0.03	7.4200e-004
tblFleetMix	MHD	0.03	7.4200e-004
tblFleetMix	MHD	0.03	2.0000e-005
tblFleetMix	MHD	0.03	3.4250e-003
tblFleetMix	MHD	0.03	3.4250e-003
tblGrading	AcresOfGrading	88.59	87.50

tblLandUse	LandUseSquareFeet	47,420.00	47,425.00
tblLandUse	LandUseSquareFeet	833,738.40	833,564.16
tblLandUse	LandUseSquareFeet	126,100.00	126,098.00
tblOffRoadEquipment	UsageHours	8.00	2.70
tblOffRoadEquipment	UsageHours	8.00	2.70
tblOffRoadEquipment	UsageHours	8.00	2.70
tblOffRoadEquipment	UsageHours	8.00	2.70
tblOffRoadEquipment	UsageHours	8.00	2.70
tblOffRoadEquipment	UsageHours	8.00	2.70
tblOffRoadEquipment	UsageHours	8.00	2.70
tblOffRoadEquipment	UsageHours	7.00	1.60
tblOffRoadEquipment	UsageHours	8.00	1.90
tblOffRoadEquipment	UsageHours	8.00	1.90
tblOffRoadEquipment	UsageHours	7.00	1.60
tblOffRoadEquipment	UsageHours	8.00	1.90
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	6.00	2.40
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblVehicleTrips	ST_TR	204.47	205.36
tblVehicleTrips	ST_TR	696.00	820.38
tblVehicleTrips	ST_TR	722.03	470.95
tblVehicleTrips	ST_TR	2.46	9.74
tblVehicleTrips	ST_TR	42.04	37.75

tblVehicleTrips	SU_TR	166.88	205.36
tblVehicleTrips	SU_TR	500.00	820.38
tblVehicleTrips	SU_TR	542.72	470.98
tblVehicleTrips	SU_TR	1.05	9.74
tblVehicleTrips	SU_TR	20.43	37.75
tblVehicleTrips	WD_TR	542.60	205.36
tblVehicleTrips	WD_TR	716.00	820.38
tblVehicleTrips	WD_TR	496.12	470.95
tblVehicleTrips	WD_TR	11.03	9.74
tblVehicleTrips	WD_TR	44.32	37.75

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0477	0.4884	0.3106	6.2000e-004	0.1795	0.0224	0.2019	0.0767	0.0207	0.0974	0.0000	54.2424	54.2424	0.0163	0.0000	54.6495
2022	0.2723	2.5871	1.8700	8.5900e-003	0.5400	0.0431	0.5831	0.1586	0.0402	0.1988	0.0000	793.1341	793.1341	0.0885	0.0000	795.3471
2023	0.2730	2.3484	1.8887	0.0104	0.5690	0.0255	0.5944	0.1546	0.0239	0.1785	0.0000	960.3142	960.3142	0.0695	0.0000	962.0518
2024	0.2589	2.3133	1.7967	0.0103	0.5733	0.0229	0.5963	0.1557	0.0215	0.1773	0.0000	950.4364	950.4364	0.0696	0.0000	952.1767
2025	0.2435	2.2515	1.6959	0.0100	0.5712	0.0202	0.5913	0.1551	0.0189	0.1741	0.0000	930.1997	930.1997	0.0688	0.0000	931.9202
2026	0.2339	2.2295	1.6254	9.8800e-003	0.5712	0.0201	0.5913	0.1551	0.0189	0.1740	0.0000	917.0574	917.0574	0.0682	0.0000	918.7635
2027	0.2246	2.2081	1.5566	9.7400e-003	0.5712	0.0200	0.5911	0.1552	0.0188	0.1739	0.0000	903.8632	903.8632	0.0676	0.0000	905.5541
2028	0.8521	0.9736	0.7955	4.2200e-003	0.2467	0.0127	0.2594	0.0669	0.0119	0.0788	0.0000	390.6438	390.6438	0.0335	0.0000	391.4804
Maximum	**0.8521**	**2.5871**	**1.8887**	**0.0104**	**0.5733**	**0.0431**	**0.5963**	**0.1586**	**0.0402**	**0.1988**	**0.0000**	**960.3142**	**960.3142**	**0.0885**	**0.0000**	**962.0518**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0477	0.4884	0.3106	6.2000e-004	0.0835	0.0224	0.1060	0.0353	0.0207	0.0559	0.0000	54.2423	54.2423	0.0163	0.0000	54.6494
2022	0.2723	2.5871	1.8700	8.5900e-003	0.4759	0.0431	0.5190	0.1346	0.0402	0.1748	0.0000	793.1339	793.1339	0.0885	0.0000	795.3469
2023	0.2730	2.3484	1.8887	0.0104	0.5690	0.0255	0.5944	0.1546	0.0239	0.1785	0.0000	960.3142	960.3142	0.0695	0.0000	962.0517
2024	0.2589	2.3133	1.7967	0.0103	0.5733	0.0229	0.5963	0.1557	0.0215	0.1773	0.0000	950.4363	950.4363	0.0696	0.0000	952.1766
2025	0.2435	2.2515	1.6959	0.0100	0.5712	0.0202	0.5913	0.1551	0.0189	0.1741	0.0000	930.1996	930.1996	0.0688	0.0000	931.9201
2026	0.2339	2.2295	1.6254	9.8800e-003	0.5712	0.0201	0.5913	0.1551	0.0189	0.1740	0.0000	917.0573	917.0573	0.0682	0.0000	918.7634
2027	0.2246	2.2081	1.5566	9.7400e-003	0.5712	0.0200	0.5911	0.1552	0.0188	0.1739	0.0000	903.8631	903.8631	0.0676	0.0000	905.5540
2028	0.8521	0.9736	0.7955	4.2200e-003	0.2467	0.0127	0.2594	0.0669	0.0119	0.0788	0.0000	390.6437	390.6437	0.0335	0.0000	391.4803
Maximum	**0.8521**	**2.5871**	**1.8887**	**0.0104**	**0.5733**	**0.0431**	**0.5963**	**0.1557**	**0.0402**	**0.1785**	**0.0000**	**960.3142**	**960.3142**	**0.0885**	**0.0000**	**962.0517**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**4.19**	**0.00**	**3.99**	**6.07**	**0.00**	**5.22**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**10-1-2021**	**12-31-2021**	0.5339	0.5339
2	**1-1-2022**	**3-31-2022**	0.4648	0.4648

3	**4-1-2022**	**6-30-2022**	0.7762	0.7762
4	**7-1-2022**	**9-30-2022**	0.8105	0.8105
5	**10-1-2022**	**12-31-2022**	0.8162	0.8162
6	**1-1-2023**	**3-31-2023**	0.6518	0.6518
7	**4-1-2023**	**6-30-2023**	0.6560	0.6560
8	**7-1-2023**	**9-30-2023**	0.6632	0.6632
9	**10-1-2023**	**12-31-2023**	0.6663	0.6663
10	**1-1-2024**	**3-31-2024**	0.6415	0.6415
11	**4-1-2024**	**6-30-2024**	0.6386	0.6386
12	**7-1-2024**	**9-30-2024**	0.6456	0.6456
13	**10-1-2024**	**12-31-2024**	0.6486	0.6486
14	**1-1-2025**	**3-31-2025**	0.6176	0.6176
15	**4-1-2025**	**6-30-2025**	0.6217	0.6217
16	**7-1-2025**	**9-30-2025**	0.6285	0.6285
17	**10-1-2025**	**12-31-2025**	0.6313	0.6313
18	**1-1-2026**	**3-31-2026**	0.6095	0.6095
19	**4-1-2026**	**6-30-2026**	0.6137	0.6137
20	**7-1-2026**	**9-30-2026**	0.6204	0.6204
21	**10-1-2026**	**12-31-2026**	0.6231	0.6231
22	**1-1-2027**	**3-31-2027**	0.6017	0.6017
23	**4-1-2027**	**6-30-2027**	0.6059	0.6059
24	**7-1-2027**	**9-30-2027**	0.6126	0.6126
25	**10-1-2027**	**12-31-2027**	0.6151	0.6151
26	**1-1-2028**	**3-31-2028**	0.6016	0.6016
27	**4-1-2028**	**6-30-2028**	0.4401	0.4401
28	**7-1-2028**	**9-30-2028**	0.7852	0.7852
		Highest	0.8162	0.8162

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	0.9121	2.0000e-005	2.0700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.0400e-003	4.0400e-003	1.0000e-005	0.0000	4.3000e-003
Energy	0.0167	0.1517	0.1275	9.1000e-004		0.0115	0.0115		0.0115	0.0115	0.0000	413.7173	413.7173	0.0220	7.3100e-003	416.4472
Mobile	2.1419	2.2239	15.7010	0.0468	5.8794	0.0389	5.9183	1.5669	0.0359	1.6029	0.0000	4,254.2407	4,254.2407	0.1499	0.0000	4,257.9873
Waste						0.0000	0.0000		0.0000	0.0000	48.1068	0.0000	48.1068	2.8430	0.0000	119.1826
Water						0.0000	0.0000		0.0000	0.0000	6.2356	19.1333	25.3689	0.6419	0.0155	46.0216
Total	**3.0708**	**2.3756**	**15.8305**	**0.0477**	**5.8794**	**0.0505**	**5.9299**	**1.5669**	**0.0475**	**1.6144**	**54.3425**	**4,687.0953**	**4,741.4378**	**3.6568**	**0.0228**	**4,839.6430**

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	0.8402	2.0000e-005	2.0700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.0400e-003	4.0400e-003	1.0000e-005	0.0000	4.3000e-003
Energy	0.0167	0.1517	0.1275	9.1000e-004		0.0115	0.0115		0.0115	0.0115	0.0000	413.7173	413.7173	0.0220	7.3100e-003	416.4472
Mobile	2.0940	2.0533	14.2559	0.0404	4.9975	0.0349	5.0324	1.3319	0.0322	1.3641	0.0000	3,666.2716	3,666.2716	0.1342	0.0000	3,669.6260
Waste						0.0000	0.0000		0.0000	0.0000	36.0801	0.0000	36.0801	2.1323	0.0000	89.3870
Water						0.0000	0.0000		0.0000	0.0000	4.9885	15.3066	20.2952	0.5135	0.0124	36.8173
Total	**2.9508**	**2.2051**	**14.3854**	**0.0413**	**4.9975**	**0.0465**	**5.0440**	**1.3319**	**0.0438**	**1.3757**	**41.0686**	**4,095.2996**	**4,136.3682**	**2.8020**	**0.0197**	**4,212.2818**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**3.91**	**7.18**	**9.13**	**13.53**	**15.00**	**7.91**	**14.94**	**15.00**	**7.77**	**14.79**	**24.43**	**12.63**	**12.76**	**23.38**	**13.58**	**12.96**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/1/2021	11/11/2021	5	30	
2	Grading	Grading	11/12/2021	4/7/2022	5	105	
3	Building Construction	Building Construction	4/8/2022	5/25/2028	5	1600	
4	Paving	Paving	5/26/2028	7/20/2028	5	40	
5	Architectural Coating	Architectural Coating	7/21/2028	9/29/2028	5	51	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 87.5

Acres of Paving: 19.14

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 274,089; Non-Residential Outdoor: 91,363; Striped Parking Area: 50,014 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	2.70	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	2.70	97	0.37
Grading	Excavators	2	2.70	158	0.38
Grading	Graders	1	2.70	187	0.41
Grading	Rubber Tired Dozers	1	2.70	247	0.40
Grading	Scrapers	2	2.70	367	0.48
Grading	Tractors/Loaders/Backhoes	2	2.70	97	0.37
Building Construction	Cranes	1	1.60	231	0.29
Building Construction	Forklifts	3	1.90	89	0.20
Building Construction	Generator Sets	1	1.90	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	1.60	97	0.37
Building Construction	Welders	1	1.90	46	0.45
Paving	Pavers	2	4.00	130	0.42
Paving	Paving Equipment	2	4.00	132	0.36
Paving	Rollers	2	4.00	80	0.38
Architectural Coating	Air Compressors	1	2.40	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	409.00	167.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	82.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0915	0.0000	0.0915	0.0503	0.0000	0.0503	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0197	0.2050	0.1071	1.9000e-004		0.0104	0.0104		9.5200e-003	9.5200e-003	0.0000	16.9268	16.9268	5.4700e-003	0.0000	17.0637
Total	**0.0197**	**0.2050**	**0.1071**	**1.9000e-004**	**0.0915**	**0.0104**	**0.1018**	**0.0503**	**9.5200e-003**	**0.0598**	**0.0000**	**16.9268**	**16.9268**	**5.4700e-003**	**0.0000**	**17.0637**

3.2 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0800e-003	6.6000e-004	6.8100e-003	2.0000e-005	2.1600e-003	1.0000e-005	2.1700e-003	5.7000e-004	1.0000e-005	5.9000e-004	0.0000	1.8042	1.8042	4.0000e-005	0.0000	1.8053
Total	**1.0800e-003**	**6.6000e-004**	**6.8100e-003**	**2.0000e-005**	**2.1600e-003**	**1.0000e-005**	**2.1700e-003**	**5.7000e-004**	**1.0000e-005**	**5.9000e-004**	**0.0000**	**1.8042**	**1.8042**	**4.0000e-005**	**0.0000**	**1.8053**

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					0.0412	0.0000	0.0412	0.0226	0.0000	0.0226	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0197	0.2050	0.1071	1.9000e-004		0.0104	0.0104		9.5200e-003	9.5200e-003	0.0000	16.9268	16.9268	5.4700e-003	0.0000	17.0637
Total	**0.0197**	**0.2050**	**0.1071**	**1.9000e-004**	**0.0412**	**0.0104**	**0.0515**	**0.0226**	**9.5200e-003**	**0.0321**	**0.0000**	**16.9268**	**16.9268**	**5.4700e-003**	**0.0000**	**17.0637**

3.2 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0800e-003	6.6000e-004	6.8100e-003	2.0000e-005	2.1600e-003	1.0000e-005	2.1700e-003	5.7000e-004	1.0000e-005	5.9000e-004	0.0000	1.8042	1.8042	4.0000e-005	0.0000	1.8053
Total	**1.0800e-003**	**6.6000e-004**	**6.8100e-003**	**2.0000e-005**	**2.1600e-003**	**1.0000e-005**	**2.1700e-003**	**5.7000e-004**	**1.0000e-005**	**5.9000e-004**	**0.0000**	**1.8042**	**1.8042**	**4.0000e-005**	**0.0000**	**1.8053**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0830	0.0000	0.0830	0.0251	0.0000	0.0251	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0255	0.2819	0.1876	3.8000e-004		0.0121	0.0121		0.0111	0.0111	0.0000	33.1057	33.1057	0.0107	0.0000	33.3734
Total	**0.0255**	**0.2819**	**0.1876**	**3.8000e-004**	**0.0830**	**0.0121**	**0.0950**	**0.0251**	**0.0111**	**0.0362**	**0.0000**	**33.1057**	**33.1057**	**0.0107**	**0.0000**	**33.3734**

3.3 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4400e-003	8.8000e-004	9.0800e-003	3.0000e-005	2.8800e-003	2.0000e-005	2.9000e-003	7.6000e-004	2.0000e-005	7.8000e-004	0.0000	2.4056	2.4056	6.0000e-005	0.0000	2.4071
Total	**1.4400e-003**	**8.8000e-004**	**9.0800e-003**	**3.0000e-005**	**2.8800e-003**	**2.0000e-005**	**2.9000e-003**	**7.6000e-004**	**2.0000e-005**	**7.8000e-004**	**0.0000**	**2.4056**	**2.4056**	**6.0000e-005**	**0.0000**	**2.4071**

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					0.0373	0.0000	0.0373	0.0113	0.0000	0.0113	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0255	0.2819	0.1876	3.8000e-004		0.0121	0.0121		0.0111	0.0111	0.0000	33.1057	33.1057	0.0107	0.0000	33.3733
Total	**0.0255**	**0.2819**	**0.1876**	**3.8000e-004**	**0.0373**	**0.0121**	**0.0494**	**0.0113**	**0.0111**	**0.0224**	**0.0000**	**33.1057**	**33.1057**	**0.0107**	**0.0000**	**33.3733**

3.3 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4400e-003	8.8000e-004	9.0800e-003	3.0000e-005	2.8800e-003	2.0000e-005	2.9000e-003	7.6000e-004	2.0000e-005	7.8000e-004	0.0000	2.4056	2.4056	6.0000e-005	0.0000	2.4071
Total	**1.4400e-003**	**8.8000e-004**	**9.0800e-003**	**3.0000e-005**	**2.8800e-003**	**2.0000e-005**	**2.9000e-003**	**7.6000e-004**	**2.0000e-005**	**7.8000e-004**	**0.0000**	**2.4056**	**2.4056**	**6.0000e-005**	**0.0000**	**2.4071**

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					0.1165	0.0000	0.1165	0.0436	0.0000	0.0436	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0422	0.4523	0.3382	7.2000e-004		0.0190	0.0190		0.0175	0.0175	0.0000	63.4987	63.4987	0.0205	0.0000	64.0121
Total	**0.0422**	**0.4523**	**0.3382**	**7.2000e-004**	**0.1165**	**0.0190**	**0.1356**	**0.0436**	**0.0175**	**0.0611**	**0.0000**	**63.4987**	**63.4987**	**0.0205**	**0.0000**	**64.0121**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5600e-003	1.5000e-003	0.0159	5.0000e-005	5.5200e-003	3.0000e-005	5.5500e-003	1.4700e-003	3.0000e-005	1.5000e-003	0.0000	4.4452	4.4452	1.0000e-004	0.0000	4.4477
Total	**2.5600e-003**	**1.5000e-003**	**0.0159**	**5.0000e-005**	**5.5200e-003**	**3.0000e-005**	**5.5500e-003**	**1.4700e-003**	**3.0000e-005**	**1.5000e-003**	**0.0000**	**4.4452**	**4.4452**	**1.0000e-004**	**0.0000**	**4.4477**

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					0.0524	0.0000	0.0524	0.0196	0.0000	0.0196	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0422	0.4523	0.3382	7.2000e-004		0.0190	0.0190		0.0175	0.0175	0.0000	63.4987	63.4987	0.0205	0.0000	64.0121
Total	**0.0422**	**0.4523**	**0.3382**	**7.2000e-004**	**0.0524**	**0.0190**	**0.0715**	**0.0196**	**0.0175**	**0.0371**	**0.0000**	**63.4987**	**63.4987**	**0.0205**	**0.0000**	**64.0121**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5600e-003	1.5000e-003	0.0159	5.0000e-005	5.5200e-003	3.0000e-005	5.5500e-003	1.4700e-003	3.0000e-005	1.5000e-003	0.0000	4.4452	4.4452	1.0000e-004	0.0000	4.4477
Total	**2.5600e-003**	**1.5000e-003**	**0.0159**	**5.0000e-005**	**5.5200e-003**	**3.0000e-005**	**5.5500e-003**	**1.4700e-003**	**3.0000e-005**	**1.5000e-003**	**0.0000**	**4.4452**	**4.4452**	**1.0000e-004**	**0.0000**	**4.4477**

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	0.0381	0.3473	0.3647	6.0000e-004		0.0180	0.0180		0.0170	0.0170	0.0000	51.5683	51.5683	0.0123	0.0000	51.8751
Total	**0.0381**	**0.3473**	**0.3647**	**6.0000e-004**		**0.0180**	**0.0180**		**0.0170**	**0.0170**	**0.0000**	**51.5683**	**51.5683**	**0.0123**	**0.0000**	**51.8751**

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	0.0448	1.7010	0.2533	4.4400e-003	0.1057	4.1400e-003	0.1098	0.0305	3.9600e-003	0.0345	0.0000	421.9910	421.9910	0.0499	0.0000	423.2376
Worker	0.1447	0.0850	0.8980	2.7800e-003	0.3123	1.8900e-003	0.3142	0.0830	1.7400e-003	0.0847	0.0000	251.6309	251.6309	5.7500e-003	0.0000	251.7746
Total	**0.1895**	**1.7860**	**1.1512**	**7.2200e-003**	**0.4180**	**6.0300e-003**	**0.4240**	**0.1135**	**5.7000e-003**	**0.1192**	**0.0000**	**673.6219**	**673.6219**	**0.0556**	**0.0000**	**675.0122**

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	0.0381	0.3473	0.3647	6.0000e-004		0.0180	0.0180		0.0170	0.0170	0.0000	51.5682	51.5682	0.0123	0.0000	51.8750
Total	**0.0381**	**0.3473**	**0.3647**	**6.0000e-004**		**0.0180**	**0.0180**		**0.0170**	**0.0170**	**0.0000**	**51.5682**	**51.5682**	**0.0123**	**0.0000**	**51.8750**

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	0.0448	1.7010	0.2533	4.4400e-003	0.1057	4.1400e-003	0.1098	0.0305	3.9600e-003	0.0345	0.0000	421.9910	421.9910	0.0499	0.0000	423.2376
Worker	0.1447	0.0850	0.8980	2.7800e-003	0.3123	1.8900e-003	0.3142	0.0830	1.7400e-003	0.0847	0.0000	251.6309	251.6309	5.7500e-003	0.0000	251.7746
Total	**0.1895**	**1.7860**	**1.1512**	**7.2200e-003**	**0.4180**	**6.0300e-003**	**0.4240**	**0.1135**	**5.7000e-003**	**0.1192**	**0.0000**	**673.6219**	**673.6219**	**0.0556**	**0.0000**	**675.0122**

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	0.0477	0.4356	0.4929	8.2000e-004		0.0212	0.0212		0.0200	0.0200	0.0000	70.2213	70.2213	0.0166	0.0000	70.6360
Total	**0.0477**	**0.4356**	**0.4929**	**8.2000e-004**		**0.0212**	**0.0212**		**0.0200**	**0.0200**	**0.0000**	**70.2213**	**70.2213**	**0.0166**	**0.0000**	**70.6360**

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0418	1.8093	0.2798	5.8900e-003	0.1439	1.7300e-003	0.1456	0.0416	1.6600e-003	0.0432	0.0000	560.4033	560.4033	0.0459	0.0000	561.5516
Worker	0.1834	0.1035	1.1160	3.6500e-003	0.4251	2.5000e-003	0.4276	0.1130	2.3000e-003	0.1153	0.0000	329.6897	329.6897	6.9800e-003	0.0000	329.8642
Total	**0.2253**	**1.9128**	**1.3959**	**9.5400e-003**	**0.5690**	**4.2300e-003**	**0.5732**	**0.1545**	**3.9600e-003**	**0.1585**	**0.0000**	**890.0930**	**890.0930**	**0.0529**	**0.0000**	**891.4158**

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	0.0477	0.4356	0.4929	8.2000e-004		0.0212	0.0212		0.0200	0.0200	0.0000	70.2212	70.2212	0.0166	0.0000	70.6359
Total	**0.0477**	**0.4356**	**0.4929**	**8.2000e-004**		**0.0212**	**0.0212**		**0.0200**	**0.0200**	**0.0000**	**70.2212**	**70.2212**	**0.0166**	**0.0000**	**70.6359**

