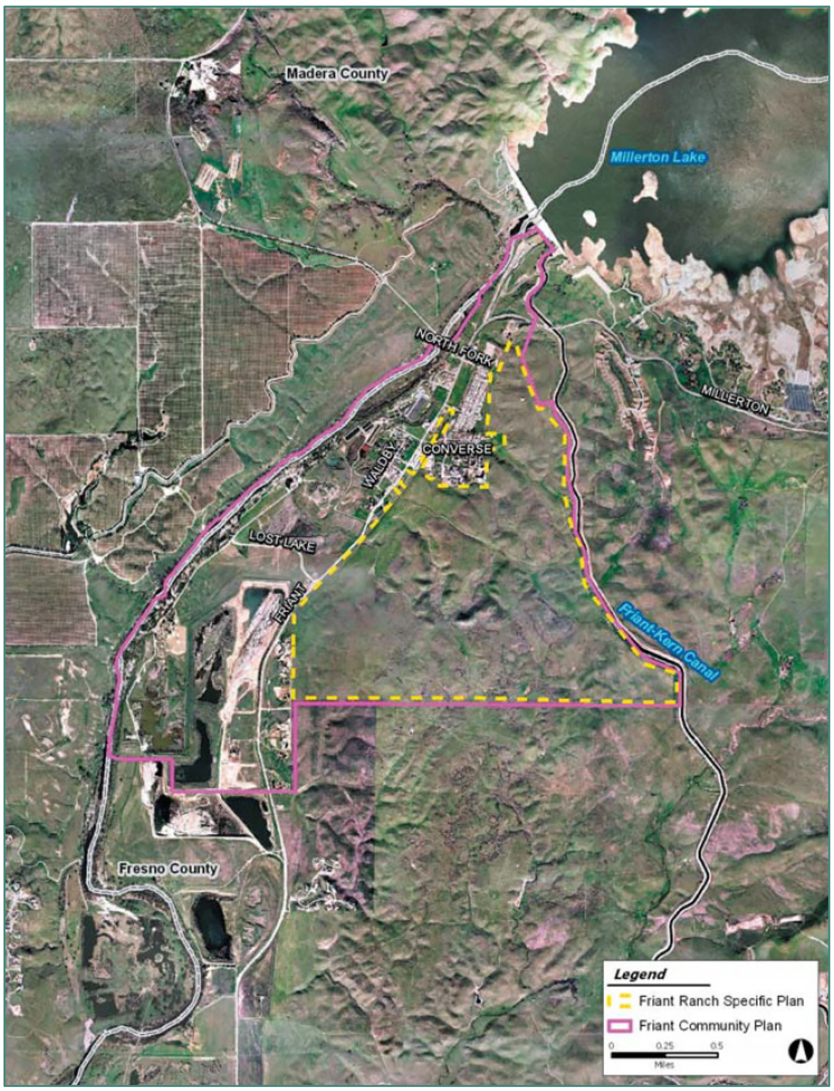
PARTIALLY REVISED AND RECIRCULATED
DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE

FRIANT COMMUNITY PLAN UPDATE & FRIANT RANCH SPECIFIC PLAN



State Clearinghouse No. 2007101016

February 2023

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Prepared for:

County of Fresno
Department of Public Works and Planning
Development Services Division and Capital Projects Division
2220 Tulare Street, 6th Floor
Fresno, CA 93721
Contact Person: David Randall, Senior Planner

Prepared by:

Ascent Environmental, Inc.
455 Capitol Mall, Suite 300
Sacramento, CA 95814
Contact Person: Mike Parker, Project Manager

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TABLE OF CONTENTS

Appendices (included in a USB on back cover)