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0418	1.8093	0.2798	5.8900e-003	0.1439	1.7300e-003	0.1456	0.0416	1.6600e-003	0.0432	0.0000	560.4033	560.4033	0.0459	0.0000	561.5516
Worker	0.1834	0.1035	1.1160	3.6500e-003	0.4251	2.5000e-003	0.4276	0.1130	2.3000e-003	0.1153	0.0000	329.6897	329.6897	6.9800e-003	0.0000	329.8642
Total	**0.2253**	**1.9128**	**1.3959**	**9.5400e-003**	**0.5690**	**4.2300e-003**	**0.5732**	**0.1545**	**3.9600e-003**	**0.1585**	**0.0000**	**890.0930**	**890.0930**	**0.0529**	**0.0000**	**891.4158**

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	0.0450	0.4102	0.4943	8.2000e-004		0.0187	0.0187		0.0176	0.0176	0.0000	70.7747	70.7747	0.0166	0.0000	71.1902
Total	**0.0450**	**0.4102**	**0.4943**	**8.2000e-004**		**0.0187**	**0.0187**		**0.0176**	**0.0176**	**0.0000**	**70.7747**	**70.7747**	**0.0166**	**0.0000**	**71.1902**

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	0.0410	1.8093	0.2682	5.8900e-003	0.1450	1.7300e-003	0.1467	0.0419	1.6500e-003	0.0435	0.0000	560.4151	560.4151	0.0467	0.0000	561.5825
Worker	0.1729	0.0937	1.0342	3.5300e-003	0.4284	2.4600e-003	0.4308	0.1139	2.2600e-003	0.1161	0.0000	319.2466	319.2466	6.3000e-003	0.0000	319.4041
Total	**0.2139**	**1.9030**	**1.3024**	**9.4200e-003**	**0.5733**	**4.1900e-003**	**0.5775**	**0.1557**	**3.9100e-003**	**0.1597**	**0.0000**	**879.6617**	**879.6617**	**0.0530**	**0.0000**	**880.9866**

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	0.0450	0.4102	0.4943	8.2000e-004		0.0187	0.0187		0.0176	0.0176	0.0000	70.7746	70.7746	0.0166	0.0000	71.1901
Total	**0.0450**	**0.4102**	**0.4943**	**8.2000e-004**		**0.0187**	**0.0187**		**0.0176**	**0.0176**	**0.0000**	**70.7746**	**70.7746**	**0.0166**	**0.0000**	**71.1901**

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	0.0410	1.8093	0.2682	5.8900e-003	0.1450	1.7300e-003	0.1467	0.0419	1.6500e-003	0.0435	0.0000	560.4151	560.4151	0.0467	0.0000	561.5825
Worker	0.1729	0.0937	1.0342	3.5300e-003	0.4284	2.4600e-003	0.4308	0.1139	2.2600e-003	0.1161	0.0000	319.2466	319.2466	6.3000e-003	0.0000	319.4041
Total	**0.2139**	**1.9030**	**1.3024**	**9.4200e-003**	**0.5733**	**4.1900e-003**	**0.5775**	**0.1557**	**3.9100e-003**	**0.1597**	**0.0000**	**879.6617**	**879.6617**	**0.0530**	**0.0000**	**880.9866**

3.4 Building Construction - 2025

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	0.0417	0.3792	0.4899	8.2000e-004		0.0161	0.0161		0.0151	0.0151	0.0000	70.5256	70.5256	0.0165	0.0000	70.9370
Total	**0.0417**	**0.3792**	**0.4899**	**8.2000e-004**		**0.0161**	**0.0161**		**0.0151**	**0.0151**	**0.0000**	**70.5256**	**70.5256**	**0.0165**	**0.0000**	**70.9370**

3.4 Building Construction - 2025

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	0.0400	1.7880	0.2566	5.8300e-003	0.1444	1.7000e-003	0.1461	0.0417	1.6300e-003	0.0434	0.0000	554.3026	554.3026	0.0467	0.0000	555.4705
Worker	0.1619	0.0843	0.9493	3.3800e-003	0.4267	2.4000e-003	0.4291	0.1134	2.2100e-003	0.1156	0.0000	305.3715	305.3715	5.6500e-003	0.0000	305.5127
Total	**0.2019**	**1.8724**	**1.2059**	**9.2100e-003**	**0.5712**	**4.1000e-003**	**0.5753**	**0.1552**	**3.8400e-003**	**0.1590**	**0.0000**	**859.6741**	**859.6741**	**0.0524**	**0.0000**	**860.9832**

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	0.0417	0.3792	0.4899	8.2000e-004		0.0161	0.0161		0.0151	0.0151	0.0000	70.5255	70.5255	0.0165	0.0000	70.9369
Total	**0.0417**	**0.3792**	**0.4899**	**8.2000e-004**		**0.0161**	**0.0161**		**0.0151**	**0.0151**	**0.0000**	**70.5255**	**70.5255**	**0.0165**	**0.0000**	**70.9369**

3.4 Building Construction - 2025

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	0.0400	1.7880	0.2566	5.8300e-003	0.1444	1.7000e-003	0.1461	0.0417	1.6300e-003	0.0434	0.0000	554.3026	554.3026	0.0467	0.0000	555.4705
Worker	0.1619	0.0843	0.9493	3.3800e-003	0.4267	2.4000e-003	0.4291	0.1134	2.2100e-003	0.1156	0.0000	305.3715	305.3715	5.6500e-003	0.0000	305.5127
Total	**0.2019**	**1.8724**	**1.2059**	**9.2100e-003**	**0.5712**	**4.1000e-003**	**0.5753**	**0.1552**	**3.8400e-003**	**0.1590**	**0.0000**	**859.6741**	**859.6741**	**0.0524**	**0.0000**	**860.9832**

3.4 Building Construction - 2026

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	0.0417	0.3792	0.4899	8.2000e-004		0.0161	0.0161		0.0151	0.0151	0.0000	70.5256	70.5256	0.0165	0.0000	70.9370
Total	**0.0417**	**0.3792**	**0.4899**	**8.2000e-004**		**0.0161**	**0.0161**		**0.0151**	**0.0151**	**0.0000**	**70.5256**	**70.5256**	**0.0165**	**0.0000**	**70.9370**

3.4 Building Construction - 2026

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	0.0391	1.7735	0.2481	5.7900e-003	0.1444	1.6800e-003	0.1461	0.0417	1.6100e-003	0.0433	0.0000	550.7282	550.7282	0.0466	0.0000	551.8933
Worker	0.1531	0.0769	0.8873	3.2700e-003	0.4267	2.3600e-003	0.4291	0.1134	2.1700e-003	0.1156	0.0000	295.8037	295.8037	5.1800e-003	0.0000	295.9332
Total	**0.1922**	**1.8504**	**1.1355**	**9.0600e-003**	**0.5712**	**4.0400e-003**	**0.5752**	**0.1552**	**3.7800e-003**	**0.1589**	**0.0000**	**846.5318**	**846.5318**	**0.0518**	**0.0000**	**847.8265**

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	0.0417	0.3792	0.4899	8.2000e-004		0.0161	0.0161		0.0151	0.0151	0.0000	70.5255	70.5255	0.0165	0.0000	70.9369
Total	**0.0417**	**0.3792**	**0.4899**	**8.2000e-004**		**0.0161**	**0.0161**		**0.0151**	**0.0151**	**0.0000**	**70.5255**	**70.5255**	**0.0165**	**0.0000**	**70.9369**

3.4 Building Construction - 2026

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	0.0391	1.7735	0.2481	5.7900e-003	0.1444	1.6800e-003	0.1461	0.0417	1.6100e-003	0.0433	0.0000	550.7282	550.7282	0.0466	0.0000	551.8933
Worker	0.1531	0.0769	0.8873	3.2700e-003	0.4267	2.3600e-003	0.4291	0.1134	2.1700e-003	0.1156	0.0000	295.8037	295.8037	5.1800e-003	0.0000	295.9332
Total	**0.1922**	**1.8504**	**1.1355**	**9.0600e-003**	**0.5712**	**4.0400e-003**	**0.5752**	**0.1552**	**3.7800e-003**	**0.1589**	**0.0000**	**846.5318**	**846.5318**	**0.0518**	**0.0000**	**847.8265**

3.4 Building Construction - 2027

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	0.0417	0.3792	0.4899	8.2000e-004		0.0161	0.0161		0.0151	0.0151	0.0000	70.5256	70.5256	0.0165	0.0000	70.9370
Total	**0.0417**	**0.3792**	**0.4899**	**8.2000e-004**		**0.0161**	**0.0161**		**0.0151**	**0.0151**	**0.0000**	**70.5256**	**70.5256**	**0.0165**	**0.0000**	**70.9370**

3.4 Building Construction - 2027

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	0.0385	1.7588	0.2413	5.7600e-003	0.1445	1.6600e-003	0.1461	0.0417	1.5900e-003	0.0433	0.0000	547.6222	547.6222	0.0465	0.0000	548.7841
Worker	0.1444	0.0701	0.8254	3.1600e-003	0.4267	2.2500e-003	0.4290	0.1134	2.0700e-003	0.1155	0.0000	285.7154	285.7154	4.7000e-003	0.0000	285.8330
Total	**0.1829**	**1.8289**	**1.0667**	**8.9200e-003**	**0.5712**	**3.9100e-003**	**0.5751**	**0.1552**	**3.6600e-003**	**0.1588**	**0.0000**	**833.3377**	**833.3377**	**0.0512**	**0.0000**	**834.6171**

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	0.0417	0.3792	0.4899	8.2000e-004		0.0161	0.0161		0.0151	0.0151	0.0000	70.5255	70.5255	0.0165	0.0000	70.9369
Total	**0.0417**	**0.3792**	**0.4899**	**8.2000e-004**		**0.0161**	**0.0161**		**0.0151**	**0.0151**	**0.0000**	**70.5255**	**70.5255**	**0.0165**	**0.0000**	**70.9369**

3.4 Building Construction - 2027

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	0.0385	1.7588	0.2413	5.7600e-003	0.1445	1.6600e-003	0.1461	0.0417	1.5900e-003	0.0433	0.0000	547.6222	547.6222	0.0465	0.0000	548.7841
Worker	0.1444	0.0701	0.8254	3.1600e-003	0.4267	2.2500e-003	0.4290	0.1134	2.0700e-003	0.1155	0.0000	285.7154	285.7154	4.7000e-003	0.0000	285.8330
Total	**0.1829**	**1.8289**	**1.0667**	**8.9200e-003**	**0.5712**	**3.9100e-003**	**0.5751**	**0.1552**	**3.6600e-003**	**0.1588**	**0.0000**	**833.3377**	**833.3377**	**0.0512**	**0.0000**	**834.6171**

3.4 Building Construction - 2028

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	0.0166	0.1511	0.1952	3.3000e-004		6.3900e-003	6.3900e-003		6.0200e-003	6.0200e-003	0.0000	28.1021	28.1021	6.5600e-003	0.0000	28.2661
Total	**0.0166**	**0.1511**	**0.1952**	**3.3000e-004**		**6.3900e-003**	**6.3900e-003**		**6.0200e-003**	**6.0200e-003**	**0.0000**	**28.1021**	**28.1021**	**6.5600e-003**	**0.0000**	**28.2661**

3.4 Building Construction - 2028

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	0.0151	0.6966	0.0941	2.2800e-003	0.0576	6.5000e-004	0.0582	0.0166	6.3000e-004	0.0173	0.0000	217.2312	217.2312	0.0184	0.0000	217.6908
Worker	0.0540	0.0256	0.3074	1.2200e-003	0.1700	8.4000e-004	0.1709	0.0452	7.7000e-004	0.0460	0.0000	110.2881	110.2881	1.7100e-003	0.0000	110.3308
Total	**0.0691**	**0.7222**	**0.4015**	**3.5000e-003**	**0.2276**	**1.4900e-003**	**0.2291**	**0.0618**	**1.4000e-003**	**0.0632**	**0.0000**	**327.5192**	**327.5192**	**0.0201**	**0.0000**	**328.0216**

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	0.0166	0.1511	0.1952	3.3000e-004		6.3900e-003	6.3900e-003		6.0200e-003	6.0200e-003	0.0000	28.1021	28.1021	6.5600e-003	0.0000	28.2661
Total	**0.0166**	**0.1511**	**0.1952**	**3.3000e-004**		**6.3900e-003**	**6.3900e-003**		**6.0200e-003**	**6.0200e-003**	**0.0000**	**28.1021**	**28.1021**	**6.5600e-003**	**0.0000**	**28.2661**

3.4 Building Construction - 2028

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	0.0151	0.6966	0.0941	2.2800e-003	0.0576	6.5000e-004	0.0582	0.0166	6.3000e-004	0.0173	0.0000	217.2312	217.2312	0.0184	0.0000	217.6908
Worker	0.0540	0.0256	0.3074	1.2200e-003	0.1700	8.4000e-004	0.1709	0.0452	7.7000e-004	0.0460	0.0000	110.2881	110.2881	1.7100e-003	0.0000	110.3308
Total	**0.0691**	**0.7222**	**0.4015**	**3.5000e-003**	**0.2276**	**1.4900e-003**	**0.2291**	**0.0618**	**1.4000e-003**	**0.0632**	**0.0000**	**327.5192**	**327.5192**	**0.0201**	**0.0000**	**328.0216**

3.5 Paving - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.1500e-003	0.0858	0.1458	2.3000e-004		4.1900e-003	4.1900e-003		3.8500e-003	3.8500e-003	0.0000	20.0193	20.0193	6.4700e-003	0.0000	20.1811
Paving	0.0251					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0342**	**0.0858**	**0.1458**	**2.3000e-004**		**4.1900e-003**	**4.1900e-003**		**3.8500e-003**	**3.8500e-003**	**0.0000**	**20.0193**	**20.0193**	**6.4700e-003**	**0.0000**	**20.1811**

3.5 Paving - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.6000e-004	3.6000e-004	4.3400e-003	2.0000e-005	2.4000e-003	1.0000e-005	2.4100e-003	6.4000e-004	1.0000e-005	6.5000e-004	0.0000	1.5557	1.5557	2.0000e-005	0.0000	1.5563
Total	**7.6000e-004**	**3.6000e-004**	**4.3400e-003**	**2.0000e-005**	**2.4000e-003**	**1.0000e-005**	**2.4100e-003**	**6.4000e-004**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**1.5557**	**1.5557**	**2.0000e-005**	**0.0000**	**1.5563**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.1500e-003	0.0858	0.1458	2.3000e-004		4.1900e-003	4.1900e-003		3.8500e-003	3.8500e-003	0.0000	20.0192	20.0192	6.4700e-003	0.0000	20.1811
Paving	0.0251					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0342**	**0.0858**	**0.1458**	**2.3000e-004**		**4.1900e-003**	**4.1900e-003**		**3.8500e-003**	**3.8500e-003**	**0.0000**	**20.0192**	**20.0192**	**6.4700e-003**	**0.0000**	**20.1811**

3.5 Paving - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.6000e-004	3.6000e-004	4.3400e-003	2.0000e-005	2.4000e-003	1.0000e-005	2.4100e-003	6.4000e-004	1.0000e-005	6.5000e-004	0.0000	1.5557	1.5557	2.0000e-005	0.0000	1.5563
Total	**7.6000e-004**	**3.6000e-004**	**4.3400e-003**	**2.0000e-005**	**2.4000e-003**	**1.0000e-005**	**2.4100e-003**	**6.4000e-004**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**1.5557**	**1.5557**	**2.0000e-005**	**0.0000**	**1.5563**

3.6 Architectural Coating - 2028

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	0.7244					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7400e-003	0.0117	0.0185	3.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004	0.0000	2.6043	2.6043	1.4000e-004	0.0000	2.6079
Total	**0.7261**	**0.0117**	**0.0185**	**3.0000e-005**		**5.3000e-004**	**5.3000e-004**		**5.3000e-004**	**5.3000e-004**	**0.0000**	**2.6043**	**2.6043**	**1.4000e-004**	**0.0000**	**2.6079**

3.6 Architectural Coating - 2028

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	5.3000e-003	2.5100e-003	0.0302	1.2000e-004	0.0167	8.0000e-005	0.0168	4.4400e-003	8.0000e-005	4.5200e-003	0.0000	10.8432	10.8432	1.7000e-004	0.0000	10.8474
Total	**5.3000e-003**	**2.5100e-003**	**0.0302**	**1.2000e-004**	**0.0167**	**8.0000e-005**	**0.0168**	**4.4400e-003**	**8.0000e-005**	**4.5200e-003**	**0.0000**	**10.8432**	**10.8432**	**1.7000e-004**	**0.0000**	**10.8474**

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	0.7244					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7400e-003	0.0117	0.0185	3.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004	0.0000	2.6043	2.6043	1.4000e-004	0.0000	2.6079
Total	**0.7261**	**0.0117**	**0.0185**	**3.0000e-005**		**5.3000e-004**	**5.3000e-004**		**5.3000e-004**	**5.3000e-004**	**0.0000**	**2.6043**	**2.6043**	**1.4000e-004**	**0.0000**	**2.6079**

3.6 Architectural Coating - 2028

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	5.3000e-003	2.5100e-003	0.0302	1.2000e-004	0.0167	8.0000e-005	0.0168	4.4400e-003	8.0000e-005	4.5200e-003	0.0000	10.8432	10.8432	1.7000e-004	0.0000	10.8474
Total	**5.3000e-003**	**2.5100e-003**	**0.0302**	**1.2000e-004**	**0.0167**	**8.0000e-005**	**0.0168**	**4.4400e-003**	**8.0000e-005**	**4.5200e-003**	**0.0000**	**10.8432**	**10.8432**	**1.7000e-004**	**0.0000**	**10.8474**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

Provide Traffic Calming Measures

Implement NEV Network

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Mitigated	2.0940	2.0533	14.2559	0.0404	4.9975	0.0349	5.0324	1.3319	0.0322	1.3641	0.0000	3,666.2716	3,666.2716	0.1342	0.0000	3,669.6260
Unmitigated	2.1419	2.2239	15.7010	0.0468	5.8794	0.0389	5.9183	1.5669	0.0359	1.6029	0.0000	4,254.2407	4,254.2407	0.1499	0.0000	4,257.9873

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	5,750.08	5,750.08	5750.08	3,084,367	2,775,931
Fast Food Restaurant w/o Drive Thru	1,845.86	1,845.86	1845.86	2,976,567	2,678,910
Fast Food Restaurant with Drive Thru	1,412.85	1,412.85	1412.94	1,320,073	1,188,066
General Office Building	461.87	461.87	461.87	1,103,757	993,381
Parking Lot	0.00	0.00	0.00		
Strip Mall	4,760.28	4,760.28	4760.28	7,330,981	6,597,883
Total	14,230.93	14,230.93	14,231.02	15,815,745	14,234,171

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market With Gas	9.50	7.30	7.30	0.80	80.20	19.00	14	21	65
Fast Food Restaurant w/o Drive	9.50	7.30	7.30	1.50	79.50	19.00	51	37	12
Fast Food Restaurant with Drive	9.50	7.30	7.30	2.20	78.80	19.00	29	21	50
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market With Gas Pumps	0.628610	0.035232	0.213232	0.096627	0.010686	0.003563	0.000099	0.002269	0.002309	0.001252	0.004642	0.001018	0.000460
Fast Food Restaurant w/o Drive Thru	0.639737	0.035855	0.217007	0.096627	0.000095	0.000095	0.000742	0.000159	0.002309	0.001252	0.004642	0.001018	0.000460
Fast Food Restaurant with Drive Thru	0.639737	0.035855	0.217007	0.096627	0.000095	0.000095	0.000742	0.000159	0.002309	0.001252	0.004642	0.001018	0.000460
General Office Building	0.636690	0.035680	0.215970	0.096627	0.003850	0.000960	0.000020	0.000510	0.002309	0.001252	0.004642	0.001018	0.000460
Parking Lot	0.636033	0.035648	0.215750	0.096627	0.000784	0.000784	0.003425	0.001268	0.002309	0.001252	0.004642	0.001018	0.000460
Strip Mall	0.636033	0.035648	0.215750	0.096627	0.000784	0.000784	0.003425	0.001268	0.002309	0.001252	0.004642	0.001018	0.000460

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	248.5357	248.5357	0.0189	4.2900e-003	250.2840
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	248.5357	248.5357	0.0189	4.2900e-003	250.2840
NaturalGas Mitigated	0.0167	0.1517	0.1275	9.1000e-004		0.0115	0.0115		0.0115	0.0115	0.0000	165.1816	165.1816	3.1700e-003	3.0300e-003	166.1632
NaturalGas Unmitigated	0.0167	0.1517	0.1275	9.1000e-004		0.0115	0.0115		0.0115	0.0115	0.0000	165.1816	165.1816	3.1700e-003	3.0300e-003	166.1632

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					
Convenience Market With Gas Pumps	41940.3	2.3000e-004	2.0600e-003	1.7300e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	2.2381	2.2381	4.0000e-005	4.0000e-005	2.2514
Fast Food Restaurant w/o Drive Thru	472635	2.5500e-003	0.0232	0.0195	1.4000e-004		1.7600e-003	1.7600e-003		1.7600e-003	1.7600e-003	0.0000	25.2216	25.2216	4.8000e-004	4.6000e-004	25.3715
Fast Food Restaurant with Drive Thru	630180	3.4000e-003	0.0309	0.0260	1.9000e-004		2.3500e-003	2.3500e-003		2.3500e-003	2.3500e-003	0.0000	33.6288	33.6288	6.4000e-004	6.2000e-004	33.8286
General Office Building	612731	3.3000e-003	0.0300	0.0252	1.8000e-004		2.2800e-003	2.2800e-003		2.2800e-003	2.2800e-003	0.0000	32.6977	32.6977	6.3000e-004	6.0000e-004	32.8920
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	1.3379e+006	7.2100e-003	0.0656	0.0551	3.9000e-004		4.9800e-003	4.9800e-003		4.9800e-003	4.9800e-003	0.0000	71.3954	71.3954	1.3700e-003	1.3100e-003	71.8197
Total		**0.0167**	**0.1517**	**0.1275**	**9.1000e-004**		**0.0115**	**0.0115**		**0.0115**	**0.0115**	**0.0000**	**165.1816**	**165.1816**	**3.1600e-003**	**3.0300e-003**	**166.1632**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market With Gas Pumps	41940.3	2.3000e-004	2.0600e-003	1.7300e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	2.2381	2.2381	4.0000e-005	4.0000e-005	2.2514
Fast Food Restaurant w/o Drive Thru	472635	2.5500e-003	0.0232	0.0195	1.4000e-004		1.7600e-003	1.7600e-003		1.7600e-003	1.7600e-003	0.0000	25.2216	25.2216	4.8000e-004	4.6000e-004	25.3715
Fast Food Restaurant with Drive Thru	630180	3.4000e-003	0.0309	0.0260	1.9000e-004		2.3500e-003	2.3500e-003		2.3500e-003	2.3500e-003	0.0000	33.6288	33.6288	6.4000e-004	6.2000e-004	33.8286
General Office Building	612731	3.3000e-003	0.0300	0.0252	1.8000e-004		2.2800e-003	2.2800e-003		2.2800e-003	2.2800e-003	0.0000	32.6977	32.6977	6.3000e-004	6.0000e-004	32.8920
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	1.3379e+006	7.2100e-003	0.0656	0.0551	3.9000e-004		4.9800e-003	4.9800e-003		4.9800e-003	4.9800e-003	0.0000	71.3954	71.3954	1.3700e-003	1.3100e-003	71.8197
Total		**0.0167**	**0.1517**	**0.1275**	**9.1000e-004**		**0.0115**	**0.0115**		**0.0115**	**0.0115**	**0.0000**	**165.1816**	**165.1816**	**3.1600e-003**	**3.0300e-003**	**166.1632**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	31307	4.1182	3.1000e-004	7.0000e-005	4.1471
Fast Food Restaurant w/o Drive Thru	63607.5	8.3670	6.3000e-004	1.4000e-004	8.4259
Fast Food Restaurant with Drive Thru	84810	11.1561	8.5000e-004	1.9000e-004	11.2345
General Office Building	419237	55.1472	4.1800e-003	9.5000e-004	55.5351
Parking Lot	291747	38.3770	2.9100e-003	6.6000e-004	38.6469
Strip Mall	998696	131.3703	9.9700e-003	2.2700e-003	132.2944
Total		**248.5357**	**0.0189**	**4.2800e-003**	**250.2840**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	31307	4.1182	3.1000e-004	7.0000e-005	4.1471
Fast Food Restaurant w/o Drive Thru	63607.5	8.3670	6.3000e-004	1.4000e-004	8.4259
Fast Food Restaurant with Drive Thru	84810	11.1561	8.5000e-004	1.9000e-004	11.2345
General Office Building	419237	55.1472	4.1800e-003	9.5000e-004	55.5351
Parking Lot	291747	38.3770	2.9100e-003	6.6000e-004	38.6469
Strip Mall	998696	131.3703	9.9700e-003	2.2700e-003	132.2944
Total		**248.5357**	**0.0189**	**4.2800e-003**	**250.2840**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.8402	2.0000e-005	2.0700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.0400e-003	4.0400e-003	1.0000e-005	0.0000	4.3000e-003
Unmitigated	0.9121	2.0000e-005	2.0700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.0400e-003	4.0400e-003	1.0000e-005	0.0000	4.3000e-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	0.1444					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7675					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.9000e-004	2.0000e-005	2.0700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.0400e-003	4.0400e-003	1.0000e-005	0.0000	4.3000e-003
Total	**0.9121**	**2.0000e-005**	**2.0700e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.0400e-003**	**4.0400e-003**	**1.0000e-005**	**0.0000**	**4.3000e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0724					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7675					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.9000e-004	2.0000e-005	2.0700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.0400e-003	4.0400e-003	1.0000e-005	0.0000	4.3000e-003
Total	**0.8402**	**2.0000e-005**	**2.0700e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.0400e-003**	**4.0400e-003**	**1.0000e-005**	**0.0000**	**4.3000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	20.2952	0.5135	0.0124	36.8173
Unmitigated	25.3689	0.6419	0.0155	46.0216

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.292801 / 0.179459	0.3839	9.5600e-003	2.3000e-004	0.6916
Fast Food Restaurant w/o Drive Thru	0.682951 / 0.0435926	0.7228	0.0223	5.3000e-004	1.4393
Fast Food Restaurant with Drive Thru	0.910601 / 0.0581235	0.9638	0.0297	7.1000e-004	1.9191
General Office Building	8.42813 / 5.16563	11.0510	0.2753	6.6300e-003	19.9081
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	9.34054 / 5.72485	12.2474	0.3051	7.3500e-003	22.0633
Total		**25.3689**	**0.6419**	**0.0155**	**46.0216**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.234241 / 0.143567	0.3071	7.6500e-003	1.8000e-004	0.5533
Fast Food Restaurant w/o Drive Thru	0.546361 / 0.0348741	0.5783	0.0178	4.3000e-004	1.1515
Fast Food Restaurant with Drive Thru	0.728481 / 0.0464988	0.7710	0.0238	5.7000e-004	1.5353
General Office Building	6.74251 / 4.1325	8.8408	0.2202	5.3000e-003	15.9265
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	7.47244 / 4.57988	9.7979	0.2441	5.8800e-003	17.6507
Total		**20.2952**	**0.5135**	**0.0124**	**36.8172**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	36.0801	2.1323	0.0000	89.3870
Unmitigated	48.1068	2.8430	0.0000	119.1826

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant w/o Drive Thru	25.92	5.2615	0.3110	0.0000	13.0352
Fast Food Restaurant with Drive Thru	34.56	7.0154	0.4146	0.0000	17.3803
General Office Building	44.1	8.9519	0.5290	0.0000	22.1780
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	132.41	26.8780	1.5885	0.0000	66.5892
Total		**48.1068**	**2.8430**	**0.0000**	**119.1826**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant w/o Drive Thru	19.44	3.9461	0.2332	0.0000	9.7764
Fast Food Restaurant with Drive Thru	25.92	5.2615	0.3110	0.0000	13.0352
General Office Building	33.075	6.7139	0.3968	0.0000	16.6335
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	99.3075	20.1585	1.1913	0.0000	49.9419
Total		**36.0801**	**2.1323**	**0.0000**	**89.3870**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CalEEMod Output

Residential Construction and Operations – Tract 6269 (Summer Daily)

Copper River SEIR Tract 6269 Max Daily

Fresno County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	276.00	Dwelling Unit	39.84	496,800.00	789

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.022	**N2O Intensity (lb/MWhr)**	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E Intensity Factors for 2020

Land Use - Tract 6269 units and acreage

Construction Phase - 19 Month schedule

Off-road Equipment -

Off-road Equipment - Increased equipment no. to account for shorter schedule and to retain default hours of use.

Off-road Equipment - Increased equipment no. to account for shorter schedule and to retain default hours

Off-road Equipment - Increased equipment amount to reflect shorter schedule and realistic amount of equipment use.

Off-road Equipment - Increased equipment no. to reflect shorter schedule and retain default hours of use

Architectural Coating - Rule 4601 Architectural Coatings compliance

Vehicle Trips - ITE 10th Edition Trip Generation Rates 9.44, 9.54, 8.55

Woodstoves -

Area Coating - Rule 4601 Architectural Coatings

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Area Mitigation - Rule 4601 Architectural Coatings compliance

Energy Mitigation - 2019 Title 24 compliance 7% for residential

Water Mitigation - CalGreen Code and MWELO compliance

Waste Mitigation - CalRecycle 75% Diversion Mandate

Fleet Mix - SJVAPCD Residential Fleet Mix 2022

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Residential_Exterior	150.00	65.00
tblArchitecturalCoating	EF_Residential_Interior	150.00	65.00
tblAreaCoating	Area_EF_Residential_Exterior	150	65
tblAreaCoating	Area_EF_Residential_Interior	150	65
tblConstructionPhase	NumDays	30.00	20.00
tblConstructionPhase	NumDays	75.00	40.00

tblConstructionPhase	NumDays	740.00	300.00
tblConstructionPhase	NumDays	55.00	10.00
tblFleetMix	HHD	0.13	0.02
tblFleetMix	LDA	0.49	0.54
tblFleetMix	LDT1	0.03	0.20
tblFleetMix	LDT2	0.17	0.17
tblFleetMix	LHD1	0.02	1.6000e-003
tblFleetMix	LHD2	4.5020e-003	9.0000e-004
tblFleetMix	MCY	5.0620e-003	2.6000e-003
tblFleetMix	MDV	0.12	0.05
tblFleetMix	MH	5.9400e-004	1.5000e-003
tblFleetMix	MHD	0.03	9.1000e-003
tblFleetMix	OBUS	2.3630e-003	0.00
tblFleetMix	SBUS	1.0830e-003	1.1000e-003
tblFleetMix	UBUS	1.5190e-003	4.4000e-003
tblGrading	AcresOfGrading	200.00	187.50
tblLandUse	LotAcreage	89.61	39.84
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	7.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	5.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	7.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblTripsAndVMT	WorkerTripNumber	28.00	18.00
tblTripsAndVMT	WorkerTripNumber	40.00	20.00
tblTripsAndVMT	WorkerTripNumber	30.00	15.00
tblVehicleTrips	HO_TTP	35.70	36.00
tblVehicleTrips	HS_TTP	15.90	16.00
tblVehicleTrips	HW_TTP	48.40	48.00
tblVehicleTrips	ST_TR	9.91	9.54
tblVehicleTrips	SU_TR	8.62	8.55
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	7.3338	77.7275	58.6173	0.1257	30.2583	3.2707	32.8867	16.5904	3.0091	19.0085	0.0000	12,178.5729	12,178.5729	3.8920	0.0000	12,275.8734
2023	73.7459	33.7336	38.3650	0.0738	1.0166	1.5321	2.5487	0.2742	1.4390	1.7133	0.0000	7,129.3840	7,129.3840	1.4309	0.0000	7,165.1571
Maximum	**73.7459**	**77.7275**	**58.6173**	**0.1257**	**30.2583**	**3.2707**	**32.8867**	**16.5904**	**3.0091**	**19.0085**	**0.0000**	**12,178.5729**	**12,178.5729**	**3.8920**	**0.0000**	**12,275.8734**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	7.3338	77.7275	58.6173	0.1257	13.6976	3.2707	16.3260	7.4872	3.0091	9.9054	0.0000	12,178.5728	12,178.5728	3.8920	0.0000	12,275.8733
2023	73.7459	33.7336	38.3650	0.0738	1.0166	1.5321	2.5487	0.2742	1.4390	1.7133	0.0000	7,129.3840	7,129.3840	1.4309	0.0000	7,165.1571
Maximum	**73.7459**	**77.7275**	**58.6173**	**0.1257**	**13.6976**	**3.2707**	**16.3260**	**7.4872**	**3.0091**	**9.9054**	**0.0000**	**12,178.5728**	**12,178.5728**	**3.8920**	**0.0000**	**12,275.8733**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**52.95**	**0.00**	**46.74**	**53.98**	**0.00**	**43.93**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	32.5249	5.7148	203.7070	0.6040		29.6673	29.6673		29.6673	29.6673	4,330.2574	3,255.5887	7,585.8461	20.3442	0.0589	8,112.0145
Energy	0.2132	1.8220	0.7753	0.0116		0.1473	0.1473		0.1473	0.1473		2,325.8940	2,325.8940	0.0446	0.0426	2,339.7157
Mobile	5.9181	16.4226	57.8364	0.1797	16.3212	0.1448	16.4661	4.3613	0.1352	4.4965		18,185.7231	18,185.7231	1.1407		18,214.2397
Total	**38.6562**	**23.9593**	**262.3187**	**0.7954**	**16.3212**	**29.9595**	**46.2807**	**4.3613**	**29.9499**	**34.3111**	**4,330.2574**	**23,767.2058**	**28,097.4632**	**21.5295**	**0.1016**	**28,665.9699**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	12.7219	2.7810	23.8664	0.0173		0.3295	0.3295		0.3295	0.3295	0.0000	3,255.5887	3,255.5887	0.1012	0.0589	3,275.6803
Energy	0.2004	1.7126	0.7288	0.0109		0.1385	0.1385		0.1385	0.1385		2,186.2655	2,186.2655	0.0419	0.0401	2,199.2573
Mobile	5.7900	15.5440	53.1690	0.1633	14.7299	0.1324	14.8623	3.9360	0.1236	4.0597		16,523.4752	16,523.4752	1.0673		16,550.1569
Total	**18.7123**	**20.0376**	**77.7642**	**0.1915**	**14.7299**	**0.6004**	**15.3303**	**3.9360**	**0.5916**	**4.5277**	**0.0000**	**21,965.3293**	**21,965.3293**	**1.2103**	**0.0990**	**22,025.0945**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	51.59	16.37	70.36	75.92	9.75	98.00	66.88	9.75	98.02	86.80	100.00	7.58	21.82	94.38	2.52	23.17

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/3/2022	1/28/2022	5	20	
2	Grading	Grading	1/29/2022	3/25/2022	5	40	
3	Building Construction	Building Construction	3/26/2022	5/19/2023	5	300	
4	Paving	Paving	5/20/2023	6/2/2023	5	10	
5	Architectural Coating	Architectural Coating	6/3/2023	8/18/2023	5	55	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 187.5

Acres of Paving: 0

Residential Indoor: 1,006,020; Residential Outdoor: 335,340; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	5	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	6	8.00	97	0.37
Grading	Excavators	4	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	4	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Cranes	2	7.00	231	0.29
Building Construction	Forklifts	7	8.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	7	7.00	97	0.37
Building Construction	Welders	2	8.00	46	0.45
Paving	Pavers	4	8.00	130	0.42
Paving	Paving Equipment	4	8.00	132	0.36
Paving	Rollers	4	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	11	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	16	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	20	99.00	30.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	12	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

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	lb/day										lb/day					
Fugitive Dust					30.1104	0.0000	30.1104	16.5511	0.0000	16.5511			0.0000			0.0000
Off-Road	5.1738	54.0221	31.3377	0.0613		2.6276	2.6276		2.4173	2.4173		5,942.610 5	5,942.610 5	1.9220		5,990.659 5
Total	**5.1738**	**54.0221**	**31.3377**	**0.0613**	**30.1104**	**2.6276**	**32.7380**	**16.5511**	**2.4173**	**18.9685**		**5,942.610 5**	**5,942.610 5**	**1.9220**		**5,990.659 5**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.0757	0.0365	0.4808	1.4100e-003	0.1479	8.7000e-004	0.1487	0.0392	8.0000e-004	0.0400		140.1766	140.1766	3.2400e-003		140.2575
Total	**0.0757**	**0.0365**	**0.4808**	**1.4100e-003**	**0.1479**	**8.7000e-004**	**0.1487**	**0.0392**	**8.0000e-004**	**0.0400**		**140.1766**	**140.1766**	**3.2400e-003**		**140.2575**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					13.5497	0.0000	13.5497	7.4480	0.0000	7.4480			0.0000			0.0000
Off-Road	5.1738	54.0221	31.3377	0.0613		2.6276	2.6276		2.4173	2.4173	0.0000	5,942.6105	5,942.6105	1.9220		5,990.6595
Total	**5.1738**	**54.0221**	**31.3377**	**0.0613**	**13.5497**	**2.6276**	**16.1772**	**7.4480**	**2.4173**	**9.8654**	**0.0000**	**5,942.6105**	**5,942.6105**	**1.9220**		**5,990.6595**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.0757	0.0365	0.4808	1.4100e-003	0.1479	8.7000e-004	0.1487	0.0392	8.0000e-004	0.0400		140.1766	140.1766	3.2400e-003		140.2575
Total	**0.0757**	**0.0365**	**0.4808**	**1.4100e-003**	**0.1479**	**8.7000e-004**	**0.1487**	**0.0392**	**8.0000e-004**	**0.0400**		**140.1766**	**140.1766**	**3.2400e-003**		**140.2575**

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	lb/day										lb/day					
Fugitive Dust					17.0153	0.0000	17.0153	7.1572	0.0000	7.1572			0.0000			0.0000
Off-Road	7.2497	77.6870	58.0830	0.1242		3.2698	3.2698		3.0082	3.0082		12,022.8211	12,022.8211	3.8884		12,120.0317
Total	**7.2497**	**77.6870**	**58.0830**	**0.1242**	**17.0153**	**3.2698**	**20.2851**	**7.1572**	**3.0082**	**10.1654**		**12,022.8211**	**12,022.8211**	**3.8884**		**12,120.0317**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.0841	0.0406	0.5342	1.5600e-003	0.1643	9.7000e-004	0.1653	0.0436	8.9000e-004	0.0445		155.7518	155.7518	3.6000e-003		155.8417
Total	**0.0841**	**0.0406**	**0.5342**	**1.5600e-003**	**0.1643**	**9.7000e-004**	**0.1653**	**0.0436**	**8.9000e-004**	**0.0445**		**155.7518**	**155.7518**	**3.6000e-003**		**155.8417**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.6569	0.0000	7.6569	3.2208	0.0000	3.2208			0.0000			0.0000
Off-Road	7.2497	77.6870	58.0830	0.1242		3.2698	3.2698		3.0082	3.0082	0.0000	12,022.8211	12,022.8211	3.8884		12,120.0317
Total	**7.2497**	**77.6870**	**58.0830**	**0.1242**	**7.6569**	**3.2698**	**10.9267**	**3.2208**	**3.0082**	**6.2289**	**0.0000**	**12,022.8211**	**12,022.8211**	**3.8884**		**12,120.0317**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.0841	0.0406	0.5342	1.5600e-003	0.1643	9.7000e-004	0.1653	0.0436	8.9000e-004	0.0445		155.7518	155.7518	3.6000e-003		155.8417
Total	**0.0841**	**0.0406**	**0.5342**	**1.5600e-003**	**0.1643**	**9.7000e-004**	**0.1653**	**0.0436**	**8.9000e-004**	**0.0445**		**155.7518**	**155.7518**	**3.6000e-003**		**155.8417**

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	lb/day										lb/day					
Off-Road	3.6702	33.7524	35.8388	0.0581		1.7668	1.7668		1.6592	1.6592		5,520.2821	5,520.2821	1.3570		5,554.2074
Total	**3.6702**	**33.7524**	**35.8388**	**0.0581**		**1.7668**	**1.7668**		**1.6592**	**1.6592**		**5,520.2821**	**5,520.2821**	**1.3570**		**5,554.2074**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0828	3.1657	0.4385	8.4600e-003	0.2033	7.6600e-003	0.2109	0.0585	7.3200e-003	0.0659		886.7441	886.7441	0.0977		889.1875
Worker	0.4163	0.2008	2.6445	7.7400e-003	0.8133	4.7800e-003	0.8181	0.2157	4.4000e-003	0.2201		770.9712	770.9712	0.0178		771.4163
Total	**0.4991**	**3.3665**	**3.0830**	**0.0162**	**1.0165**	**0.0124**	**1.0290**	**0.2742**	**0.0117**	**0.2860**		**1,657.7153**	**1,657.7153**	**0.1155**		**1,660.6037**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6702	33.7524	35.8388	0.0581		1.7668	1.7668		1.6592	1.6592	0.0000	5,520.2821	5,520.2821	1.3570		5,554.2074
Total	**3.6702**	**33.7524**	**35.8388**	**0.0581**		**1.7668**	**1.7668**		**1.6592**	**1.6592**	**0.0000**	**5,520.2821**	**5,520.2821**	**1.3570**		**5,554.2074**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0828	3.1657	0.4385	8.4600e-003	0.2033	7.6600e-003	0.2109	0.0585	7.3200e-003	0.0659		886.7441	886.7441	0.0977		889.1875
Worker	0.4163	0.2008	2.6445	7.7400e-003	0.8133	4.7800e-003	0.8181	0.2157	4.4000e-003	0.2201		770.9712	770.9712	0.0178		771.4163
Total	**0.4991**	**3.3665**	**3.0830**	**0.0162**	**1.0165**	**0.0124**	**1.0290**	**0.2742**	**0.0117**	**0.2860**		**1,657.7153**	**1,657.7153**	**0.1155**		**1,660.6037**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.3805	31.0732	35.5852	0.0581		1.5251	1.5251		1.4324	1.4324		5,522.3301	5,522.3301	1.3489		5,556.0529
Total	**3.3805**	**31.0732**	**35.5852**	**0.0581**		**1.5251**	**1.5251**		**1.4324**	**1.4324**		**5,522.3301**	**5,522.3301**	**1.3489**		**5,556.0529**

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0568	2.4807	0.3602	8.2500e-003	0.2033	2.3700e-003	0.2057	0.0585	2.2700e-003	0.0608		865.0308	865.0308	0.0661		866.6841
Worker	0.3873	0.1798	2.4196	7.4500e-003	0.8133	4.6600e-003	0.8179	0.2157	4.2900e-003	0.2200		742.0231	742.0231	0.0159		742.4201
Total	**0.4440**	**2.6604**	**2.7798**	**0.0157**	**1.0166**	**7.0300e-003**	**1.0236**	**0.2742**	**6.5600e-003**	**0.2808**		**1,607.0539**	**1,607.0539**	**0.0820**		**1,609.1042**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.3805	31.0732	35.5852	0.0581		1.5251	1.5251		1.4324	1.4324	0.0000	5,522.3301	5,522.3301	1.3489		5,556.0529
Total	**3.3805**	**31.0732**	**35.5852**	**0.0581**		**1.5251**	**1.5251**		**1.4324**	**1.4324**	**0.0000**	**5,522.3301**	**5,522.3301**	**1.3489**		**5,556.0529**

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0568	2.4807	0.3602	8.2500e-003	0.2033	2.3700e-003	0.2057	0.0585	2.2700e-003	0.0608		865.0308	865.0308	0.0661		866.6841
Worker	0.3873	0.1798	2.4196	7.4500e-003	0.8133	4.6600e-003	0.8179	0.2157	4.2900e-003	0.2200		742.0231	742.0231	0.0159		742.4201
Total	**0.4440**	**2.6604**	**2.7798**	**0.0157**	**1.0166**	**7.0300e-003**	**1.0236**	**0.2742**	**6.5600e-003**	**0.2808**		**1,607.0539**	**1,607.0539**	**0.0820**		**1,609.1042**

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	lb/day										lb/day					
Off-Road	2.0655	20.3833	29.1684	0.0456		1.0204	1.0204		0.9388	0.9388		4,415.1683	4,415.1683	1.4280		4,450.8672
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.0655**	**20.3833**	**29.1684**	**0.0456**		**1.0204**	**1.0204**		**0.9388**	**0.9388**		**4,415.1683**	**4,415.1683**	**1.4280**		**4,450.8672**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.0587	0.0272	0.3666	1.1300e-003	0.1232	7.1000e-004	0.1239	0.0327	6.5000e-004	0.0333		112.4277	112.4277	2.4100e-003		112.4879
Total	**0.0587**	**0.0272**	**0.3666**	**1.1300e-003**	**0.1232**	**7.1000e-004**	**0.1239**	**0.0327**	**6.5000e-004**	**0.0333**		**112.4277**	**112.4277**	**2.4100e-003**		**112.4879**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0655	20.3833	29.1684	0.0456		1.0204	1.0204		0.9388	0.9388	0.0000	4,415.1683	4,415.1683	1.4280		4,450.8672
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.0655**	**20.3833**	**29.1684**	**0.0456**		**1.0204**	**1.0204**		**0.9388**	**0.9388**	**0.0000**	**4,415.1683**	**4,415.1683**	**1.4280**		**4,450.8672**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.0587	0.0272	0.3666	1.1300e-003	0.1232	7.1000e-004	0.1239	0.0327	6.5000e-004	0.0333		112.4277	112.4277	2.4100e-003		112.4879
Total	**0.0587**	**0.0272**	**0.3666**	**1.1300e-003**	**0.1232**	**7.1000e-004**	**0.1239**	**0.0327**	**6.5000e-004**	**0.0333**		**112.4277**	**112.4277**	**2.4100e-003**		**112.4879**