Tables

LIST OF ABBREVIATIONS

°F	degrees Fahrenheit
$\mu g/m^3$	micrograms per cubic meter
AAQA	air quality analysis
AB	Assembly Bill
APCD	air pollution control district
Board	Fresno County Board of Supervisors
CAA	federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy Standards
CalEEMod	California Emissions Estimator Model
CAMx	Comprehensive Air Quality Model with Extensions
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCAA	California Clean Air Act
CDPH	California Department of Public Health
CO	carbon monoxide
diesel PM	particulate matter exhaust from diesel engines
EIR	environmental impact report
EPA	US Environmental Protection Agency
GAMAQI	*Guidance for Assessing and Mitigating Air Quality Impacts*
GHG	greenhouse gas
HAP	hazardous air pollutant
HIA	Health Impact Assessment
HRA	health risk assessment
HSE	Health and Safety Executive
ISR	Indirect Source Rule
lb/day	pounds per day
LTRID	Lower Tule River Irrigation District
MEI	Maximally Exposed Individual
MY	Model Year
NAAQS	National Ambient Air Quality Standards
NHTSA	National Highway Traffic Safety Administration

NO_2	nitrogen dioxide
NOP	notice of preparation
NO_X	oxides of nitrogen
NSR	New Source Review
OEHHA	Office of Environmental Health Hazard Assessment
ozone	photochemical smog
PM_{10}	respirable particulate matter with aerodynamic diameter of 10 micrometers or less
$PM_{2.5}$	fine particulate matter with aerodynamic diameter of 2.5 micrometers or less
ppb	parts per billion
ppmw	parts per million by weight
PRC	Public Resources Code
project	Friant Ranch Community Plan Update/Friant Ranch Specific Plan Project
Recirculated EIR	Partially Revised and Recirculated EIR
ROG	reactive organic gases
SAFE	Safer Affordable Fuel-Efficient
SCAQMD	South Coast Air Quality Management District
SIP	State Implementation Plan
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO_2	sulfur dioxide
SO_X	oxides of sulfur
TAC	toxic air contaminant
TPY	tons per year
UK	United Kingdom
VERA	Voluntary Emission Reduction Agreement
VOC	volatile organic compound
WHO	World Health Organization

1 INTRODUCTION

1.1 BACKGROUND AND PURPOSE OF THE PARTIALLY REVISED AND RECIRCULATED DRAFT ENVIRONMENTAL IMPACT REPORT

In 2011, the Fresno County Board of Supervisors (Board) approved the Friant Ranch Community Plan Update/Friant Ranch Specific Plan Project (project). As approved, the project included development of a master planned community in the unincorporated community of Friant with densely clustered housing surrounded by open space incorporating the following primary elements:

- 2,270 units of age restricted (55+) clustered residential housing;
- 180 units of non-age restricted multi-family residential housing;
- A 16.1-acre Recreation and Fitness Complex and Community Lodge;
- 250,000 square feet of commercial and retail space (the "Village Center");
- 50 units of live-work non-age restricted housing located in the Village Center;
- 6-acre Depot Commercial Parcel;
- Preservation of 1,520 acres of biologically sensitive rangeland in perpetuity;
- Comprehensive onsite trail system accessible to the public that would showcase the open space preserve and provide linkage to the community of Friant and Lost Lake Park; and
- Internal roadway network that accommodates both traditional and alternative modes of transportation such as Neighborhood Electric Vehicles (NEVs).

Following a lengthy planning process, the Board of Supervisors approved the environmentally superior alternative of the Project, to wit, Alternative 3 (the so-called "Northeast Development Configuration Alternative") as summarized above and as described in the 2011 Final Environmental Impact Report (EIR). Compared with the originally proposed project, Alternative 3, the environmentally superior alternative adopted by the County, increases the amount of open space preserved by approximately 83 percent, totaling 1,520 acres of preserved rangeland habitat; concentrates development near the existing commercial strip along Friant Road; creates an expansive conservation area within and adjacent to biologically sensitive resources; reduces the number of residential units proposed by nearly 500 units; and avoids 93 percent of the site's vernal pools.