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	lb/day										lb/day					
Archit. Coating	73.4760					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**73.6677**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.0782	0.0363	0.4888	1.5000e-003	0.1643	9.4000e-004	0.1652	0.0436	8.7000e-004	0.0445		149.9037	149.9037	3.2100e-003		149.9839
Total	**0.0782**	**0.0363**	**0.4888**	**1.5000e-003**	**0.1643**	**9.4000e-004**	**0.1652**	**0.0436**	**8.7000e-004**	**0.0445**		**149.9037**	**149.9037**	**3.2100e-003**		**149.9839**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	73.4760					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**73.6677**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.0782	0.0363	0.4888	1.5000e-003	0.1643	9.4000e-004	0.1652	0.0436	8.7000e-004	0.0445		149.9037	149.9037	3.2100e-003		149.9839
Total	**0.0782**	**0.0363**	**0.4888**	**1.5000e-003**	**0.1643**	**9.4000e-004**	**0.1652**	**0.0436**	**8.7000e-004**	**0.0445**		**149.9037**	**149.9037**	**3.2100e-003**		**149.9839**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

Provide Traffic Calming Measures

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.7900	15.5440	53.1690	0.1633	14.7299	0.1324	14.8623	3.9360	0.1236	4.0597		16,523.47 52	16,523.47 52	1.0673		16,550.15 69
Unmitigated	5.9181	16.4226	57.8364	0.1797	16.3212	0.1448	16.4661	4.3613	0.1352	4.4965		18,185.72 31	18,185.72 31	1.1407		18,214.23 97

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	2,605.44	2,633.04	2359.80	7,530,679	6,796,438
Total	2,605.44	2,633.04	2,359.80	7,530,679	6,796,438

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	7.30	7.50	48.00	16.00	36.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.540200	0.197200	0.168800	0.054000	0.001600	0.000900	0.009100	0.020600	0.000000	0.004400	0.002600	0.001100	0.001500

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.2004	1.7126	0.7288	0.0109		0.1385	0.1385		0.1385	0.1385		2,186.2655	2,186.2655	0.0419	0.0401	2,199.2573
NaturalGas Unmitigated	0.2132	1.8220	0.7753	0.0116		0.1473	0.1473		0.1473	0.1473		2,325.8940	2,325.8940	0.0446	0.0426	2,339.7157

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	19770.1	0.2132	1.8220	0.7753	0.0116		0.1473	0.1473		0.1473	0.1473		2,325.8940	2,325.8940	0.0446	0.0426	2,339.7157
Total		**0.2132**	**1.8220**	**0.7753**	**0.0116**		**0.1473**	**0.1473**		**0.1473**	**0.1473**		**2,325.8940**	**2,325.8940**	**0.0446**	**0.0426**	**2,339.7157**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	18.5833	0.2004	1.7126	0.7288	0.0109		0.1385	0.1385		0.1385	0.1385		2,186.2655	2,186.2655	0.0419	0.0401	2,199.2573
Total		**0.2004**	**1.7126**	**0.7288**	**0.0109**		**0.1385**	**0.1385**		**0.1385**	**0.1385**		**2,186.2655**	**2,186.2655**	**0.0419**	**0.0401**	**2,199.2573**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	12.7219	2.7810	23.8664	0.0173		0.3295	0.3295		0.3295	0.3295	0.0000	3,255.5887	3,255.5887	0.1012	0.0589	3,275.6803
Unmitigated	32.5249	5.7148	203.7070	0.6040		29.6673	29.6673		29.6673	29.6673	4,330.2574	3,255.5887	7,585.8461	20.3442	0.0589	8,112.0145

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.1072					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	10.6315					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	20.0977	5.4519	180.9122	0.6028		29.5414	29.5414		29.5414	29.5414	4,330.2574	3,214.5882	7,544.8456	20.3047	0.0589	8,070.0252
Landscaping	0.6885	0.2629	22.7949	1.2000e-003		0.1260	0.1260		0.1260	0.1260		41.0005	41.0005	0.0396		41.9893
Total	**32.5249**	**5.7148**	**203.7070**	**0.6040**		**29.6673**	**29.6673**		**29.6673**	**29.6673**	**4,330.2574**	**3,255.5887**	**7,585.8461**	**20.3443**	**0.0589**	**8,112.0145**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.1072					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	10.6315					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2947	2.5181	1.0715	0.0161		0.2036	0.2036		0.2036	0.2036	0.0000	3,214.588 2	3,214.588 2	0.0616	0.0589	3,233.690 9
Landscaping	0.6885	0.2629	22.7949	1.2000e-003		0.1260	0.1260		0.1260	0.1260		41.0005	41.0005	0.0396		41.9893
Total	**12.7219**	**2.7810**	**23.8664**	**0.0173**		**0.3295**	**0.3295**		**0.3295**	**0.3295**	**0.0000**	**3,255.588 7**	**3,255.588 7**	**0.1012**	**0.0589**	**3,275.680 3**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CalEEMod Output

Commercial Construction and Operations – Copper/Willow Shopping Center Site

(Summer Daily)

Copper River SEIR Commercial Max Daily

Fresno County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Convenience Market With Gas Pumps	12.00	Pump	0.04	1,694.10	0
Strip Mall	84.33	1000sqft	1.94	84,326.00	0
Fast Food Restaurant with Drive Thru	2.25	1000sqft	0.05	2,250.00	0
Parking Lot	10.89	Acre	10.89	474,368.40	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 45

Climate Zone 3 **Operational Year** 2022

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 290 **CH4 Intensity (lb/MWhr)** 0.022 **N2O Intensity (lb/MWhr)** 0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E Intensity Factor for 2020

Land Use - Conv/Gas 12 pump, shopping center 84.326 ksf, Coffee/donut w DT 2.25 ksf

Construction Phase -

Architectural Coating - Rule 4601 Architectural Coatings

Vehicle Trips - Trip generation rates from project TIS

Area Coating - Rule 4601 Architectural Coatings

Energy Use - 2019 Title 24 10.7% Electricity Savings and 1.0% Natural Gas Savings

Construction Off-road Equipment Mitigation - Reg VIII Fugitive Dust Prohibition compliance

Mobile Land Use Mitigation -

Water Mitigation - CalGreen Code and MWELO compliance

Waste Mitigation - Achieve 75% CalRecycle diversion mandate

Fleet Mix - Project specific fleet mixes from survey data and project estimates

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	65.00
tblArchitecturalCoating	EF_Nonresidential_Interior	150.00	65.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	150	65
tblAreaCoating	Area_EF_Nonresidential_Interior	150	65
tblEnergyUse	T24E	2.14	1.91
tblEnergyUse	T24E	6.55	5.84
tblEnergyUse	T24E	2.14	1.91
tblEnergyUse	T24NG	8.62	8.53
tblEnergyUse	T24NG	35.72	35.36
tblEnergyUse	T24NG	8.62	8.53
tblFleetMix	HHD	0.13	2.2690e-003
tblFleetMix	HHD	0.13	1.5900e-004
tblFleetMix	HHD	0.13	4.5900e-003

tblFleetMix	LDA	0.49	0.60
tblFleetMix	LDA	0.49	0.62
tblFleetMix	LDA	0.49	0.60
tblFleetMix	LDT1	0.03	0.04
tblFleetMix	LDT1	0.03	0.04
tblFleetMix	LDT1	0.03	0.04
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LHD1	0.02	9.5450e-005
tblFleetMix	LHD1	0.02	2.8359e-003
tblFleetMix	LHD2	4.5020e-003	9.5450e-005
tblFleetMix	LHD2	4.5020e-003	2.8359e-003
tblFleetMix	MHD	0.03	9.9380e-005
tblFleetMix	MHD	0.03	7.4200e-004
tblFleetMix	MHD	0.03	0.01
tblLandUse	LandUseSquareFeet	84,330.00	84,326.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblVehicleTrips	ST_TR	204.47	205.36
tblVehicleTrips	ST_TR	722.03	820.38
tblVehicleTrips	ST_TR	42.04	37.75
tblVehicleTrips	SU_TR	166.88	205.36
tblVehicleTrips	SU_TR	542.72	820.38
tblVehicleTrips	SU_TR	20.43	37.75
tblVehicleTrips	WD_TR	542.60	205.36

tblVehicleTrips	WD_TR	496.12	820.38
tblVehicleTrips	WD_TR	44.32	37.75

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.7089	38.8840	29.5758	0.0707	18.2141	1.6359	19.8276	9.9699	1.5050	11.4543	0.0000	7,049.2523	7,049.2523	1.9478	0.0000	7,073.0689
2023	36.8593	22.4062	22.9211	0.0694	2.4964	0.7177	3.2141	0.6763	0.6753	1.3516	0.0000	6,916.8726	6,916.8726	0.8472	0.0000	6,938.0533
Maximum	**36.8593**	**38.8840**	**29.5758**	**0.0707**	**18.2141**	**1.6359**	**19.8276**	**9.9699**	**1.5050**	**11.4543**	**0.0000**	**7,049.2523**	**7,049.2523**	**1.9478**	**0.0000**	**7,073.0689**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.7089	38.8840	29.5758	0.0707	8.2777	1.6359	9.8911	4.5080	1.5050	5.9924	0.0000	7,049.2523	7,049.2523	1.9478	0.0000	7,073.0689
2023	36.8593	22.4062	22.9211	0.0694	2.4964	0.7177	3.2141	0.6763	0.6753	1.3516	0.0000	6,916.8726	6,916.8726	0.8472	0.0000	6,938.0533
Maximum	**36.8593**	**38.8840**	**29.5758**	**0.0707**	**8.2777**	**1.6359**	**9.8911**	**4.5080**	**1.5050**	**5.9924**	**0.0000**	**7,049.2523**	**7,049.2523**	**1.9478**	**0.0000**	**7,073.0689**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**47.98**	**0.00**	**43.12**	**51.30**	**0.00**	**42.65**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.2580	1.0000e-004	0.0112	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0240	0.0240	6.0000e-005		0.0255
Energy	0.0409	0.3721	0.3126	2.2300e-003		0.0283	0.0283		0.0283	0.0283		446.5135	446.5135	8.5600e-003	8.1900e-003	449.1670
Mobile	12.2025	12.7781	71.6621	0.1830	16.7323	0.1413	16.8736	4.4575	0.1311	4.5886		18,327.0095	18,327.0095	0.8073		18,347.1908
Total	**14.5014**	**13.1503**	**71.9858**	**0.1853**	**16.7323**	**0.1697**	**16.9020**	**4.4575**	**0.1594**	**4.6169**		**18,773.5470**	**18,773.5470**	**0.8159**	**8.1900e-003**	**18,796.3833**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.2580	1.0000e-004	0.0112	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0240	0.0240	6.0000e-005		0.0255
Energy	0.0409	0.3721	0.3126	2.2300e-003		0.0283	0.0283		0.0283	0.0283		446.5135	446.5135	8.5600e-003	8.1900e-003	449.1670
Mobile	12.0671	12.1828	67.1028	0.1666	15.1009	0.1315	15.2324	4.0229	0.1220	4.1448		16,683.4532	16,683.4532	0.7557		16,702.3460
Total	**14.3660**	**12.5550**	**67.4266**	**0.1689**	**15.1009**	**0.1598**	**15.2607**	**4.0229**	**0.1503**	**4.1732**		**17,129.9907**	**17,129.9907**	**0.7643**	**8.1900e-003**	**17,151.5385**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.93	4.53	6.33	8.84	9.75	5.79	9.71	9.75	5.73	9.61	0.00	8.75	8.75	6.32	0.00	8.75

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/3/2022	1/14/2022	5	10	
2	Grading	Grading	1/15/2022	2/25/2022	5	30	
3	Building Construction	Building Construction	2/26/2022	4/21/2023	5	300	
4	Paving	Paving	4/22/2023	5/19/2023	5	20	
5	Architectural Coating	Architectural Coating	5/20/2023	6/16/2023	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 10.89

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 132,405; Non-Residential Outdoor: 44,135; Striped Parking Area: 28,462 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Excavators	2	8.00	158	0.38
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
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	228.00	92.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	46.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

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	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836		3,686.061 9	3,686.061 9	1.1922		3,715.865 5
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**18.0663**	**1.6126**	**19.6788**	**9.9307**	**1.4836**	**11.4143**		**3,686.061 9**	**3,686.061 9**	**1.1922**		**3,715.865 5**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.0757	0.0365	0.4808	1.4100e-003	0.1479	8.7000e-004	0.1487	0.0392	8.0000e-004	0.0400		140.1766	140.1766	3.2400e-003		140.2575
Total	**0.0757**	**0.0365**	**0.4808**	**1.4100e-003**	**0.1479**	**8.7000e-004**	**0.1487**	**0.0392**	**8.0000e-004**	**0.0400**		**140.1766**	**140.1766**	**3.2400e-003**		**140.2575**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**8.1298**	**1.6126**	**9.7424**	**4.4688**	**1.4836**	**5.9524**	**0.0000**	**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.0757	0.0365	0.4808	1.4100e-003	0.1479	8.7000e-004	0.1487	0.0392	8.0000e-004	0.0400		140.1766	140.1766	3.2400e-003		140.2575
Total	**0.0757**	**0.0365**	**0.4808**	**1.4100e-003**	**0.1479**	**8.7000e-004**	**0.1487**	**0.0392**	**8.0000e-004**	**0.0400**		**140.1766**	**140.1766**	**3.2400e-003**		**140.2575**

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	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

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						lb/day							lb/day			
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.0841	0.0406	0.5342	1.5600e-003	0.1643	9.7000e-004	0.1653	0.0436	8.9000e-004	0.0445		155.7518	155.7518	3.6000e-003		155.8417
Total	**0.0841**	**0.0406**	**0.5342**	**1.5600e-003**	**0.1643**	**9.7000e-004**	**0.1653**	**0.0436**	**8.9000e-004**	**0.0445**		**155.7518**	**155.7518**	**3.6000e-003**		**155.8417**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category						lb/day							lb/day			
Fugitive Dust					3.9030	0.0000	3.9030	1.6184	0.0000	1.6184			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**3.9030**	**1.6349**	**5.5379**	**1.6184**	**1.5041**	**3.1225**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.0841	0.0406	0.5342	1.5600e-003	0.1643	9.7000e-004	0.1653	0.0436	8.9000e-004	0.0445		155.7518	155.7518	3.6000e-003		155.8417
Total	**0.0841**	**0.0406**	**0.5342**	**1.5600e-003**	**0.1643**	**9.7000e-004**	**0.1653**	**0.0436**	**8.9000e-004**	**0.0445**		**155.7518**	**155.7518**	**3.6000e-003**		**155.8417**

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	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2538	9.7082	1.3447	0.0259	0.6234	0.0235	0.6469	0.1795	0.0225	0.2020		2,719.348 7	2,719.348 7	0.2997		2,726.841 7
Worker	0.9588	0.4623	6.0904	0.0178	1.8730	0.0110	1.8840	0.4968	0.0101	0.5069		1,775.570 0	1,775.570 0	0.0410		1,776.595 0
Total	**1.2127**	**10.1705**	**7.4351**	**0.0438**	**2.4964**	**0.0345**	**2.5309**	**0.6763**	**0.0326**	**0.7089**		**4,494.918 7**	**4,494.918 7**	**0.3407**		**4,503.436 6**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.333 6	2,554.333 6	0.6120		2,569.632 2
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.333 6**	**2,554.333 6**	**0.6120**		**2,569.632 2**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2538	9.7082	1.3447	0.0259	0.6234	0.0235	0.6469	0.1795	0.0225	0.2020		2,719.348 7	2,719.348 7	0.2997		2,726.841 7
Worker	0.9588	0.4623	6.0904	0.0178	1.8730	0.0110	1.8840	0.4968	0.0101	0.5069		1,775.570 0	1,775.570 0	0.0410		1,776.595 0
Total	**1.2127**	**10.1705**	**7.4351**	**0.0438**	**2.4964**	**0.0345**	**2.5309**	**0.6763**	**0.0326**	**0.7089**		**4,494.918 7**	**4,494.918 7**	**0.3407**		**4,503.436 6**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.209 9	2,555.209 9	0.6079		2,570.406 1
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.209 9**	**2,555.209 9**	**0.6079**		**2,570.406 1**

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1741	7.6073	1.1046	0.0253	0.6234	7.2800e-003	0.6307	0.1795	6.9600e-003	0.1865		2,652.7610	2,652.7610	0.2028		2,657.8312
Worker	0.8919	0.4140	5.5725	0.0172	1.8730	0.0107	1.8837	0.4968	9.8800e-003	0.5067		1,708.9017	1,708.9017	0.0366		1,709.8161
Total	**1.0660**	**8.0213**	**6.6771**	**0.0425**	**2.4964**	**0.0180**	**2.5144**	**0.6763**	**0.0168**	**0.6931**		**4,361.6627**	**4,361.6627**	**0.2394**		**4,367.6473**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1741	7.6073	1.1046	0.0253	0.6234	7.2800e-003	0.6307	0.1795	6.9600e-003	0.1865		2,652.7610	2,652.7610	0.2028		2,657.8312
Worker	0.8919	0.4140	5.5725	0.0172	1.8730	0.0107	1.8837	0.4968	9.8800e-003	0.5067		1,708.9017	1,708.9017	0.0366		1,709.8161
Total	**1.0660**	**8.0213**	**6.6771**	**0.0425**	**2.4964**	**0.0180**	**2.5144**	**0.6763**	**0.0168**	**0.6931**		**4,361.6627**	**4,361.6627**	**0.2394**		**4,367.6473**

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	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	1.4266					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.4593**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.0587	0.0272	0.3666	1.1300e-003	0.1232	7.1000e-004	0.1239	0.0327	6.5000e-004	0.0333		112.4277	112.4277	2.4100e-003		112.4879
Total	**0.0587**	**0.0272**	**0.3666**	**1.1300e-003**	**0.1232**	**7.1000e-004**	**0.1239**	**0.0327**	**6.5000e-004**	**0.0333**		**112.4277**	**112.4277**	**2.4100e-003**		**112.4879**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	1.4266					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.4593**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.0587	0.0272	0.3666	1.1300e-003	0.1232	7.1000e-004	0.1239	0.0327	6.5000e-004	0.0333		112.4277	112.4277	2.4100e-003		112.4879
Total	**0.0587**	**0.0272**	**0.3666**	**1.1300e-003**	**0.1232**	**7.1000e-004**	**0.1239**	**0.0327**	**6.5000e-004**	**0.0333**		**112.4277**	**112.4277**	**2.4100e-003**		**112.4879**

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	lb/day										lb/day					
Archit. Coating	36.4877					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**36.6793**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.1799	0.0835	1.1243	3.4600e-003	0.3779	2.1700e-003	0.3800	0.1002	1.9900e-003	0.1022		344.7784	344.7784	7.3800e-003		344.9629
Total	**0.1799**	**0.0835**	**1.1243**	**3.4600e-003**	**0.3779**	**2.1700e-003**	**0.3800**	**0.1002**	**1.9900e-003**	**0.1022**		**344.7784**	**344.7784**	**7.3800e-003**		**344.9629**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	36.4877					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**36.6793**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.1799	0.0835	1.1243	3.4600e-003	0.3779	2.1700e-003	0.3800	0.1002	1.9900e-003	0.1022		344.7784	344.7784	7.3800e-003		344.9629
Total	**0.1799**	**0.0835**	**1.1243**	**3.4600e-003**	**0.3779**	**2.1700e-003**	**0.3800**	**0.1002**	**1.9900e-003**	**0.1022**		**344.7784**	**344.7784**	**7.3800e-003**		**344.9629**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

Provide Traffic Calming Measures

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	12.0671	12.1828	67.1028	0.1666	15.1009	0.1315	15.2324	4.0229	0.1220	4.1448		16,683.4532	16,683.4532	0.7557		16,702.3460
Unmitigated	12.2025	12.7781	71.6621	0.1830	16.7323	0.1413	16.8736	4.4575	0.1311	4.5886		18,327.0095	18,327.0095	0.8073		18,347.1908

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	2,464.32	2,464.32	2464.32	1,321,872	1,192,989
Fast Food Restaurant with Drive Thru	1,845.86	1,845.86	1845.86	1,724,629	1,556,477
Parking Lot	0.00	0.00	0.00		
Strip Mall	3,183.46	3,183.46	3183.46	4,902,630	4,424,623
Total	7,493.63	7,493.63	7,493.63	7,949,130	7,174,090

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market With Gas	9.50	7.30	7.30	0.80	80.20	19.00	14	21	65
Fast Food Restaurant with Drive	9.50	7.30	7.30	2.20	78.80	19.00	29	21	50
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market With Gas Pumps	0.603949	0.038218	0.208371	0.116157	0.015815	0.004502	0.000099	0.002269	0.002363	0.001519	0.005062	0.001083	0.000594
Fast Food Restaurant with Drive Thru	0.619281	0.039188	0.213661	0.116157	0.000095	0.000095	0.000742	0.000159	0.002363	0.001519	0.005062	0.001083	0.000594
Parking Lot	0.492212	0.031147	0.169820	0.116157	0.015815	0.004502	0.033398	0.126328	0.002363	0.001519	0.005062	0.001083	0.000594
Strip Mall	0.603968	0.038219	0.208377	0.116157	0.002836	0.002836	0.012396	0.004590	0.002363	0.001519	0.005062	0.001083	0.000594

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0409	0.3721	0.3126	2.2300e-003		0.0283	0.0283		0.0283	0.0283		446.5135	446.5135	8.5600e-003	8.1900e-003	449.1670
NaturalGas Unmitigated	0.0409	0.3721	0.3126	2.2300e-003		0.0283	0.0283		0.0283	0.0283		446.5135	446.5135	8.5600e-003	8.1900e-003	449.1670

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market With Gas Pumps	49.2449	5.3000e-004	4.8300e-003	4.0600e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004		5.7935	5.7935	1.1000e-004	1.1000e-004	5.8280
Fast Food Restaurant with Drive Thru	1294.89	0.0140	0.1270	0.1066	7.6000e-004		9.6500e-003	9.6500e-003		9.6500e-003	9.6500e-003		152.3401	152.3401	2.9200e-003	2.7900e-003	153.2453
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	2451.23	0.0264	0.2403	0.2019	1.4400e-003		0.0183	0.0183		0.0183	0.0183		288.3800	288.3800	5.5300e-003	5.2900e-003	290.0937
Total		**0.0409**	**0.3721**	**0.3126**	**2.2300e-003**		**0.0283**	**0.0283**		**0.0283**	**0.0283**		**446.5135**	**446.5135**	**8.5600e-003**	**8.1900e-003**	**449.1670**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market With Gas Pumps	0.0492449	5.3000e-004	4.8300e-003	4.0600e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004		5.7935	5.7935	1.1000e-004	1.1000e-004	5.8280
Fast Food Restaurant with Drive Thru	1.29489	0.0140	0.1270	0.1066	7.6000e-004		9.6500e-003	9.6500e-003		9.6500e-003	9.6500e-003		152.3401	152.3401	2.9200e-003	2.7900e-003	153.2453
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	2.45123	0.0264	0.2403	0.2019	1.4400e-003		0.0183	0.0183		0.0183	0.0183		288.3800	288.3800	5.5300e-003	5.2900e-003	290.0937
Total		**0.0409**	**0.3721**	**0.3126**	**2.2300e-003**		**0.0283**	**0.0283**		**0.0283**	**0.0283**		**446.5135**	**446.5135**	**8.5600e-003**	**8.1900e-003**	**449.1670**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.2580	1.0000e-004	0.0112	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0240	0.0240	6.0000e-005		0.0255
Unmitigated	2.2580	1.0000e-004	0.0112	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0240	0.0240	6.0000e-005		0.0255

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1999					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.0570					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0400e-003	1.0000e-004	0.0112	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0240	0.0240	6.0000e-005		0.0255
Total	**2.2580**	**1.0000e-004**	**0.0112**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**		**0.0240**	**0.0240**	**6.0000e-005**		**0.0255**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1999					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.0570					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0400e-003	1.0000e-004	0.0112	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0240	0.0240	6.0000e-005		0.0255
Total	**2.2580**	**1.0000e-004**	**0.0112**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**		**0.0240**	**0.0240**	**6.0000e-005**		**0.0255**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CalEEMod Output

Residential GHG Business as Usual

Copper River Ranch SEIR Residential Buldout GHG BAU

Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	849.00	Dwelling Unit	15.64	849,000.00	2428
Single Family Housing	1,247.00	Dwelling Unit	179.46	2,244,600.00	3566

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2005
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E Intensity Factors

Land Use - Apartments 15.64 acres w/o Copper Friant 21 acres. SFR 179.46 for tracts not yet graded.

Construction Phase - 5 Year Buildout Schedule

Off-road Equipment - Increased equipment no. to account for shorter schedule while retaining default hours of use.

Off-road Equipment - Equipment no. increased to account for shorter schedule and default hours of use.

Architectural Coating - Rule 4601 Architectural Coatings compliance

Vehicle Trips - ITE 10th Edition Trip Generation Rates

Woodstoves -

Consumer Products - ARB Consumer Products Regulations 2012 to 2026 6.2%

Area Coating - Rule 4601 Architectural Coatings compliance

Construction Off-road Equipment Mitigation - Reg VIII compliance

Mobile Land Use Mitigation -

Area Mitigation -

Energy Mitigation - 2019 Title 24

Water Mitigation -

Waste Mitigation - CalRecycle 75% diversion mandate

Fleet Mix - SJVAPCD Residential Fleet Mix 2026

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	150
tblAreaCoating	Area_EF_Nonresidential_Interior	250	150
tblAreaCoating	Area_EF_Residential_Exterior	250	150
tblAreaCoating	Area_EF_Residential_Interior	250	150
tblFleetMix	HHD	0.11	0.02
tblFleetMix	HHD	0.11	0.02
tblFleetMix	LDA	0.42	0.52
tblFleetMix	LDA	0.42	0.52

tblFleetMix	LDT1	0.06	0.21
tblFleetMix	LDT1	0.06	0.21
tblFleetMix	LDT2	0.15	0.17
tblFleetMix	LDT2	0.15	0.17
tblFleetMix	LHD1	0.04	8.0000e-004
tblFleetMix	LHD1	0.04	8.0000e-004
tblFleetMix	LHD2	6.9730e-003	9.0000e-004
tblFleetMix	LHD2	6.9730e-003	9.0000e-004
tblFleetMix	MCY	5.2690e-003	2.5000e-003
tblFleetMix	MCY	5.2690e-003	2.5000e-003
tblFleetMix	MDV	0.18	0.07
tblFleetMix	MDV	0.18	0.07
tblFleetMix	MH	1.5690e-003	2.3000e-003
tblFleetMix	MH	1.5690e-003	2.3000e-003
tblFleetMix	MHD	0.03	7.5000e-003
tblFleetMix	MHD	0.03	7.5000e-003
tblFleetMix	OBUS	2.0990e-003	0.00
tblFleetMix	OBUS	2.0990e-003	0.00
tblFleetMix	SBUS	1.2120e-003	2.0000e-004
tblFleetMix	SBUS	1.2120e-003	2.0000e-004
tblFleetMix	UBUS	1.7870e-003	4.4000e-003
tblFleetMix	UBUS	1.7870e-003	4.4000e-003
tblLandUse	LotAcreage	53.06	15.64
tblLandUse	LotAcreage	404.87	179.46
tblVehicleTrips	HO_TTP	35.70	36.00
tblVehicleTrips	HO_TTP	35.70	36.00
tblVehicleTrips	HS_TTP	15.90	16.00

tblVehicleTrips	HS_TTP	15.90	16.00
tblVehicleTrips	HW_TTP	48.40	48.00
tblVehicleTrips	HW_TTP	48.40	48.00
tblVehicleTrips	ST_TR	7.16	8.14
tblVehicleTrips	ST_TR	9.91	9.54
tblVehicleTrips	SU_TR	6.07	6.28
tblVehicleTrips	SU_TR	8.62	8.55
tblVehicleTrips	WD_TR	6.59	7.32
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021											0.0000	86.5963	86.5963	0.0271	0.0000	87.2740
Maximum											**0.0000**	**86.5963**	**86.5963**	**0.0271**	**0.0000**	**87.2740**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021											0.0000	86.5962	86.5962	0.0271	0.0000	87.2739
Maximum											**0.0000**	**86.5962**	**86.5962**	**0.0271**	**0.0000**	**87.2739**

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		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											788.7352	933.4247	1,722.1599	3.7453	0.0167	1,820.7529
Energy											0.0000	6,713.6667	6,713.6667	0.2416	0.0842	6,744.7910
Mobile											0.0000	23,587.4264	23,587.4264	3.9294	0.0000	23,685.6620
Waste											339.8678	0.0000	339.8678	20.0856	0.0000	842.0080
Water											43.3251	302.6266	345.9517	4.4636	0.1079	489.6964
Total											**1,171.9281**	**31,537.1443**	**32,709.0724**	**32.4655**	**0.2087**	**33,582.9103**

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											0.0000	933.4247	933.4247	0.0581	0.0167	939.8382
Energy											0.0000	6,538.900 0	6,538.900 0	0.2372	0.0813	6,569.061 3
Mobile											0.0000	21,411.45 79	21,411.45 79	3.7061	0.0000	21,504.10 95
Waste											254.9008	0.0000	254.9008	15.0642	0.0000	631.5060
Water											34.6601	242.1013	276.7613	3.5709	0.0863	391.7571
Total											**289.5609**	**29,125.88 38**	**29,415.44 47**	**22.6365**	**0.1843**	**30,036.27 21**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**75.29**	**7.65**	**10.07**	**30.28**	**11.71**	**10.56**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	9/1/2021	11/9/2021	5	120	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	83.5893	83.5893	0.0270	0.0000	84.2652
Total											**0.0000**	**83.5893**	**83.5893**	**0.0270**	**0.0000**	**84.2652**

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
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	3.0070	3.0070	7.0000e-005	0.0000	3.0089
Total											**0.0000**	**3.0070**	**3.0070**	**7.0000e-005**	**0.0000**	**3.0089**

3.2 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	83.5892	83.5892	0.0270	0.0000	84.2651
Total											**0.0000**	**83.5892**	**83.5892**	**0.0270**	**0.0000**	**84.2651**

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
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	3.0070	3.0070	7.0000e-005	0.0000	3.0089
Total											**0.0000**	**3.0070**	**3.0070**	**7.0000e-005**	**0.0000**	**3.0089**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

Provide Traffic Calming Measures

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	21,411.4579	21,411.4579	3.7061	0.0000	21,504.1095
Unmitigated											0.0000	23,587.4264	23,587.4264	3.9294	0.0000	23,685.6620

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	6,214.68	6,910.86	5331.72	18,101,999	16,337,054
Single Family Housing	11,771.68	11,896.38	10661.85	34,024,482	30,707,095
Total	17,986.36	18,807.24	15,993.57	52,126,481	47,044,149

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	10.80	7.30	7.50	48.00	16.00	36.00	86	11	3
Single Family Housing	10.80	7.30	7.50	48.00	16.00	36.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.521500	0.214600	0.168100	0.065900	0.000800	0.000900	0.007500	0.020300	0.000000	0.004400	0.002500	0.000200	0.002300
Single Family Housing	0.521500	0.214600	0.168100	0.065900	0.000800	0.000900	0.007500	0.020300	0.000000	0.004400	0.002500	0.000200	0.002300

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	4,296.080 0	4,296.080 0	0.1943	0.0402	4,312.913 3
Electricity Unmitigated											0.0000	4,333.375 7	4,333.375 7	0.1959	0.0405	4,350.355 1
NaturalGas Mitigated											0.0000	2,242.820 0	2,242.820 0	0.0430	0.0411	2,256.148 0
NaturalGas Unmitigated											0.0000	2,380.291 0	2,380.291 0	0.0456	0.0436	2,394.435 9

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					
Apartments Low Rise	1.20019e +007											0.0000	640.4647	640.4647	0.0123	0.0117	644.2706
Single Family Housing	3.26031e +007											0.0000	1,739.826 3	1,739.826 3	0.0334	0.0319	1,750.165 3
Total												**0.0000**	**2,380.291 0**	**2,380.291 0**	**0.0456**	**0.0436**	**2,394.435 9**

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					
Apartments Low Rise	1.1383e +007											0.0000	607.4393	607.4393	0.0116	0.0111	611.0490
Single Family Housing	3.06459e +007											0.0000	1,635.380 7	1,635.380 7	0.0313	0.0300	1,645.099 0
Total												**0.0000**	**2,242.820 0**	**2,242.820 0**	**0.0430**	**0.0411**	**2,256.148 0**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	3.97121e+006	1,155.2718	0.0522	0.0108	1,159.7985
Single Family Housing	1.09246e+007	3,178.1039	0.1437	0.0297	3,190.5566
Total		**4,333.3757**	**0.1959**	**0.0405**	**4,350.3551**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	3.92995e+006	1,143.2664	0.0517	0.0107	1,147.7461
Single Family Housing	1.08377e+007	3,152.8135	0.1426	0.0295	3,165.1672
Total		**4,296.0800**	**0.1943**	**0.0402**	**4,312.9133**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	933.4247	933.4247	0.0581	0.0167	939.8382
Unmitigated											788.7352	933.4247	1,722.159 9	3.7453	0.0167	1,820.752 9

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											788.7352	908.0027	1,696.737 9	3.7046	0.0167	1,794.313 2
Landscaping											0.0000	25.4220	25.4220	0.0407	0.0000	26.4397
Total											**788.7352**	**933.4247**	**1,722.159 9**	**3.7453**	**0.0167**	**1,820.752 9**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											0.0000	908.0027	908.0027	0.0174	0.0167	913.3985
Landscaping											0.0000	25.4220	25.4220	0.0407	0.0000	26.4397
Total											**0.0000**	**933.4247**	**933.4247**	**0.0581**	**0.0167**	**939.8382**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	276.7613	3.5709	0.0863	391.7571
Unmitigated	345.9517	4.4636	0.1079	489.6964

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	55.3158 / 34.873	140.1302	1.8080	0.0437	198.3551
Single Family Housing	81.2471 / 51.221	205.8214	2.6556	0.0642	291.3413
Total		**345.9517**	**4.4636**	**0.1079**	**489.6964**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	44.2526 / 27.8984	112.1042	1.4464	0.0350	158.6841
Single Family Housing	64.9977 / 40.9768	164.6572	2.1245	0.0514	233.0731
Total		**276.7613**	**3.5709**	**0.0863**	**391.7571**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	254.9008	15.0642	0.0000	631.5060
Unmitigated	339.8678	20.0856	0.0000	842.0080

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	390.54	79.2761	4.6851	0.0000	196.4032
Single Family Housing	1283.76	260.5917	15.4005	0.0000	645.6049
Total		**339.8678**	**20.0856**	**0.0000**	**842.0080**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	292.905	59.4571	3.5138	0.0000	147.3024
Single Family Housing	962.82	195.4438	11.5504	0.0000	484.2036
Total		**254.9008**	**15.0642**	**0.0000**	**631.5060**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CalEEMod Output

Commercial GHG Business as Usual

Copper River SEIR Commercial Buildout BAU GHG

Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	47.42	1000sqft	1.09	47,425.00	0
Parking Lot	19.14	Acre	19.14	833,564.16	0
Fast Food Restaurant w/o Drive Thru	2.25	1000sqft	0.05	2,250.00	0
Fast Food Restaurant with Drive Thru	3.00	1000sqft	0.07	3,000.00	0
Convenience Market With Gas Pumps	28.00	Pump	0.09	3,952.90	0
Strip Mall	126.10	1000sqft	2.89	126,098.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2005
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E Intensity Factors for 2020

Land Use - All commercial at buildout. FF w/o DT is Coffee/Donut w/DT to match TIS

Construction Phase - 7 year buildout schedule

Off-road Equipment - Reduced hour/day to reflect longer schedule while retaining default hours of use.

Off-road Equipment - Reduced hours to reflect longer schedule and default hours of operation

On-road Fugitive Dust -

Architectural Coating - Rule 4601 Architectural Coatings

Vehicle Trips - Trip Generation Rates from Project TIS

Energy Use - 2019 Title 24 10.7% Electricity and 1.0% Gas

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation - Measures from recent project in Copper River.

Area Mitigation - Rule 4601 Architectural Coatings

Energy Mitigation -

Water Mitigation - Calgreen Code and MWELO water conservation requirements

Waste Mitigation - CalRecycle 75 percent diversion mandates

Fleet Mix - Truck Fleet mixes based on survey data and project specific estimates

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	150
tblAreaCoating	Area_EF_Nonresidential_Interior	250	150
tblAreaCoating	Area_EF_Residential_Exterior	250	150
tblAreaCoating	Area_EF_Residential_Interior	250	150
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	65
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	150	65
tblEnergyUse	T24E	2.14	1.91
tblEnergyUse	T24E	6.55	5.85
tblEnergyUse	T24E	6.55	5.85

tblEnergyUse	T24E	2.62	2.34
tblEnergyUse	T24E	2.14	1.91
tblEnergyUse	T24NG	8.62	8.53
tblEnergyUse	T24NG	35.72	35.36
tblEnergyUse	T24NG	35.72	35.36
tblEnergyUse	T24NG	12.77	12.64
tblEnergyUse	T24NG	8.62	8.53
tblFleetMix	HHD	0.11	2.2690e-003
tblFleetMix	HHD	0.11	1.5900e-004
tblFleetMix	HHD	0.11	1.5900e-004
tblFleetMix	HHD	0.11	5.1000e-004
tblFleetMix	HHD	0.11	1.2680e-003
tblFleetMix	HHD	0.11	1.2680e-003
tblFleetMix	LDA	0.42	0.63
tblFleetMix	LDA	0.42	0.64
tblFleetMix	LDA	0.42	0.64
tblFleetMix	LDA	0.42	0.64
tblFleetMix	LDA	0.42	0.64
tblFleetMix	LDA	0.42	0.64
tblFleetMix	LDT1	0.06	0.04
tblFleetMix	LDT1	0.06	0.04
tblFleetMix	LDT1	0.06	0.04
tblFleetMix	LDT1	0.06	0.04
tblFleetMix	LDT1	0.06	0.04
tblFleetMix	LDT1	0.06	0.04
tblFleetMix	LDT2	0.15	0.21
tblFleetMix	LDT2	0.15	0.22

tblFleetMix	LDT2	0.15	0.22
tblFleetMix	LDT2	0.15	0.22
tblFleetMix	LDT2	0.15	0.22
tblFleetMix	LDT2	0.15	0.22
tblFleetMix	LHD1	0.04	0.01
tblFleetMix	LHD1	0.04	9.5000e-005
tblFleetMix	LHD1	0.04	9.5000e-005
tblFleetMix	LHD1	0.04	3.8500e-003
tblFleetMix	LHD1	0.04	7.8400e-004
tblFleetMix	LHD1	0.04	7.8400e-004
tblFleetMix	LHD2	6.9730e-003	3.5630e-003
tblFleetMix	LHD2	6.9730e-003	9.5000e-005
tblFleetMix	LHD2	6.9730e-003	9.5000e-005
tblFleetMix	LHD2	6.9730e-003	9.6000e-004
tblFleetMix	LHD2	6.9730e-003	7.8400e-004
tblFleetMix	LHD2	6.9730e-003	7.8400e-004
tblFleetMix	MCY	5.2690e-003	4.6420e-003
tblFleetMix	MCY	5.2690e-003	4.6420e-003
tblFleetMix	MCY	5.2690e-003	4.6420e-003
tblFleetMix	MCY	5.2690e-003	4.6420e-003
tblFleetMix	MCY	5.2690e-003	4.6420e-003
tblFleetMix	MCY	5.2690e-003	4.6420e-003
tblFleetMix	MDV	0.18	0.10
tblFleetMix	MDV	0.18	0.10
tblFleetMix	MDV	0.18	0.10
tblFleetMix	MDV	0.18	0.10
tblFleetMix	MDV	0.18	0.10

tblFleetMix	MDV	0.18	0.10
tblFleetMix	MH	1.5690e-003	4.6000e-004
tblFleetMix	MH	1.5690e-003	4.6000e-004
tblFleetMix	MH	1.5690e-003	4.6000e-004
tblFleetMix	MH	1.5690e-003	4.6000e-004
tblFleetMix	MH	1.5690e-003	4.6000e-004
tblFleetMix	MH	1.5690e-003	4.6000e-004
tblFleetMix	MHD	0.03	9.9000e-005
tblFleetMix	MHD	0.03	7.4200e-004
tblFleetMix	MHD	0.03	7.4200e-004
tblFleetMix	MHD	0.03	2.0000e-005
tblFleetMix	MHD	0.03	3.4250e-003
tblFleetMix	MHD	0.03	3.4250e-003
tblFleetMix	OBUS	2.0990e-003	2.3090e-003
tblFleetMix	OBUS	2.0990e-003	2.3090e-003
tblFleetMix	OBUS	2.0990e-003	2.3090e-003
tblFleetMix	OBUS	2.0990e-003	2.3090e-003
tblFleetMix	OBUS	2.0990e-003	2.3090e-003
tblFleetMix	OBUS	2.0990e-003	2.3090e-003
tblFleetMix	SBUS	1.2120e-003	1.0180e-003
tblFleetMix	SBUS	1.2120e-003	1.0180e-003
tblFleetMix	SBUS	1.2120e-003	1.0180e-003
tblFleetMix	SBUS	1.2120e-003	1.0180e-003
tblFleetMix	SBUS	1.2120e-003	1.0180e-003
tblFleetMix	SBUS	1.2120e-003	1.0180e-003
tblFleetMix	UBUS	1.7870e-003	1.2520e-003
tblFleetMix	UBUS	1.7870e-003	1.2520e-003

tblFleetMix	UBUS	1.7870e-003	1.2520e-003
tblFleetMix	UBUS	1.7870e-003	1.2520e-003
tblFleetMix	UBUS	1.7870e-003	1.2520e-003
tblFleetMix	UBUS	1.7870e-003	1.2520e-003
tblLandUse	LandUseSquareFeet	47,420.00	47,425.00
tblLandUse	LandUseSquareFeet	833,738.40	833,564.16
tblLandUse	LandUseSquareFeet	126,100.00	126,098.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021											0.0000	51.9578	51.9578	0.0163	0.0000	52.3644
Maximum											**0.0000**	**51.9578**	**51.9578**	**0.0163**	**0.0000**	**52.3644**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021											0.0000	51.9577	51.9577	0.0163	0.0000	52.3644
Maximum											**0.0000**	**51.9577**	**51.9577**	**0.0163**	**0.0000**	**52.3644**

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		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											0.0000	4.0400e-003	4.0400e-003	2.0000e-005	0.0000	4.5100e-003
Energy											0.0000	714.8312	714.8312	0.0280	8.1700e-003	717.9665
Mobile											0.0000	8,380.7857	8,380.7857	1.3181	0.0000	8,413.7388
Waste											48.1068	0.0000	48.1068	2.8430	0.0000	119.1826
Water											6.2356	42.3143	48.5499	0.6424	0.0155	69.2338
Total											**54.3425**	**9,137.9352**	**9,192.2776**	**4.8316**	**0.0237**	**9,320.1262**

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											0.0000	4.0400e-003	4.0400e-003	2.0000e-005	0.0000	4.5100e-003
Energy											0.0000	714.8312	714.8312	0.0280	8.1700e-003	717.9665
Mobile											0.0000	7,233.2406	7,233.2406	1.2119	0.0000	7,263.5381
Waste											36.0801	0.0000	36.0801	2.1323	0.0000	89.3870
Water											4.9885	33.8514	38.8399	0.5139	0.0124	55.3870
Total											**41.0686**	**7,981.9272**	**8,022.9958**	**3.8861**	**0.0206**	**8,126.2830**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**24.43**	**12.65**	**12.72**	**19.57**	**13.13**	**12.81**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/1/2021	11/11/2021	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 19.14

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	50.1536	50.1536	0.0162	0.0000	50.5591
Total											**0.0000**	**50.1536**	**50.1536**	**0.0162**	**0.0000**	**50.5591**

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
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1.8042	1.8042	4.0000e-005	0.0000	1.8053
Total											**0.0000**	**1.8042**	**1.8042**	**4.0000e-005**	**0.0000**	**1.8053**

3.2 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	50.1535	50.1535	0.0162	0.0000	50.5590
Total											**0.0000**	**50.1535**	**50.1535**	**0.0162**	**0.0000**	**50.5590**

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
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1.8042	1.8042	4.0000e-005	0.0000	1.8053
Total											**0.0000**	**1.8042**	**1.8042**	**4.0000e-005**	**0.0000**	**1.8053**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

Provide Traffic Calming Measures

Implement NEV Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	7,233.240 6	7,233.240 6	1.2119	0.0000	7,263.538 1
Unmitigated											0.0000	8,380.785 7	8,380.785 7	1.3181	0.0000	8,413.738 8

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	15,192.80	5,725.16	4672.64	6,617,834	5,956,050
Fast Food Restaurant w/o Drive Thru	1,611.00	1,566.00	1125.00	2,475,523	2,227,970
Fast Food Restaurant with Drive Thru	1,488.36	2,166.09	1628.16	1,499,732	1,349,759
General Office Building	523.04	116.65	49.79	949,639	854,675
Parking Lot	0.00	0.00	0.00		
Strip Mall	5,588.75	5,301.24	2576.22	7,880,839	7,092,755
Total	24,403.95	14,875.15	10,051.81	19,423,566	17,481,209

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market With Gas	9.50	7.30	7.30	0.80	80.20	19.00	14	21	65
Fast Food Restaurant w/o Drive	9.50	7.30	7.30	1.50	79.50	19.00	51	37	12
Fast Food Restaurant with Drive	9.50	7.30	7.30	2.20	78.80	19.00	29	21	50
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market With Gas Pumps	0.628610	0.035232	0.213232	0.096627	0.010686	0.003563	0.000099	0.002269	0.002309	0.001252	0.004642	0.001018	0.000460
Fast Food Restaurant w/o Drive Thru	0.639737	0.035855	0.217007	0.096627	0.000095	0.000095	0.000742	0.000159	0.002309	0.001252	0.004642	0.001018	0.000460
Fast Food Restaurant with Drive Thru	0.639737	0.035855	0.217007	0.096627	0.000095	0.000095	0.000742	0.000159	0.002309	0.001252	0.004642	0.001018	0.000460
General Office Building	0.636690	0.035680	0.215970	0.096627	0.003850	0.000960	0.000020	0.000510	0.002309	0.001252	0.004642	0.001018	0.000460
Parking Lot	0.636033	0.035648	0.215750	0.096627	0.000784	0.000784	0.003425	0.001268	0.002309	0.001252	0.004642	0.001018	0.000460
Strip Mall	0.636033	0.035648	0.215750	0.096627	0.000784	0.000784	0.003425	0.001268	0.002309	0.001252	0.004642	0.001018	0.000460