In October 2009, the County published the Draft EIR to assess the potential environmental impacts of the project. The Draft EIR was circulated for public review and comment for a period of 45 days that began on October 30, 2009 and ended on December 15, 2009. Additionally, a public meeting was held on December 9, 2009 at the Friant Elementary School to distribute Draft EIR information and materials and to receive comments on the document. During the review period, written and oral comments were received on the Draft EIR. The County reviewed those comments to identify specific environmental concerns and determine whether any additional environmental analysis would be required to respond to issues raised in the comments. Responses to all comments received on the Draft EIR were prepared and included in the Final EIR. The Final EIR was certified, and the project was approved on February 1, 2011.

After the project was approved, three CEQA lawsuits challenging the adequacy of the EIR were filed (from Sierra Club et al., the City of Fresno, and San Joaquin River Parkway and Conservation Trust). Two of the lawsuits were later settled; however, the Sierra Club et al. petition for writ of mandate proceeded through litigation. After lower and appellate court rulings (on December 14, 2012 and May 27, 2014, respectively), the case was heard by the California Supreme Court after the Real Party in Interest, Friant Ranch, LP, filed a successful petition for review with that latter court.

The California Supreme Court on December 24, 2018 issued its ruling in *Sierra Club v. County of Fresno* ([2018] 6 Cal.5th 502), herein referred to as the Friant Ranch Decision or *Friant Ranch I*. The ruling directed the County to remedy the air quality analysis in the EIR, because "the EIR fails to provide an adequate discussion of health and safety problems that will be caused by the rise in various pollutants." The Court stated that the air quality analysis did not adequately explain the nature and magnitude of the health effects from long-term emissions of criteria air pollutants and ozone precursors. Notably, the Court stated that the EIR lacked "sufficient detail to enable those who did not participate in its preparation to understand and consider meaningfully the issues the proposed project raises." In its decision, the Court found the air quality analysis in the EIR to be deficient and directed the County to prepare additional analysis connecting the project's air quality effects to human health consequences or explaining why it was not feasible to do so. The Court upheld Mitigation Measure 3.3.2, which addressed significant unavoidable air quality impacts relating to long-term area and operational emissions. While doing so, the Court held that, to the extent that the County concludes, in its revised analysis, that Mitigation Measure 3.3.2 will "substantially reduce" the project's air quality impacts, the County will have to provide a more detailed explanation for that conclusion than was found in the original EIR.

In March 2019, the Fresno County Superior Court entered judgment in the Sierra Club lawsuit, and issued a peremptory writ of mandate requiring that the Board vacate its 2011 project approvals. This judgment and writ were the subjects of an appeal by the Real Party in Interest and applicant, Friant Ranch, LP. The Court of Appeal upheld the judgment and writ in November 2020 in *Sierra Club v. County of Fresno* (2020) 57 Cal.App.5th 979 (*Friant Ranch II*). The Board of Supervisors vacated its 2011 approvals in April 2021.

In 2014, in response to the Appellate Court's 2014 decision regarding Friant Ranch, while the case was pending in the California Supreme Court, the County had released a notice of preparation (NOP) concerning the County's intent to prepare a Partially Recirculated EIR that included an updated water supply analysis, as well as analysis of health impacts from air pollutants. The 2014 NOP is included in Appendix A. The County's decision in 2014 to undertake an updated water supply analysis was made during the drought conditions existing at that time with the concern that new significant impacts may have resulted from this change in circumstances. The County subsequently determined, however, that an updated water supply analysis was no longer necessary based on an agreement that improved the level of water supply reliability associated with the project applicant's current contractual arrangements with Fresno County Waterworks District 18 (WWD18) and Lower Tule River Irrigation District (LTRID). Specifically, LTRID and WWD18 agreed to amend the Water Transfer Agreement to provide greater water supply assurances during dry years periods by using LTRID's ability to "carry over" Class 1 water in Millerton Lake from year to year to assure that WWD18 has ample water supply to serve Friant Ranch. The amended agreement requires LTRID to carry over an amount in Millerton Lake equal to two times the previous year's WWD demand thereby guarding against the possibility of a zero allocation of water for two consecutive years. The First Amendment to Option and Long Term Water Transfer Agreement between LTRID and WWD dated September 21, 2016 is included in Appendix B. Also included in Appendix B (Appendix B3) is a July 15, 2022, technical memorandum prepared by Provost & Pritchard entitled, "Update to Previously Compiled Water Supply Assessment for Friant Ranch," which describes the water reliability benefits of the amended agreement. Notably, the County's initial decision to undertake additional analysis of water supply issues was not in response to any court decision or mandate. In fact, the water supply analysis in the original EIR was litigated in the trial court and upheld. That part of the trial court decision was not appealed.