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	549.6496	549.6496	0.0249	5.1400e-003	551.8033
Electricity Unmitigated											0.0000	549.6496	549.6496	0.0249	5.1400e-003	551.8033
NaturalGas Mitigated											0.0000	165.1816	165.1816	3.1700e-003	3.0300e-003	166.1632
NaturalGas Unmitigated											0.0000	165.1816	165.1816	3.1700e-003	3.0300e-003	166.1632

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					
Convenience Market With Gas Pumps	41940.3											0.0000	2.2381	2.2381	4.0000e-005	4.0000e-005	2.2514
Fast Food Restaurant w/o Drive Thru	472635											0.0000	25.2216	25.2216	4.8000e-004	4.6000e-004	25.3715
Fast Food Restaurant with Drive Thru	630180											0.0000	33.6288	33.6288	6.4000e-004	6.2000e-004	33.8286
General Office Building	612731											0.0000	32.6977	32.6977	6.3000e-004	6.0000e-004	32.8920
Parking Lot	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	1.3379e+006											0.0000	71.3954	71.3954	1.3700e-003	1.3100e-003	71.8197
Total												**0.0000**	**165.1816**	**165.1816**	**3.1600e-003**	**3.0300e-003**	**166.1632**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market With Gas Pumps	41940.3											0.0000	2.2381	2.2381	4.0000e-005	4.0000e-005	2.2514
Fast Food Restaurant w/o Drive Thru	472635											0.0000	25.2216	25.2216	4.8000e-004	4.6000e-004	25.3715
Fast Food Restaurant with Drive Thru	630180											0.0000	33.6288	33.6288	6.4000e-004	6.2000e-004	33.8286
General Office Building	612731											0.0000	32.6977	32.6977	6.3000e-004	6.0000e-004	32.8920
Parking Lot	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	1.3379e+006											0.0000	71.3954	71.3954	1.3700e-003	1.3100e-003	71.8197
Total												**0.0000**	**165.1816**	**165.1816**	**3.1600e-003**	**3.0300e-003**	**166.1632**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	31307	9.1076	4.1000e-004	9.0000e-005	9.1432
Fast Food Restaurant w/o Drive Thru	63607.5	18.5042	8.4000e-004	1.7000e-004	18.5767
Fast Food Restaurant with Drive Thru	84810	24.6722	1.1200e-003	2.3000e-004	24.7689
General Office Building	419237	121.9609	5.5100e-003	1.1400e-003	122.4387
Parking Lot	291747	84.8727	3.8400e-003	7.9000e-004	85.2052
Strip Mall	998696	290.5322	0.0131	2.7200e-003	291.6706
Total		**549.6496**	**0.0249**	**5.1400e-003**	**551.8033**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	31307	9.1076	4.1000e-004	9.0000e-005	9.1432
Fast Food Restaurant w/o Drive Thru	63607.5	18.5042	8.4000e-004	1.7000e-004	18.5767
Fast Food Restaurant with Drive Thru	84810	24.6722	1.1200e-003	2.3000e-004	24.7689
General Office Building	419237	121.9609	5.5100e-003	1.1400e-003	122.4387
Parking Lot	291747	84.8727	3.8400e-003	7.9000e-004	85.2052
Strip Mall	998696	290.5322	0.0131	2.7200e-003	291.6706
Total		**549.6496**	**0.0249**	**5.1400e-003**	**551.8033**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	4.0400e-003	4.0400e-003	2.0000e-005	0.0000	4.5100e-003
Unmitigated											0.0000	4.0400e-003	4.0400e-003	2.0000e-005	0.0000	4.5100e-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											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	4.0400e-003	4.0400e-003	2.0000e-005	0.0000	4.5100e-003
Total											**0.0000**	**4.0400e-003**	**4.0400e-003**	**2.0000e-005**	**0.0000**	**4.5100e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	4.0400e-003	4.0400e-003	2.0000e-005	0.0000	4.5100e-003
Total											**0.0000**	**4.0400e-003**	**4.0400e-003**	**2.0000e-005**	**0.0000**	**4.5100e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	38.8399	0.5139	0.0124	55.3870
Unmitigated	48.5499	0.6424	0.0155	69.2338

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.292801 / 0.179459	0.7365	9.5700e-003	2.3000e-004	1.0447
Fast Food Restaurant w/o Drive Thru	0.682951 / 0.0435926	1.3361	0.0223	5.4000e-004	2.0534
Fast Food Restaurant with Drive Thru	0.910601 / 0.0581235	1.7815	0.0297	7.1000e-004	2.7379
General Office Building	8.42813 / 5.16563	21.2004	0.2755	6.6600e-003	30.0712
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	9.34054 / 5.72485	23.4955	0.3053	7.3800e-003	33.3266
Total		**48.5499**	**0.6424**	**0.0155**	**69.2338**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.234241 / 0.143567	0.5892	7.6600e-003	1.9000e-004	0.8358
Fast Food Restaurant w/o Drive Thru	0.546361 / 0.0348741	1.0689	0.0178	4.3000e-004	1.6427
Fast Food Restaurant with Drive Thru	0.728481 / 0.0464988	1.4252	0.0238	5.7000e-004	2.1903
General Office Building	6.74251 / 4.1325	16.9603	0.2204	5.3300e-003	24.0569
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	7.47244 / 4.57988	18.7964	0.2442	5.9000e-003	26.6613
Total		**38.8399**	**0.5139**	**0.0124**	**55.3870**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	36.0801	2.1323	0.0000	89.3870
Unmitigated	48.1068	2.8430	0.0000	119.1826

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant w/o Drive Thru	25.92	5.2615	0.3110	0.0000	13.0352
Fast Food Restaurant with Drive Thru	34.56	7.0154	0.4146	0.0000	17.3803
General Office Building	44.1	8.9519	0.5290	0.0000	22.1780
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	132.41	26.8780	1.5885	0.0000	66.5892
Total		**48.1068**	**2.8430**	**0.0000**	**119.1826**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant w/o Drive Thru	19.44	3.9461	0.2332	0.0000	9.7764
Fast Food Restaurant with Drive Thru	25.92	5.2615	0.3110	0.0000	13.0352
General Office Building	33.075	6.7139	0.3968	0.0000	16.6335
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	99.3075	20.1585	1.1913	0.0000	49.9419
Total		**36.0801**	**2.1323**	**0.0000**	**89.3870**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CalEEMod Output

Residential GHG 2030 Mitigated

Copper River Ranch SEIR Residential Buldout GHG 2030

Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	849.00	Dwelling Unit	15.64	849,000.00	2428
Single Family Housing	1,247.00	Dwelling Unit	179.46	2,244,600.00	3566

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 45

Climate Zone 3 **Operational Year** 2030

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 290 **CH4 Intensity (lb/MWhr)** 0.022 **N2O Intensity (lb/MWhr)** 0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E Intensity Factors

Land Use - Apartments 15.64 acres w/o Copper Friant 21 acres. SFR 179.46 for tracts not yet graded.

Construction Phase - 5 Year Buildout Schedule

Off-road Equipment - Increased equipment no. to account for shorter schedule while retaining default hours of use.

Off-road Equipment - Equipment no. increased to account for shorter schedule and default hours of use.

Architectural Coating - Rule 4601 Architectural Coatings compliance

Vehicle Trips - ITE 10th Edition Trip Generation Rates

Woodstoves -

Consumer Products - ARB Consumer Products Regulations 2012 to 2026 6.2%

Area Coating - Rule 4601 Architectural Coatings compliance

Construction Off-road Equipment Mitigation - Reg VIII compliance

Mobile Land Use Mitigation -

Area Mitigation -

Energy Mitigation - 2019 Title 24

Water Mitigation -

Waste Mitigation - CalRecycle 75% diversion mandate

Fleet Mix - SJVAPCD Residential Fleet Mix 2026

Table Name	Column Name	Default Value	New Value
tblFleetMix	HHD	0.13	0.02
tblFleetMix	HHD	0.13	0.02
tblFleetMix	LDA	0.52	0.52
tblFleetMix	LDA	0.52	0.52
tblFleetMix	LDT1	0.03	0.21
tblFleetMix	LDT1	0.03	0.21
tblFleetMix	LDT2	0.18	0.17
tblFleetMix	LDT2	0.18	0.17

tblFleetMix	LHD1	9.7000e-003	8.0000e-004
tblFleetMix	LHD1	9.7000e-003	8.0000e-004
tblFleetMix	LHD2	3.4040e-003	9.0000e-004
tblFleetMix	LHD2	3.4040e-003	9.0000e-004
tblFleetMix	MCY	4.5630e-003	2.5000e-003
tblFleetMix	MCY	4.5630e-003	2.5000e-003
tblFleetMix	MDV	0.09	0.07
tblFleetMix	MDV	0.09	0.07
tblFleetMix	MH	4.3600e-004	2.3000e-003
tblFleetMix	MH	4.3600e-004	2.3000e-003
tblFleetMix	MHD	0.03	7.5000e-003
tblFleetMix	MHD	0.03	7.5000e-003
tblFleetMix	OBUS	2.3060e-003	0.00
tblFleetMix	OBUS	2.3060e-003	0.00
tblFleetMix	SBUS	9.9800e-004	2.0000e-004
tblFleetMix	SBUS	9.9800e-004	2.0000e-004
tblFleetMix	UBUS	1.1850e-003	4.4000e-003
tblFleetMix	UBUS	1.1850e-003	4.4000e-003
tblLandUse	LotAcreage	53.06	15.64
tblLandUse	LotAcreage	404.87	179.46
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblVehicleTrips	HO_TTP	35.70	36.00
tblVehicleTrips	HO_TTP	35.70	36.00
tblVehicleTrips	HS_TTP	15.90	16.00
tblVehicleTrips	HS_TTP	15.90	16.00

tblVehicleTrips	HW_TTP	48.40	48.00
tblVehicleTrips	HW_TTP	48.40	48.00
tblVehicleTrips	ST_TR	7.16	8.14
tblVehicleTrips	ST_TR	9.91	9.54
tblVehicleTrips	SU_TR	6.07	6.28
tblVehicleTrips	SU_TR	8.62	8.55
tblVehicleTrips	WD_TR	6.59	7.32
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021											0.0000	86.5963	86.5963	0.0271	0.0000	87.2740
Maximum											**0.0000**	**86.5963**	**86.5963**	**0.0271**	**0.0000**	**87.2740**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021											0.0000	86.5962	86.5962	0.0271	0.0000	87.2739
Maximum											**0.0000**	**86.5962**	**86.5962**	**0.0271**	**0.0000**	**87.2739**

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		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											788.7352	933.4247	1,722.159 9	3.7288	0.0167	1,820.340 6
Energy											0.0000	4,339.718 7	4,339.718 7	0.1943	0.0774	4,367.647 1
Mobile											0.0000	15,047.04 20	15,047.04 20	0.7714	0.0000	15,066.32 57
Waste											339.8678	0.0000	339.8678	20.0856	0.0000	842.0080
Water											43.3251	136.8390	180.1641	4.4603	0.1074	323.6857
Total											**1,171.928 1**	**20,457.02 43**	**21,628.95 24**	**29.2403**	**0.2015**	**22,420.00 72**

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											0.0000	933.4247	933.4247	0.0416	0.0167	939.4260
Energy											0.0000	4,185.383 7	4,185.383 7	0.1904	0.0746	4,212.376 5
Mobile											0.0000	13,679.43 01	13,679.43 01	0.7243	0.0000	13,697.53 78
Waste											254.9008	0.0000	254.9008	15.0642	0.0000	631.5060
Water											34.6601	109.4712	144.1313	3.5682	0.0859	258.9485
Total											**289.5609**	**18,907.70 96**	**19,197.27 05**	**19.5887**	**0.1772**	**19,739.79 49**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**75.29**	**7.57**	**11.24**	**33.01**	**12.06**	**11.95**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	9/1/2021	11/9/2021	5	120	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	83.5893	83.5893	0.0270	0.0000	84.2652
Total											**0.0000**	**83.5893**	**83.5893**	**0.0270**	**0.0000**	**84.2652**

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
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	3.0070	3.0070	7.0000e-005	0.0000	3.0089
Total											**0.0000**	**3.0070**	**3.0070**	**7.0000e-005**	**0.0000**	**3.0089**

3.2 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	83.5892	83.5892	0.0270	0.0000	84.2651
Total											**0.0000**	**83.5892**	**83.5892**	**0.0270**	**0.0000**	**84.2651**

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
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	3.0070	3.0070	7.0000e-005	0.0000	3.0089
Total											**0.0000**	**3.0070**	**3.0070**	**7.0000e-005**	**0.0000**	**3.0089**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

Provide Traffic Calming Measures

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	13,679.4301	13,679.4301	0.7243	0.0000	13,697.5378
Unmitigated											0.0000	15,047.0420	15,047.0420	0.7714	0.0000	15,066.3257

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	6,214.68	6,910.86	5331.72	18,101,999	16,337,054
Single Family Housing	11,771.68	11,896.38	10661.85	34,024,482	30,707,095
Total	17,986.36	18,807.24	15,993.57	52,126,481	47,044,149

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	10.80	7.30	7.50	48.00	16.00	36.00	86	11	3
Single Family Housing	10.80	7.30	7.50	48.00	16.00	36.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.521500	0.214600	0.168100	0.065900	0.000800	0.000900	0.007500	0.020300	0.000000	0.004400	0.002500	0.000200	0.002300
Single Family Housing	0.521500	0.214600	0.168100	0.065900	0.000800	0.000900	0.007500	0.020300	0.000000	0.004400	0.002500	0.000200	0.002300

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	1,942.563 7	1,942.563 7	0.1474	0.0335	1,956.228 6
Electricity Unmitigated											0.0000	1,959.427 7	1,959.427 7	0.1487	0.0338	1,973.211 3
NaturalGas Mitigated											0.0000	2,242.820 0	2,242.820 0	0.0430	0.0411	2,256.148 0
NaturalGas Unmitigated											0.0000	2,380.291 0	2,380.291 0	0.0456	0.0436	2,394.435 9

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					
Apartments Low Rise	1.20019e +007											0.0000	640.4647	640.4647	0.0123	0.0117	644.2706
Single Family Housing	3.26031e +007											0.0000	1,739.826 3	1,739.826 3	0.0334	0.0319	1,750.165 3
Total												**0.0000**	**2,380.291 0**	**2,380.291 0**	**0.0456**	**0.0436**	**2,394.435 9**

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					
Apartments Low Rise	1.1383e +007											0.0000	607.4393	607.4393	0.0116	0.0111	611.0490
Single Family Housing	3.06459e +007											0.0000	1,635.380 7	1,635.380 7	0.0313	0.0300	1,645.099 0
Total												**0.0000**	**2,242.820 0**	**2,242.820 0**	**0.0430**	**0.0411**	**2,256.148 0**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	3.97121e +006	522.3807	0.0396	9.0100e-003	526.0553
Single Family Housing	1.09246e +007	1,437.047 0	0.1090	0.0248	1,447.155 9
Total		**1,959.427 7**	**0.1487**	**0.0338**	**1,973.211 3**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	3.92995e +006	516.9522	0.0392	8.9100e-003	520.5887
Single Family Housing	1.08377e +007	1,425.611 5	0.1082	0.0246	1,435.639 9
Total		**1,942.563 7**	**0.1474**	**0.0335**	**1,956.228 6**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	933.4247	933.4247	0.0416	0.0167	939.4260
Unmitigated											788.7352	933.4247	1,722.159 9	3.7288	0.0167	1,820.340 6

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											788.7352	908.0027	1,696.737 9	3.7046	0.0167	1,794.313 2
Landscaping											0.0000	25.4220	25.4220	0.0242	0.0000	26.0275
Total											**788.7352**	**933.4247**	**1,722.159 9**	**3.7288**	**0.0167**	**1,820.340 6**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											0.0000	908.0027	908.0027	0.0174	0.0167	913.3985
Landscaping											0.0000	25.4220	25.4220	0.0242	0.0000	26.0275
Total											**0.0000**	**933.4247**	**933.4247**	**0.0416**	**0.0167**	**939.4260**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	144.1313	3.5682	0.0859	258.9485
Unmitigated	180.1641	4.4603	0.1074	323.6857

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	55.3158 / 34.873	72.9768	1.8067	0.0435	131.1112
Single Family Housing	81.2471 / 51.221	107.1873	2.6536	0.0639	192.5744
Total		**180.1641**	**4.4603**	**0.1074**	**323.6857**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	44.2526 / 27.8984	58.3814	1.4453	0.0348	104.8890
Single Family Housing	64.9977 / 40.9768	85.7499	2.1229	0.0511	154.0596
Total		**144.1313**	**3.5682**	**0.0859**	**258.9485**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	254.9008	15.0642	0.0000	631.5060
Unmitigated	339.8678	20.0856	0.0000	842.0080

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	390.54	79.2761	4.6851	0.0000	196.4032
Single Family Housing	1283.76	260.5917	15.4005	0.0000	645.6049
Total		**339.8678**	**20.0856**	**0.0000**	**842.0080**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	292.905	59.4571	3.5138	0.0000	147.3024
Single Family Housing	962.82	195.4438	11.5504	0.0000	484.2036
Total		**254.9008**	**15.0642**	**0.0000**	**631.5060**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CalEEMod Output

Commercial GHG 2030 Mitigated

Copper River SEIR Commercial Buildout 2030 GHG

Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	47.42	1000sqft	1.09	47,425.00	0
Parking Lot	19.14	Acre	19.14	833,564.16	0
Fast Food Restaurant w/o Drive Thru	2.25	1000sqft	0.05	2,250.00	0
Fast Food Restaurant with Drive Thru	3.00	1000sqft	0.07	3,000.00	0
Convenience Market With Gas Pumps	28.00	Pump	0.09	3,952.90	0
Strip Mall	126.10	1000sqft	2.89	126,098.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 45

Climate Zone 3 **Operational Year** 2030

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 290 **CH4 Intensity (lb/MWhr)** 0.022 **N2O Intensity (lb/MWhr)** 0.005

1.3 User Entered Comments & Non-Default Data

Copper River SEIR Commercial Buildout 2030 GHG - Fresno County, Annual

Project Characteristics - PG&E Intensity Factors for 2020

Land Use - All commercial at buildout. FF w/o DT is Coffee/Donut w/DT to match TIS

Construction Phase - 7 year buildout schedule

Off-road Equipment - Reduced hour/day to reflect longer schedule while retaining default hours of use.

Off-road Equipment - Reduced hours to reflect longer schedule and default hours of operation

On-road Fugitive Dust -

Architectural Coating - Rule 4601 Architectural Coatings

Vehicle Trips - Trip Generation Rates from Project TIS

Energy Use - 2019 Title 24 10.7% Electricity and 1.0% Gas

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation - Measures from recent project in Copper River.

Area Mitigation - Rule 4601 Architectural Coatings

Energy Mitigation -

Water Mitigation - Calgreen Code and MWELO water conservation requirements

Waste Mitigation - CalRecycle 75 percent diversion mandates

Fleet Mix - Truck Fleet mixes based on survey data and project specific estimates

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	65
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	150	65
tblConstructionPhase	NumDays	10.00	30.00
tblEnergyUse	T24E	2.14	1.91
tblEnergyUse	T24E	6.55	5.85
tblEnergyUse	T24E	6.55	5.85
tblEnergyUse	T24E	2.62	2.34
tblEnergyUse	T24E	2.14	1.91
tblEnergyUse	T24NG	8.62	8.53

tblEnergyUse	T24NG	35.72	35.36
tblEnergyUse	T24NG	35.72	35.36
tblEnergyUse	T24NG	12.77	12.64
tblEnergyUse	T24NG	8.62	8.53
tblFleetMix	HHD	0.13	2.2690e-003
tblFleetMix	HHD	0.13	1.5900e-004
tblFleetMix	HHD	0.13	1.5900e-004
tblFleetMix	HHD	0.13	5.1000e-004
tblFleetMix	HHD	0.13	1.2680e-003
tblFleetMix	HHD	0.13	1.2680e-003
tblFleetMix	LDA	0.52	0.63
tblFleetMix	LDA	0.52	0.64
tblFleetMix	LDA	0.52	0.64
tblFleetMix	LDA	0.52	0.64
tblFleetMix	LDA	0.52	0.64
tblFleetMix	LDA	0.52	0.64
tblFleetMix	LDT1	0.03	0.04
tblFleetMix	LDT1	0.03	0.04
tblFleetMix	LDT1	0.03	0.04
tblFleetMix	LDT1	0.03	0.04
tblFleetMix	LDT1	0.03	0.04
tblFleetMix	LDT1	0.03	0.04
tblFleetMix	LDT2	0.18	0.21
tblFleetMix	LDT2	0.18	0.22
tblFleetMix	LDT2	0.18	0.22
tblFleetMix	LDT2	0.18	0.22
tblFleetMix	LDT2	0.18	0.22

tblFleetMix	LDT2	0.18	0.22
tblFleetMix	LHD1	9.7000e-003	0.01
tblFleetMix	LHD1	9.7000e-003	9.5000e-005
tblFleetMix	LHD1	9.7000e-003	9.5000e-005
tblFleetMix	LHD1	9.7000e-003	3.8500e-003
tblFleetMix	LHD1	9.7000e-003	7.8400e-004
tblFleetMix	LHD1	9.7000e-003	7.8400e-004
tblFleetMix	LHD2	3.4040e-003	3.5630e-003
tblFleetMix	LHD2	3.4040e-003	9.5000e-005
tblFleetMix	LHD2	3.4040e-003	9.5000e-005
tblFleetMix	LHD2	3.4040e-003	9.6000e-004
tblFleetMix	LHD2	3.4040e-003	7.8400e-004
tblFleetMix	LHD2	3.4040e-003	7.8400e-004
tblFleetMix	MCY	4.5630e-003	4.6420e-003
tblFleetMix	MCY	4.5630e-003	4.6420e-003
tblFleetMix	MCY	4.5630e-003	4.6420e-003
tblFleetMix	MCY	4.5630e-003	4.6420e-003
tblFleetMix	MCY	4.5630e-003	4.6420e-003
tblFleetMix	MCY	4.5630e-003	4.6420e-003
tblFleetMix	MDV	0.09	0.10
tblFleetMix	MDV	0.09	0.10
tblFleetMix	MDV	0.09	0.10
tblFleetMix	MDV	0.09	0.10
tblFleetMix	MDV	0.09	0.10
tblFleetMix	MDV	0.09	0.10
tblFleetMix	MH	4.3600e-004	4.6000e-004
tblFleetMix	MH	4.3600e-004	4.6000e-004

tblFleetMix	MH	4.3600e-004	4.6000e-004
tblFleetMix	MH	4.3600e-004	4.6000e-004
tblFleetMix	MH	4.3600e-004	4.6000e-004
tblFleetMix	MH	4.3600e-004	4.6000e-004
tblFleetMix	MHD	0.03	9.9000e-005
tblFleetMix	MHD	0.03	7.4200e-004
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tblFleetMix	MHD	0.03	2.0000e-005
tblFleetMix	MHD	0.03	3.4250e-003
tblFleetMix	MHD	0.03	3.4250e-003
tblFleetMix	OBUS	2.3060e-003	2.3090e-003
tblFleetMix	OBUS	2.3060e-003	2.3090e-003
tblFleetMix	OBUS	2.3060e-003	2.3090e-003
tblFleetMix	OBUS	2.3060e-003	2.3090e-003
tblFleetMix	OBUS	2.3060e-003	2.3090e-003
tblFleetMix	OBUS	2.3060e-003	2.3090e-003
tblFleetMix	SBUS	9.9800e-004	1.0180e-003
tblFleetMix	SBUS	9.9800e-004	1.0180e-003
tblFleetMix	SBUS	9.9800e-004	1.0180e-003
tblFleetMix	SBUS	9.9800e-004	1.0180e-003
tblFleetMix	SBUS	9.9800e-004	1.0180e-003
tblFleetMix	SBUS	9.9800e-004	1.0180e-003
tblFleetMix	UBUS	1.1850e-003	1.2520e-003
tblFleetMix	UBUS	1.1850e-003	1.2520e-003
tblFleetMix	UBUS	1.1850e-003	1.2520e-003
tblFleetMix	UBUS	1.1850e-003	1.2520e-003
tblFleetMix	UBUS	1.1850e-003	1.2520e-003

tblFleetMix	UBUS	1.1850e-003	1.2520e-003
tblLandUse	LandUseSquareFeet	47,420.00	47,425.00
tblLandUse	LandUseSquareFeet	833,738.40	833,564.16
tblLandUse	LandUseSquareFeet	126,100.00	126,098.00
tblOffRoadEquipment	UsageHours	8.00	2.70
tblOffRoadEquipment	UsageHours	8.00	2.70
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblVehicleTrips	ST_TR	204.47	205.36
tblVehicleTrips	ST_TR	696.00	820.38
tblVehicleTrips	ST_TR	722.03	470.95
tblVehicleTrips	ST_TR	2.46	9.74
tblVehicleTrips	ST_TR	42.04	37.75
tblVehicleTrips	SU_TR	166.88	205.36
tblVehicleTrips	SU_TR	500.00	820.38
tblVehicleTrips	SU_TR	542.72	470.98
tblVehicleTrips	SU_TR	1.05	9.74
tblVehicleTrips	SU_TR	20.43	37.75
tblVehicleTrips	WD_TR	542.60	205.36
tblVehicleTrips	WD_TR	716.00	820.38
tblVehicleTrips	WD_TR	496.12	470.95
tblVehicleTrips	WD_TR	11.03	9.74
tblVehicleTrips	WD_TR	44.32	37.75

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021											0.0000	18.7310	18.7310	5.5200e-003	0.0000	18.8690
Maximum											**0.0000**	**18.7310**	**18.7310**	**5.5200e-003**	**0.0000**	**18.8690**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021											0.0000	18.7310	18.7310	5.5200e-003	0.0000	18.8690
Maximum											**0.0000**	**18.7310**	**18.7310**	**5.5200e-003**	**0.0000**	**18.8690**

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		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											0.0000	4.0400e-003	4.0400e-003	1.0000e-005	0.0000	4.3000e-003
Energy											0.0000	413.7173	413.7173	0.0220	7.3100e-003	416.4472
Mobile											0.0000	4,030.2790	4,030.2790	0.1367	0.0000	4,033.6959
Waste											48.1068	0.0000	48.1068	2.8430	0.0000	119.1826
Water											6.2356	19.1333	25.3689	0.6419	0.0155	46.0216
Total											**54.3425**	**4,463.1336**	**4,517.4761**	**3.6437**	**0.0228**	**4,615.3516**

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											0.0000	4.0400e-003	4.0400e-003	1.0000e-005	0.0000	4.3000e-003
Energy											0.0000	413.7173	413.7173	0.0220	7.3100e-003	416.4472
Mobile											0.0000	3,473.2238	3,473.2238	0.1223	0.0000	3,476.2816
Waste											36.0801	0.0000	36.0801	2.1323	0.0000	89.3870
Water											4.9885	15.3066	20.2952	0.5135	0.0124	36.8173
Total											**41.0686**	**3,902.2518**	**3,943.3204**	**2.7901**	**0.0197**	**4,018.9374**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**24.43**	**12.57**	**12.71**	**23.42**	**13.58**	**12.92**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/1/2021	11/11/2021	5	30	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 19.14

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	2.70	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	2.70	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	16.9268	16.9268	5.4700e-003	0.0000	17.0637
Total											**0.0000**	**16.9268**	**16.9268**	**5.4700e-003**	**0.0000**	**17.0637**

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
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1.8042	1.8042	4.0000e-005	0.0000	1.8053
Total											**0.0000**	**1.8042**	**1.8042**	**4.0000e-005**	**0.0000**	**1.8053**

3.2 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	16.9268	16.9268	5.4700e-003	0.0000	17.0637
Total											**0.0000**	**16.9268**	**16.9268**	**5.4700e-003**	**0.0000**	**17.0637**

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
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1.8042	1.8042	4.0000e-005	0.0000	1.8053
Total											**0.0000**	**1.8042**	**1.8042**	**4.0000e-005**	**0.0000**	**1.8053**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

Provide Traffic Calming Measures

Implement NEV Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	3,473.2238	3,473.2238	0.1223	0.0000	3,476.2816
Unmitigated											0.0000	4,030.2790	4,030.2790	0.1367	0.0000	4,033.6959

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	5,750.08	5,750.08	5750.08	3,084,367	2,775,931
Fast Food Restaurant w/o Drive Thru	1,845.86	1,845.86	1845.86	2,976,567	2,678,910
Fast Food Restaurant with Drive Thru	1,412.85	1,412.85	1412.94	1,320,073	1,188,066
General Office Building	461.87	461.87	461.87	1,103,757	993,381
Parking Lot	0.00	0.00	0.00		
Strip Mall	4,760.28	4,760.28	4760.28	7,330,981	6,597,883
Total	14,230.93	14,230.93	14,231.02	15,815,745	14,234,171

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market With Gas	9.50	7.30	7.30	0.80	80.20	19.00	14	21	65
Fast Food Restaurant w/o Drive	9.50	7.30	7.30	1.50	79.50	19.00	51	37	12
Fast Food Restaurant with Drive	9.50	7.30	7.30	2.20	78.80	19.00	29	21	50
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market With Gas Pumps	0.628610	0.035232	0.213232	0.096627	0.010686	0.003563	0.000099	0.002269	0.002309	0.001252	0.004642	0.001018	0.000460
Fast Food Restaurant w/o Drive Thru	0.639737	0.035855	0.217007	0.096627	0.000095	0.000095	0.000742	0.000159	0.002309	0.001252	0.004642	0.001018	0.000460
Fast Food Restaurant with Drive Thru	0.639737	0.035855	0.217007	0.096627	0.000095	0.000095	0.000742	0.000159	0.002309	0.001252	0.004642	0.001018	0.000460
General Office Building	0.636690	0.035680	0.215970	0.096627	0.003850	0.000960	0.000020	0.000510	0.002309	0.001252	0.004642	0.001018	0.000460
Parking Lot	0.636033	0.035648	0.215750	0.096627	0.000784	0.000784	0.003425	0.001268	0.002309	0.001252	0.004642	0.001018	0.000460
Strip Mall	0.636033	0.035648	0.215750	0.096627	0.000784	0.000784	0.003425	0.001268	0.002309	0.001252	0.004642	0.001018	0.000460

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	248.5357	248.5357	0.0189	4.2900e-003	250.2840
Electricity Unmitigated											0.0000	248.5357	248.5357	0.0189	4.2900e-003	250.2840
NaturalGas Mitigated											0.0000	165.1816	165.1816	3.1700e-003	3.0300e-003	166.1632
NaturalGas Unmitigated											0.0000	165.1816	165.1816	3.1700e-003	3.0300e-003	166.1632

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					
Convenience Market With Gas Pumps	41940.3											0.0000	2.2381	2.2381	4.0000e-005	4.0000e-005	2.2514
Fast Food Restaurant w/o Drive Thru	472635											0.0000	25.2216	25.2216	4.8000e-004	4.6000e-004	25.3715
Fast Food Restaurant with Drive Thru	630180											0.0000	33.6288	33.6288	6.4000e-004	6.2000e-004	33.8286
General Office Building	612731											0.0000	32.6977	32.6977	6.3000e-004	6.0000e-004	32.8920
Parking Lot	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	1.3379e+006											0.0000	71.3954	71.3954	1.3700e-003	1.3100e-003	71.8197
Total												**0.0000**	**165.1816**	**165.1816**	**3.1600e-003**	**3.0300e-003**	**166.1632**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market With Gas Pumps	41940.3											0.0000	2.2381	2.2381	4.0000e-005	4.0000e-005	2.2514
Fast Food Restaurant w/o Drive Thru	472635											0.0000	25.2216	25.2216	4.8000e-004	4.6000e-004	25.3715
Fast Food Restaurant with Drive Thru	630180											0.0000	33.6288	33.6288	6.4000e-004	6.2000e-004	33.8286
General Office Building	612731											0.0000	32.6977	32.6977	6.3000e-004	6.0000e-004	32.8920
Parking Lot	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	1.3379e+006											0.0000	71.3954	71.3954	1.3700e-003	1.3100e-003	71.8197
Total												**0.0000**	**165.1816**	**165.1816**	**3.1600e-003**	**3.0300e-003**	**166.1632**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	31307	4.1182	3.1000e-004	7.0000e-005	4.1471
Fast Food Restaurant w/o Drive Thru	63607.5	8.3670	6.3000e-004	1.4000e-004	8.4259
Fast Food Restaurant with Drive Thru	84810	11.1561	8.5000e-004	1.9000e-004	11.2345
General Office Building	419237	55.1472	4.1800e-003	9.5000e-004	55.5351
Parking Lot	291747	38.3770	2.9100e-003	6.6000e-004	38.6469
Strip Mall	998696	131.3703	9.9700e-003	2.2700e-003	132.2944
Total		**248.5357**	**0.0189**	**4.2800e-003**	**250.2840**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	31307	4.1182	3.1000e-004	7.0000e-005	4.1471
Fast Food Restaurant w/o Drive Thru	63607.5	8.3670	6.3000e-004	1.4000e-004	8.4259
Fast Food Restaurant with Drive Thru	84810	11.1561	8.5000e-004	1.9000e-004	11.2345
General Office Building	419237	55.1472	4.1800e-003	9.5000e-004	55.5351
Parking Lot	291747	38.3770	2.9100e-003	6.6000e-004	38.6469
Strip Mall	998696	131.3703	9.9700e-003	2.2700e-003	132.2944
Total		**248.5357**	**0.0189**	**4.2800e-003**	**250.2840**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	4.0400e-003	4.0400e-003	1.0000e-005	0.0000	4.3000e-003
Unmitigated											0.0000	4.0400e-003	4.0400e-003	1.0000e-005	0.0000	4.3000e-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											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	4.0400e-003	4.0400e-003	1.0000e-005	0.0000	4.3000e-003
Total											**0.0000**	**4.0400e-003**	**4.0400e-003**	**1.0000e-005**	**0.0000**	**4.3000e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	4.0400e-003	4.0400e-003	1.0000e-005	0.0000	4.3000e-003
Total											**0.0000**	**4.0400e-003**	**4.0400e-003**	**1.0000e-005**	**0.0000**	**4.3000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	20.2952	0.5135	0.0124	36.8173
Unmitigated	25.3689	0.6419	0.0155	46.0216

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.292801 / 0.179459	0.3839	9.5600e-003	2.3000e-004	0.6916
Fast Food Restaurant w/o Drive Thru	0.682951 / 0.0435926	0.7228	0.0223	5.3000e-004	1.4393
Fast Food Restaurant with Drive Thru	0.910601 / 0.0581235	0.9638	0.0297	7.1000e-004	1.9191
General Office Building	8.42813 / 5.16563	11.0510	0.2753	6.6300e-003	19.9081
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	9.34054 / 5.72485	12.2474	0.3051	7.3500e-003	22.0633
Total		**25.3689**	**0.6419**	**0.0155**	**46.0216**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.234241 / 0.143567	0.3071	7.6500e-003	1.8000e-004	0.5533
Fast Food Restaurant w/o Drive Thru	0.546361 / 0.0348741	0.5783	0.0178	4.3000e-004	1.1515
Fast Food Restaurant with Drive Thru	0.728481 / 0.0464988	0.7710	0.0238	5.7000e-004	1.5353
General Office Building	6.74251 / 4.1325	8.8408	0.2202	5.3000e-003	15.9265
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	7.47244 / 4.57988	9.7979	0.2441	5.8800e-003	17.6507
Total		**20.2952**	**0.5135**	**0.0124**	**36.8172**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	36.0801	2.1323	0.0000	89.3870
Unmitigated	48.1068	2.8430	0.0000	119.1826

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant w/o Drive Thru	25.92	5.2615	0.3110	0.0000	13.0352
Fast Food Restaurant with Drive Thru	34.56	7.0154	0.4146	0.0000	17.3803
General Office Building	44.1	8.9519	0.5290	0.0000	22.1780
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	132.41	26.8780	1.5885	0.0000	66.5892
Total		**48.1068**	**2.8430**	**0.0000**	**119.1826**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant w/o Drive Thru	19.44	3.9461	0.2332	0.0000	9.7764
Fast Food Restaurant with Drive Thru	25.92	5.2615	0.3110	0.0000	13.0352
General Office Building	33.075	6.7139	0.3968	0.0000	16.6335
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	99.3075	20.1585	1.1913	0.0000	49.9419
Total		**36.0801**	**2.1323**	**0.0000**	**89.3870**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B: San Joaquin Valley Air Pollution Control District Amicus Brief on Friant Ranch Supreme Court Decision

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CASE NO. S219783

IN THE SUPREME COURT OF CALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,
Plaintiffs and Appellants

v.

COUNTY OF FRESNO,
Defendant and Respondent

FRIANT RANCH, L.P.,
Real Party in Interest and Respondent

After a Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726

APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF OF SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO AND REAL PARTY IN INTEREST AND RESPONDENT, FRIANT RANCH, L.P.

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CASE NO. S219783

IN THE SUPREME COURT OF CALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,
Plaintiffs and Appellants

v.

COUNTY OF FRESNO,
Defendant and Respondent

FRIANT RANCH, L.P.,
Real Party in Interest and Respondent

After a Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726

APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF OF SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO AND REAL PARTY IN INTEREST AND RESPONDENT, FRIANT RANCH, L.P.

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APPLICATION

Pursuant to California Rules of Court 8.520(f)(1), proposed Amicus Curiae San Joaquin Valley Unified Air Pollution Control District hereby requests permission from the Chief Justice to file an amicus brief in support of Defendant and Respondent, County of Fresno, and Defendant and Real Parties in Interest Friant Ranch, L.P. Pursuant to Rule 8.520(f)(5) of the California Rules of Court, the proposed amicus curiae brief is combined with this Application. The brief addresses the following issue certified by this Court for review:

> Is an EIR adequate when it identifies the health impacts of air pollution and quantifies a project's expected emissions, or does CEQA further require the EIR to *correlate* a project's air quality emissions to specific health impacts?

As of the date of this filing, the deadline for the final reply brief on the merits was March 5, 2015. Accordingly, under Rule 8.520(f)(2), this application and brief are timely.

1. Background and Interest of San Joaquin Valley Unified Air Pollution Control District

The San Joaquin Valley Unified Air Pollution Control District ("Air District") regulates air quality in the eight counties comprising the San Joaquin Valley ("Central Valley"): Kern, Tulare, Madera, Fresno, Merced, San Joaquin, Stanislaus, and Kings, and is primarily responsible for attaining air quality standards within its jurisdiction. After billions of dollars of investment by Central Valley businesses, pioneering air quality regulations, and consistent efforts by residents, the Central Valley air basin has made historic improvements in air quality.

The Central Valley's geographical, topographical and meteorological features create exceptionally challenging air quality conditions. For example, it receives air pollution transported from the San Francisco Bay Area and northern Central Valley communities, and the southern portion of the Central Valley includes three mountain ranges (Sierra, Tehachapi, and Coastal) that, under some meteorological conditions, effectively trap air pollution. Central Valley air pollution is only a fraction of what the Bay Area and Los Angeles produce, but these natural conditions result in air quality conditions that are only marginally better than Los Angeles, even though about ten times more pollution is emitted in the Los Angeles region. Bay Area air quality is much better than the Central Valley's, even though the Bay Area produces about six times more pollution. The Central Valley also receives air pollution transported from the Bay Area and northern counties in the Central Valley, including Sacramento, and transboundary anthropogenic ozone from as far away as China.

Notwithstanding these challenges, the Central Valley has reduced emissions at the same or better rate than other areas in California and has achieved unparalleled milestones in protecting public health and the environment:

- In the last decade, the Central Valley became the first air basin classified by the federal government under the Clean Air Act as a "serious nonattainment" area to come into attainment of health-based National Ambient Air Quality Standard ("NAAQS") for coarse particulate matter (PM10), an achievement made even more notable given the Valley's extensive agricultural sector. Unhealthy levels of particulate matter can cause and exacerbate a range of chronic and acute illnesses.
- In 2013, the Central Valley became the first air basin in the country to improve from a federal designation of "extreme" nonattainment to

actually attain (and quality for an attainment designation) of the 1-hour ozone NAAQS; ozone creates "smog" and, like PM10, causes adverse health impacts.

- The Central Valley also is in full attainment of federal standards for lead, nitrogen dioxide, sulfur dioxide, and carbon monoxide.
- The Central Valley continues to make progress toward compliance with its last two attainment standards, with the number of exceedences for the 8-hour ozone NAAQS reduced by 74% (for the 1997 standard) and 38% (for the 2008 standard) since 1991, and for the small particulate matter (PM2.5) NAAQS reduced by 85% (for the 1997 standard) and 61% (for the 2006 standard).

Sustained improvement in Central Valley air quality requires a rigorous and comprehensive regulatory framework that includes prohibitions (e.g., on wood-burning fireplaces in new residences), mandates (e.g., requiring the installation of best available pollution reduction technologies on new and modified equipment and industrial operations), innovations (e.g., fees assessed against residential development to fund pollution reduction actions to "offset" vehicular emissions associated with new residences), incentive programs (e.g., funding replacements of older, more polluting heavy duty trucks and school buses)[1], ongoing planning for continued air quality improvements, and enforcement of Air District permits and regulations.

The Air District is also an expert air quality agency for the eight counties and cities in the San Joaquin Valley. In that capacity, the Air District has developed air quality emission guidelines for use by the Central

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1 San Joaquin's incentive program has been so successful that through 2012, it has awarded over $ 432 million in incentive funds and has achieved 93,349 tons of lifetime emissions reductions. *See* SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, 2012 PM2.5 PLAN, 6-6 (2012) *available at* http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/06%20Chapter%206%20Incentives.pdf.

Valley counties and cities that implement the California Environment Quality Act (CEQA).[2] In its guidance, the Air District has distinguished between toxic air contaminants and criteria air pollutants.[3] Recognizing this distinction, the Air District's CEQA Guidance has adopted distinct thresholds of significance for *criteria* pollutants (i.e., ozone, PM2.5 and their respective precursor pollutants) based upon scientific and factual data which demonstrates the level that can be accommodated on a cumulative basis in the San Joaquin Valley without affecting the attainment of the applicable NAAQS.[4] For *toxic air* pollutants, the District has adopted different thresholds of significance which scientific and factual data demonstrates has the potential to expose sensitive receptors (i.e., children, the elderly) to levels which may result in localized health impacts.[5]

The Air District's CEQA Guidance was followed by the County of Fresno in its environment review of the Friant Ranch project, for which the Air District also served as a commenting agency. The Court of Appeal's holding, however, requiring correlation between the project's criteria

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2 *See, e.g.*, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, PLANNING DIVISION, GUIDE FOR ASSESSING AND MITIGATING AIR QUALITY IMPACTS (2015), *available at* http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf ("CEQA Guidance").

3 Toxic air contaminants, also known as hazardous air pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as birth defects. There are currently 189 toxic air contaminants regulated by the United States Environmental Protection Agency ("EPA") and the states pursuant to the Clean Air Act. 42 U.S.C. § 7412. Common TACs include benzene, perchloroethylene and asbestos. *Id.* at 7412(b).

In contrast, there are only six (6) criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide and lead. Although criteria air pollutants can also be harmful to human health, they are distinguishable from toxic air contaminants and are regulated separately. For instance, while criteria pollutants are regulated by numerous sections throughout Title I of the Clean Air Act, the regulation of toxic air contaminants occurs solely under section 112 of the Act. Compare 42 U.S.C. §§ 7407 – 7411 & 7501 – 7515 with 42 U.S.C. § 7411.

4 See, e.g., CEQA Guidance at http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, pp. 64-66, 80.

5 See, e.g., CEQA Guidance at http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, pp. 66, 99-101.

pollutants and local health impacts, departs from the Air District's Guidance and approved methodology for assessing criteria pollutants. A close reading of the administrative record that gave rise to this issue demonstrates that the Court's holding is based on a misunderstanding of the distinction between toxic air contaminants (for which a local health risk assessment is feasible and routinely performed) and criteria air pollutants (for which a local health risk assessment is not feasible and would result in speculative results).[6] The Air District has a direct interest in ensuring the lawfulness and consistent application of its CEQA Guidance, and will explain how the Court of Appeal departed from the Air District's long-standing CEQA Guidance in addressing criteria pollutants and toxic air contaminants in this amicus brief.

2. How the Proposed Amicus Curiae Brief Will Assist the Court

As counsel for the proposed amicus curiae, we have reviewed the briefs filed in this action. In addition to serving as a "commentary agency" for CEQA purposes over the Friant Ranch project, the Air District has a strong interest in assuring that CEQA is used for its intended purpose, and believes that this Court would benefit from additional briefing explaining the distinction between criteria pollutants and toxic air contaminants and the different methodologies employed by local air pollution control agencies such as the Air District to analyze these two categories of air pollutants under CEQA. The Air District will also explain how the Court of Appeal's opinion is based upon a fundamental misunderstanding of these two different approaches by requiring the County of Fresno to correlate the project's *criteria* pollution emissions with *local* health impacts. In doing

6 CEQA does not require speculation. *See, e.g., Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal.*, 6 Cal. 4th 1112, 1137 (1993) (upholding EIR that failed to evaluate cumulative toxic air emission increases given absence of any acceptable means for doing so).

so, the Air District will provide helpful analysis to support its position that at least insofar as criteria pollutants are concerned, CEQA does not require an EIR to correlate a project's air quality emissions to specific health impacts, because such an analysis is not reasonably feasible.

Rule 8.520 Disclosure

Pursuant to Cal. R. 8.520(f)(4), neither the Plaintiffs nor the Defendant or Real Party In Interest or their respective counsel authored this brief in whole or in part. Neither the Plaintiffs nor the Defendant or Real Party in Interest or their respective counsel made any monetary contribution towards or in support of the preparation of this brief.