On October 5, 2021, the County distributed a notice to responsible agencies, trustee agencies, and recipients of the 2014 NOP to clarify that the County would *not* prepare an additional water supply analysis as a component of the Partially Recirculated EIR. This notice is included in Appendix A.

The County has prepared this Partially Revised and Recirculated EIR (Recirculated EIR) to adequately address the potential health impacts associated with the project's emissions of criteria air pollutants and toxic air contaminants in accordance with the direction provided by the Court. The document provides the additional analysis required by the Supreme Court with sufficient detail and clarity to describe the nature and magnitude of the health impacts from the project's emissions. This Recirculated Draft EIR focuses on updating and amending the previous EIR's air quality analysis to be consistent with the California Supreme Court's direction in the Friant Ranch Decision.

As discussed below, the County will consider comments received on the contents of this Recirculated Draft EIR within the comment period and prepare written responses as required. Based on CEQA and legal requirements, the County need not address comments on other issues that were covered in the 2011 Final EIR and not overturned by the court. Where a court finds that CEQA violations have occurred, judicial remedies must be fashioned so as to include only the mandates needed to comply with CEQA. (Public Resources Code [PRC] Section 21168.9[b].) This focus is consistent with the principle that CEQA's litigation provisions should be interpreted in light of legislative policies favoring the prompt resolution of CEQA litigation. (*Board of Supervisors v. Superior Court* (1994) 23 Cal.App.4th 830, 836.) Where a project requiring an EIR is approved and no CEQA litigation is filed, the law gives rise to a presumption that the EIR is legally adequate. As the California Supreme Court has explained, in PRC Section 21167.2 (from CEQA) "mandates that the EIR be conclusively presumed valid unless a lawsuit has been timely brought to contest the validity of the EIR. This presumption acts to preclude reopening of the CEQA process even if the initial EIR is discovered to have been fundamentally inaccurate and misleading in the description of a significant effect or the severity of its consequences. After certification, the interests of finality are favored over the policy of encouraging public comment." (*Laurel Heights Improvement Assn. v. Regents of University of California* (1993) 6 Cal.4th 1112, 1130.) Here, after two of the three original lawsuits were settled and the Sierra Club's lawsuit was litigated through the California Supreme Court, there was only one legal flaw in the EIR, and that related to the air quality analysis.

Another relevant and related legal concept is *res judicata*, which "prevents relitigation of the same cause of action in a second suit between the same parties or parties in privity with them" (California Supreme Court in *Mycogen v. Monsanto Company* (2002) 28 Cal.4th 888, 896; see also *Ione Valley Land, Air, & Water Defense Alliance, LLC v. County of Amador* (2019) 33 Cal.App.5th 165, 170-173). In its *Friant Ranch II* decision, the Court of Appeal said that "[b]ased on the principle set forth in *Ione Valley*, new challenges to the parts of the EIR that have been upheld are not allowed in proceedings on remand." (57 Cal.App.5th at p. 990.) Res judicata applies to all of the parties to the three lawsuits filed against the project and to parties in privity with those litigants.

If a change in circumstances had resulted in a new significant environmental impact that was not addressed in the 2011 Final EIR, the new impact would have been included in additional analysis. No such new impacts have been identified, however. The County reached this conclusion after preparing an exhaustive analysis addressing whether any new or changed circumstances that have arisen since the County Board of Supervisors certified the original EIR in February 2011 have given rise to new significant environmental effects or substantial increases in the severity of any of the environmental effects identified in the original Final EIR. This analysis is included as Appendix C, Environmental Checklist for the Friant Ranch Community Plan Update and Friant Ranch Specific Plan Project.

The Final EIR will consist of the 2011 Final EIR and the additional analysis required by the court for the connection between air quality impacts and human health addressed herein, the Recirculated Draft EIR, written responses to comments on the Draft EIR, written responses to comments on the Recirculated Draft EIR, and any text changes. The Board will then consider whether to certify the new Final EIR with the additions to the 2011 material and whether to approve the project.

1.2 SUMMARY DESCRIPTION OF THE PROPOSED PROJECT

The full project description is provided in the 2011 certified EIR, which is available online at https://www.co.fresno.ca.us/departments/public-works-planning/divisions-of-public-works-and-planning/development-services-division/planning-and-land-use/environmental-impact-repo. The description of Alternative 3, which was approved by the Board, can be found starting on page 4-26 of the Draft EIR. As noted above, Alternative 3 authorized the construction of approximately 2,500 residential units and 250,000 square feet of commercial use, all concentrated on 482 acres in the western northern and eastern parts of Friant Ranch. Of the 2,500 residential units, 2,270 would be age-restricted. Approximately 460 acres of dedicated onsite open space would be maintained under conservation easement.

The project proponent is seeking approval of Alternative 3. This Recirculated EIR therefore focuses on the environmental effects of Alternative 3, and not the original proposed project. No changes to the description of

Alternative 3 as it appeared in the 2011 certified EIR have occurred since the project was approved in February 2011. The following provides a summary of the proposed project.

The project site is located in the unincorporated community of Friant in north-central Fresno County, north of the cities of Fresno and Clovis. The community is bounded by Friant Road to the west, Friant Dam and Millerton Lake to the north, open space land to the south, and the Friant-Kern Canal to the east.

The Friant Community Plan is Fresno County's adopted statement of policy for the growth and improvement for the unincorporated community of Friant, situated just below Millerton Dam along Friant Road. The Friant Community Plan establishes planning goals and policies to guide development of the unincorporated community of Friant. The original Friant Community Plan was adopted on July 23, 1964. The first amendment was adopted on September 25, 1975, followed by a second amendment on June 29, 1978, and a third amendment on October 20, 1983. As part of the project, an update to the Friant Community Plan is proposed.

Through the Friant Ranch Specific Plan, the applicants propose to develop a master planned community for the Active Adult population (55 years of age and older) adjacent to the existing community of Friant. The Friant Ranch Specific Plan would serve as an overall framework and regulatory document for the development of a mixed-use community. The Specific Plan development would require a number of additional County actions, which were analyzed in the 2011 certified EIR, including but not limited to a Fresno County General Plan Amendment, the enactment of a new zoning ordinance, construction of a new Wastewater Treatment Plant, and expansion of the current Water Treatment Plant.

The project also includes a land use designation and zone change for the Depot Parcel, which is outside of the Friant Ranch Specific Plan area but within the boundaries of the 1983 Friant Community Plan Area.

1.3 CONTENT AND SUMMARY OF THE RECIRCULATED DRAFT EIR

Consistent with the requirements of PRC Section 21168.9(b), this Recirculated Draft EIR contains only the information required to comply with the California Supreme Court's decision. All such information is considered significant new information based on Section 15088.5(a) of the State CEQA Guidelines. No other chapters or portions of the Draft EIR are addressed in this Recirculated Draft EIR as no new information or new circumstances exist that would warrant revision of these other chapters or portions.

This document consists of the following chapters and sections. All chapter and section numbering is consistent with the chapter and section numbering outline in the Draft EIR (released October 2009).