CONCLUSION

On behalf of the San Joaquin Valley Unified Air Pollution Control District, we respectfully request that this Court accept the filing of the attached brief.

Dated: April 2, 2015

Annette A. Ballatore-Williamson
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Attorney for Proposed Amicus Curiae

SAN JOAQUIN VALLEY UNIFIED
AIR POLLUTION CONTROL
DISTRICT

CASE NO. S219783

IN THE SUPREME COURT OF CALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,
Plaintiffs and Appellants

v.

COUNTY OF FRESNO,
Defendant and Respondent

FRIANT RANCH, L.P.,
Real Party in Interest and Respondent

After a Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726

**AMICUS CURIAE BRIEF OF
SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO AND REAL PARTY IN INTEREST AND RESPONDENT, FRIANT RANCH, L.P.**

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I. INTRODUCTION.

The San Joaquin Valley Unified Air Pollution Control District ("Air District") respectfully submits that the Court of Appeal erred when it held that the air quality analysis contained in the Environmental Impact Report ("EIR") for the Friant Ranch development project was inadequate under the California Environmental Quality Act ("CEQA") because it did not include an analysis of the correlation between the project's criteria air pollutants and the potential adverse human health impacts. A close reading of the portion of the administrative record that gave rise to this issue demonstrates that the Court's holding is based on a misunderstanding of the distinction between toxic air contaminants and criteria air pollutants.

Toxic air contaminants, also known as hazardous air pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as birth defects. There are currently 189 toxic air contaminants (hereinafter referred to as "TACs") regulated by the United States Environmental Protection Agency ("EPA") and the states pursuant to the Clean Air Act. 42 U.S.C. § 7412. Common TACs include benzene, perchloroethylene and asbestos. *Id.* at 7412(b).

In contrast, there are only six (6) criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide and lead. Although criteria air pollutants can also be harmful to human health, they are distinguishable from TACs and are regulated separately. For instance, while criteria pollutants are regulated by numerous sections throughout Title I of the Clean Air Act, the regulation of TACs occurs solely under section 112 of the Act. *Compare* 42 U.S.C. §§ 7407 – 7411 & 7501 – 7515 *with* 42 U.S.C. § 7411.

The most relevant difference between criteria pollutants and TACs for purposes of this case is the manner in which human health impacts are accounted for. While it is common practice to analyze the correlation between an individual facility's TAC emissions and the expected localized human health impacts, such is not the case for criteria pollutants. Instead, the human health impacts associated with criteria air pollutants are analyzed and taken into consideration when EPA sets the national ambient air quality standard ("NAAQS") for each criteria pollutant. 42 U.S.C. § 7409(b)(1). The health impact of a particular criteria pollutant is analyzed on a regional and not a facility level based on how close the area is to complying with (attaining) the NAAQS. Accordingly, while the type of individual facility / health impact analysis that the Court of Appeal has required is a customary practice for TACs, it is not feasible to conduct a similar analysis for criteria air pollutants because currently available computer modeling tools are not equipped for this task.

It is clear from a reading of both the administrative record and the Court of Appeal's decision that the Court did not have the expertise to fully appreciate the difference between TACs and criteria air pollutants. As a result, the Court has ordered the County of Fresno to conduct an analysis that is not practicable and not likely yield valid information. The Air District respectfully requests that this portion of the Court of Appeal's decision be reversed.

II. THE COURT OF APPEAL ERRED IN FINDING THE FRIANT RANCH EIR INADEQUATE FOR FAILING TO ANALYZE THE SPECIFIC HUMAN HEALTH IMPACTS ASSOCIATED CRITERIA AIR POLLUTANTS.

Although the Air District does not take lightly the amount of air emissions at issue in this case, it submits that the Court of Appeal got it wrong when it required Fresno County to revise the Friant Ranch EIR to include an analysis correlating the criteria air pollutant emissions associated with the project with specific, localized health-impacts. The type of analysis the Court of Appeal has required will not yield reliable information because currently available modeling tools are not well suited for this task. Further, in reviewing this issue de novo, the Court of Appeal failed to appreciate that it lacked the scientific expertise to appreciate the significant differences between a health risk assessment commonly performed for toxic air contaminants and a similar type of analysis it felt should have been conducted for criteria air pollutants.

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A. Currently Available Modeling Tools are not Equipped to Provide a Meaningful Analysis of the Correlation between an Individual Development Project's Air Emissions and Specific Human Health Impacts.

In order to appreciate the problematic nature of the Court of Appeals' decision requiring a health risk type analysis for criteria air pollutants, it is important to understand how the relevant criteria pollutants (ozone and particulate matter) are formed, dispersed and regulated.

Ground level ozone (smog) is not directly emitted into the air, but is formed when precursor pollutants such as oxides of nitrogen (NOx) and volatile organic compounds (VOCs) are emitted into the atmosphere and undergo complex chemical reactions in the process of sunlight.[1] Once formed, ozone can be transported long distances by wind.[2] Because of the complexity of ozone formation, a specific tonnage amount of NOx or VOCs emitted in a particular area does not equate to a particular concentration of ozone in that area. In fact, even rural areas that have relatively low tonnages of emissions of NOx or VOCs can have high levels of ozone concentration simply due to wind transport.[3] Conversely, the San Francisco Bay Area has six times more NOx and VOC emissions per square mile than the San Joaquin Valley, but experiences lower

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[1] *See* United States Environmental Protection Agency, *Ground-level Ozone: Basic Information*, available at: http://www.epa.gov/airquality/ozonepollution/basic.html (visited March 10, 2015).
[2] *Id.*
[3] *Id.*

concentrations of ozone (and better air quality) simply because sea breezes disperse the emissions.[4]

Particulate matter ("PM") can be divided into two categories: directly emitted PM and secondary PM.[5] While directly emitted PM can have a localized impact, the tonnage emitted does not always equate to the local PM concentration because it can be transported long distances by wind.[6] Secondary PM, like ozone, is formed via complex chemical reactions in the atmosphere between precursor chemicals such as sulfur dioxides (SOx) and NOx.[7] Because of the complexity of secondary PM formation, the tonnage of PM-forming precursor emissions in an area does not necessarily result in an equivalent concentration of secondary PM in that area.

The disconnect between the *tonnage* of precursor pollutants (NOx, SOx and VOCs) and the *concentration* of ozone or PM formed is important because it is not necessarily the tonnage of precursor pollutants that causes human health effects, but the concentration of resulting ozone or PM. Indeed, the national ambient air quality standards ("NAAQS"), which are statutorily required to be set by the United States Environmental Protection

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[4] *San Joaquin Valley Air Pollution Control District 2007 Ozone Plan*, Executive Summary p. ES-6, available at: http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/03%20Executive%20Summary.pdf (visited March 10, 2015).
[5] United States Environmental Protection Agency, *Particulate Matter: Basic Information*, available at: http://www.epa.gov/airquality/particlepollution/basic.html (visited March 10, 2015).
[6] *Id.*
[7] *Id.*

Agency ("EPA") at levels that are "requisite to protect the public health," 42 U.S.C. § 7409(b)(1), are established as concentrations of ozone or particulate matter and not as tonnages of their precursor pollutants.[8]

Attainment of a particular NAAQS occurs when the concentration of the relevant pollutant remains below a set threshold on a consistent basis throughout a particular region. For example, the San Joaquin Valley attained the 1-hour ozone NAAQS when ozone concentrations remained at or below 0.124 parts per million Valley-wide on 3 or fewer days over a 3-year period.[9] Because the NAAQS are focused on achieving a particular concentration of pollution region-wide, the Air District's tools and plans for attaining the NAAQS are regional in nature.

For instance, the computer models used to simulate and predict an attainment date for the ozone or particulate matter NAAQS in the San Joaquin Valley are based on regional inputs, such as regional inventories of precursor pollutants (NOx, SOx and VOCs) and the atmospheric chemistry and meteorology of the Valley.[10] At a very basic level, the models simulate future ozone or PM levels based on predicted changes in precursor

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[8] See, e.g., United States Environmental Protection Agency, *Table of National Ambient Air Quality Standards*, available at: http://www.epa.gov/air/criteria.html#3 (visited March 10, 2015).
[9] *San Joaquin Valley Unified Air Pollution Control District 2013 Plan for the Revoked 1-Hour Ozone Standard*, Ch. 2 p. 2-16, available at: http://www.valleyair.org/Air_Quality_Plans/OzoneOneHourPlan2013/02Chapter2ScienceTrendsModeling.pdf (visited March 10, 2015).
[10] *Id.* at Ch. 2 p. 2-19 (visited March 12, 2015); *San Joaquin Valley Unified Air Pollution Control District 2008 PM2.5 Plan*, Appendix F, pp. F-2 – F-5, available at: http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Final_Adopted_PM2.5/20%20Appendix%20F.pdf
(visited March 19, 2015).

emissions Valley wide.[11] Because the NAAQS are set levels necessary to protect human health, the closer a region is to attaining a particular NAAQS, the lower the human health impact is from that pollutant.

The goal of these modeling exercises is not to determine whether the emissions generated by a particular factory or development project will affect the date that the Valley attains the NAAQS. Rather, the Air District's modeling and planning strategy is regional in nature and based on the extent to which *all* of the emission-generating sources in the Valley (current and future) must be controlled in order to reach attainment.[12]

Accordingly, the Air District has based its thresholds of significance for CEQA purposes on the levels that scientific and factual data demonstrate that the Valley can accommodate without affecting the attainment date for the NAAQS.[13] The Air District has tied its CEQA significance thresholds to the level at which stationary pollution sources permitted by the Air District must "offset" their emissions.[14] This "offset"

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[11] *Id.*

[12] Although the Air District does have a dispersion modeling tool used during its air permitting process that is used to predict whether a particular project's directly emitted PM will either cause an exceedance of the PM NAAQS or contribute to an existing exceedance, this model bases the prediction on a worst case scenario of emissions and meteorology and has no provision for predicting any associated human health impacts. Further, this analysis is only performed for stationary sources (factories, oil refineries, etc.) that are required to obtain a New Source Review permit from the Air District and not for development projects such as Friant Ranch over which the Air District has no preconstruction permitting authority. *See* San Joaquin Valley Unified Air Pollution Control District Rule 2201 §§ 2.0; 3.3.9; 4.14.1, available at: http://www.valleyair.org/rules/currntrules/Rule2201041l.pdf (visited March 19, 2015).

[13] *San Joaquin Valley Unified Air Pollution Control District Guide to Assessing and Mitigating Air Quality Impacts*, (March 19, 2015) p. 22, available at: http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI%20Jan%202002%20Rev.pdf (visited March 30, 2015).

[14] *Id.* at pp. 22, 25.

level allows for growth while keeping the cumulative effects of all new sources at a level that will not impede attainment of the NAAQS.[15] In the Valley, these thresholds are 15 tons per year of PM, and 10 tons of NOx or VOC per year. *Sierra Club*, *supra*, 172 Cal.Rptr.3d at 303; AR 4554. Thus, the CEQA air quality analysis for criteria pollutants is not really a localized, project-level impact analysis but one of regional, "cumulative impacts."

Accordingly, the significance thresholds applied in the Friant Ranch EIR (15 tons per year of PM and 10 tons of NOx or VOCs) are not intended to be indicative of any localized human health impact that the project may have. While the health effects of air pollution are of primary concern to the Air District (indeed, the NAAQS are established to protect human health), the Air District is simply not equipped to analyze whether and to what extent the criteria pollutant emissions of an individual CEQA project directly impact human health in a particular area. This is true even for projects with relatively high levels of emissions of criteria pollutant precursor emissions.

For instance, according to the EIR, the Friant Ranch project is estimated to emit 109.52 tons per year of ROG (VOC), 102.19 tons per year of NOx, and 117.38 tons per year of PM. Although these levels well

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[15] [15] *San Joaquin Valley Unified Air Pollution Control District Environmental Review Guidelines* (Aug. 2000) p. 4-11, available at: http://www.valleyair.org/transportation/CEQA%20Rules/ERG%20Adopted%20_August%202000_.pdf (visited March 12, 2015).

exceed the Air District's CEQA significance thresholds, this does not mean that one can easily determine the concentration of ozone or PM that will be created at or near the Friant Ranch site on a particular day or month of the year, or what specific health impacts will occur. Meteorology, the presence of sunlight, and other complex chemical factors all combine to determine the ultimate concentration and location of ozone or PM. This is especially true for a project like Friant Ranch where most of the criteria pollutant emissions derive not from a single "point source," but from area wide sources (consumer products, paint, etc.) or mobile sources (cars and trucks) driving to, from and around the site.

In addition, it would be extremely difficult to model the impact on NAAQS attainment that the emissions from the Friant Ranch project may have. As discussed above, the currently available modeling tools are equipped to model the impact of *all* emission sources in the Valley on attainment. According to the most recent EPA-approved emission inventory, the NOx inventory for the Valley is for the year 2014 is 458.2 tons per day, or 167,243 tons per year and the VOC (or ROG) inventory is 361.7 tons per day, or 132,020.5 tons per year.[16] Running the photochemical grid model used for predicting ozone attainment with the

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[16] *San Joaquin Valley Unified Air Pollution Control District 2007 Ozone Plan*, Appendix B pp. B-6, B-9,
available at:
http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/19%20Appendix%20B%20April%202007.pdf (visited March 12, 2015).

emissions solely from the Friant Ranch project (which equate to less than one-tenth of one percent of the total NOx and VOC in the Valley) is not likely to yield valid information given the relative scale involved.

Finally, even once a model is developed to accurately ascertain local increases in concentrations of photochemical pollutants like ozone and some particulates, it remains impossible, using today's models, to correlate that increase in concentration to a specific health impact. The reason is the same: such models are designed to determine regional, population-wide health impacts, and simply are not accurate when applied at the local level.

For these reasons, it is not the norm for CEQA practitioners, including the Air District, to conduct an analysis of the localized health impacts associated with a project's criteria air pollutant emissions as part of the EIR process. When the accepted scientific method precludes a certain type of analysis, "the court cannot impose a legal standard to the contrary." *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 717 n. 8. However, that is exactly what the Court of Appeal has done in this case. Its decision upends the way CEQA air quality analysis of criteria pollutants occurs and should be reversed.

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B. The Court of Appeal Improperly Extrapolated a Request for a Health Risk Assessment for Toxic Air Contaminants into a Requirement that the EIR contain an Analysis of Localized Health Impacts Associated with Criteria Air Pollutants.

The Court of Appeal's error in requiring the new health impact analysis for criteria air pollutants clearly stems from a misunderstanding of terms of art commonly used in the air pollution field. More specifically, the Court of Appeal (and Appellants Sierra Club et al.) appear to have confused the health risk analysis ("HRA") performed to determine the health impacts associated with a project's toxic air contaminants ("TACs"), with an analysis correlating a project's criteria air pollutants (ozone, PM and the like) with specific localized health impacts.

The first type of analysis, the HRA, is commonly performed during the Air District's stationary source permitting process for projects that emit TACs and is, thus, incorporated into the CEQA review process. An HRA is a comprehensive analysis to evaluate and predict the dispersion of TACs emitted by a project and the potential for exposure of human populations. It also assesses and quantifies both the individual and population-wide health risks associated with those levels of exposure. There is no similar analysis conducted for criteria air pollutants. Thus, the second type of analysis (required by the Court of Appeal), is not currently part of the Air District's process because, as outlined above, the health risks associated with exposure to criteria pollutants are evaluated on a regional level based on the region's attainment of the NAAQS.

The root of this confusion between the types of analyses conducted for TACs versus criteria air pollutants appears to stem from a comment that was presented to Fresno County by the City of Fresno during the administrative process.

In its comments on the draft EIR, the City of Fresno (the only party to raise this issue) stated:

> [t]he EIR must disclose the human health related effects of the Project's air pollution impacts. (CEQA Guidelines section 15126.2(a).) The EIR fails completely in this area. The EIR should be revised to disclose and determine the significance of TAC impacts, and of human health risks due to exposure to Project-related air emissions.

(AR 4602.)

In determining that the issue regarding the correlation between the Friant Ranch project's criteria air pollutants and adverse health impacts was adequately exhausted at the administrative level, the Court of Appeal improperly read the first two sentences of the City of Fresno's comment in isolation rather than in the context of the entire comment. *See Sierra Club v. County of Fresno* (2014) 172 Cal.Rptr.3d 271, 306. Although the comment first speaks generally in terms of "human health related effects" and "air pollution," it requests only that the EIR be revised to disclose "the significance of TACs" and the "human health risks due to exposure."

The language of this request in the third sentence of the comment is significant because, to an air pollution practitioner, the language would only have indicated only that a HRA for TACs was requested, and not a separate analysis of the health impacts associated with the project's criteria air pollutants. Fresno County clearly read the comment as a request to perform an HRA for TACs and limited its response accordingly. (AR 4602.)[17] The Air District submits that it would have read the City's comment in the same manner as the County because the City's use of the terms "human health risks" and "TACs" signal that an HRA for TACs is being requested. Indeed, the Air District was also concerned that an HRA be conducted, but understood that it was not possible to conduct such an analysis until the project entered the phase where detailed site specific information, such as the types of emission sources and the proximity of the sources to sensitive receptors became available. (AR 4553.)[18] The City of Fresno was apparently satisfied with the County's discussion of human health risks, as it did not raise the issue again when it commented on the final EIR. (AR 8944 – 8960.)

[17] Appellants do not challenge the manner in which the County addressed TACs in the EIR. (Appellants' Answer Brief p. 28 fn. 7.)

[18] Appellants rely on the testimony of Air District employee, Dan Barber, as support for their position that the County should have conducted an analysis correlating the project's criteria air pollutant emissions with localized health impacts. (Appellants Answer Brief pp. 10-11; 28.) However, Mr. Barber's testimony simply reinforces the Air District's concern that a risk assessment (HRA) be conducted once the actual details of the project become available. (AR 8863.) As to criteria air pollutants, Mr. Barber's comments are aimed at the Air District's concern about the amount of emissions and the fact that the emissions will make it "more difficult for Fresno County and the Valley to reach attainment which means that the health of Valley residents maybe [sic] adversely impacted." Mr. Barber says nothing about conducting a separate analysis of the localized health impacts the project's emissions may have.

The Court of Appeal's holding, which incorrectly extrapolates a request for an HRA for TACs into a new analysis of the localized health impacts of the project's criteria air pollutants, highlights two additional errors in the Court's decision.

First, the Court of Appeal's holding illustrates why the Court should have applied the deferential substantial evidence standard of review to the issue of whether the EIR's air quality analysis was sufficient. The regulation of air pollution is a technical and complex field and the Court of Appeal lacked the expertise to fully appreciate the difference between TACs and criteria air pollutants and tools available for analyzing each type of pollutant.

Second, it illustrates that the Court likely got it wrong when it held that the issue regarding the criteria pollutant / localized health impact analysis was properly exhausted during the administrative process. In order to preserve an issue for the court, '[t]he "exact issue" must have been presented to the administrative agency....' [Citation.] *Citizens for Responsible Equitable Environmental Development v. City of San Diego*, (2011) 196 Cal.App.4th 515, 527 129 Cal.Rptr.3d 512, 521; *Sierra Club v. City of Orange* (2008) 163 Cal.App.4th 523, 535, 78 Cal.Rptr.3d 1, 13. "'[T]he objections must be sufficiently specific so that the agency has the opportunity to evaluate and respond to them.' [Citation.]" *Sierra Club v. City of Orange*,163 Cal.App.4th at 536.[19]

As discussed above, the City's comment, while specific enough to request a commonly performed HRA for TACs, provided the County with no notice that it should perform a new type of analysis correlating criteria pollutant tonnages to specific human health effects. Although the parties have not directly addressed the issue of failure to exhaust administrative remedies in their briefs, the Air District submits that the Court should consider how it affects the issues briefed by the parties since "[e]xhaustion of administrative remedies is a jurisdictional prerequisite to maintenance of a CEQA action." *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1199, 22 Cal.Rptr.3d 203.

III. CONCLUSION

For all of the foregoing reasons, the Air District respectfully requests that the portion of the Court of Appeal's decision requiring an analysis correlating the localized human health impacts associated with an individual project's criteria air pollutant emissions be reversed.

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[19] *Sierra Club v. City of Orange*, is illustrative here. In that case, the plaintiffs challenged an EIR approved for a large planned community on the basis that the EIR improperly broke up the various environmental impacts by separate project components or "piecemealed" the analysis in violation of CEQA. In evaluating the defense that the plaintiffs had failed to adequately raise the issue at the administrative level, the Court held that comments such as *"the use of a single document for both a project-level and a program-level EIR [is] 'confusing',"* and *"[t]he lead agency should identify any potential adverse air quality impacts that could occur from all phases of the project and all air pollutant sources related to the project,"* were too vague to fairly raise the argument of piecemealing before the agency. *Sierra Club v. City of Orange*, 163 Cal.App.4th at 537.

correlating the localized human health impacts associated with an individual project's criteria air pollutant emissions be reversed.

Respectfully submitted,

Dated: April 2, 2015

Catherine T. Redmond
Attorney for Proposed Amicus Curiae

SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT

CERTIFICATE OF WORD COUNT

Pursuant to Rule 8.204 of the California Rules of Court, I hereby certify that this document, based on the Word County feature of the Microsoft Word software program used to compose and print this document, contains, exclusive of caption, tables, certificate of word count, signature block and certificate of service, 3806 words.

Dated: April 2, 2015

Annette A. Ballatore-Williamson
District Counsel (SBN 192176)

Sierra Club et al, v. County of Fresno, et al
Supreme Court of California Case No.: S219783
Fifth District Court of Appeal Case No.: F066798
Fresno County Superior Court Case No.: 11CECG00726

PROOF OF SERVICE

I am over the age of 18 years and not a p[arty to the above-captioned action; that my business address is San Joaquin Valley Unified Air Pollution Control District located at 1990 E. Gettysburg Avenue, Fresno, California 93726.

On April 2, 2015, I served the document described below:

APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF OF SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO

On all parties to this action at the following addresses and in the following manner:

PLEASE SEE ATTACHED SERVICE LIST

(XX) **(BY MAIL)** I caused a true copy of each document(s) to be laced in a sealed envelope with first-class postage affixed and placed the envelope for collection. Mail is collected daily at my office and placed in a United State Postal Service collection box for pick-up and delivery that same day.

( ) **(BY ELECTRONIC MAIL)** I caused a true and correct scanned image (.PDF file) copy to be transmitted via electronic mail transfer system in place at the San Joaquin Valley Unified Air Pollution Control District ("District"), originating from the undersigned at 1990 E. Gettysburg Avenue, Fresno, CA, to the address(es) indicated below.

( ) **(BY OVERNIGHT MAIL)** I caused a true and correct copy to be delivered via Federal Express to the following person(s) or their representative at the address(es) listed below.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that I executed this document on April 2, 2015, at Fresno, California.

Esthela Soto

Esthela Soto

<u>**SERVICE LIST**</u>

Sierra Club et al, v. County of Fresno, et al
Supreme Court of California Case No.: S219783
Fifth District Court of Appeal Case No.: F066798
Fresno County Superior Court Case No.: 11CECG00726

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