Chapter 1, "Introduction." This chapter describes the purpose and organization of the Recirculated Draft EIR. A brief summary of the project description is also provided. No changes to the project description have occurred since the project (Alternative 3) was approved in February 2011. This chapter supplements the Introduction chapter in the 2011 certified Final EIR.

Section 3.3, "Additional Analysis Addressing Air Pollutant Emissions and Human Health Consequences." This section describes the project's potential construction and operational air quality impacts. Revisions to the original Draft EIR section focus on additional analysis of the potential adverse human health impacts associated with the project's emissions of criteria air pollutants and toxic air contaminants based on detailed air quality modeling that has been developed since publication of the 2009 Draft EIR. As noted above, no project changes have occurred. This information responds to the Court ruling that identified the air quality analysis as the only deficiency that required the County's reconsideration. The section replaces the original Draft EIR's air quality impact analysis in its entirety.

Chapter 4, "Report Preparers." This chapter identifies the Recirculated Draft EIR authors and consultants that provided analysis in support of the document's conclusions.

Chapter 5, "References." This chapter identifies the organizations and persons consulted during preparation of the sections included in this Recirculated Draft EIR and the documents and individuals used as sources for the analysis.

Appendices. Appendices contain additional materials used during preparation of the Recirculated Draft EIR or that support the analysis provided in this Recirculated Draft EIR.

1.4 ENVIRONMENTAL REVIEW PROCESS FOR THE RECIRCULATED DRAFT EIR

Consistent with the requirements of Section 15087 and 15088.5(d) of the State CEQA Guidelines, this Recirculated Draft EIR is being made available on February 10, 2023, for public review for a period of 45 days. The public review period will end on March 27, 2023. During this period, the general public, agencies, and organizations may submit written comments on the content of the Recirculated Draft EIR to the County. Pursuant to procedures set forth in Section 15088.5(f)(2) of the State CEQA Guidelines, reviewers are directed to limit their comments to the information contained in the Recirculated Draft EIR that was revised and recirculated. Specifically, comments should be limited to the revised discussion of the project's potential air quality and related health effects (Section 3.3).

Copies of the Recirculated Draft EIR are available for review at the Fresno County Department of Public Works and Planning, Development Services and Capital Projects Division, Current Planning Section at 2220 Tulare Road, Plaza Level Suite B, Fresno, CA; Fresno County Main Library, Reference Desk, at 2420 Mariposa Street, Fresno, CA; Woodward Park Regional Library, Reference Desk, at 944 E Perrin Avenue, Fresno, CA; and online at https://www.co.fresno.ca.us/departments/public-works-planning/divisions-of-public-works-and-planning/development-services-division/planning-and-land-use/environmental-impact-repo-1580.

All written comments on this Recirculated Draft EIR should be addressed to:

David Randall, Senior Planner
County of Fresno Department of Public Works and Planning
Development Services and Capital Projects Division
2220 Tulare Street, 6th Floor
Fresno, CA 93721
Email: drandall@fresnocountyca.gov

After the close of the comment period, the County will consider all comments received on this Recirculated Draft EIR within the comment period and prepare written responses as required. The Final EIR will consist of the 2011 Final EIR and the additional analysis required by the court for the connection between air quality impacts and human health addressed herein, the Recirculated Draft EIR, written responses to comments on the Draft EIR, written responses to comments on the Recirculated Draft EIR, and any text changes. The Board will then consider whether to certify the new Final EIR with the additions to the 2011 material and whether to approve the project.

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3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This chapter is organized by environmental resource category; each resource category is organized to provide an integrated discussion of the existing environmental conditions (including regulatory setting and environmental setting), potential environmental effects (including direct and indirect impacts), and measures to reduce significant effects, where feasible, of construction and operation of the Friant Ranch Community Plan Update/Friant Ranch Specific Plan Project.

APPROACH TO THE ENVIRONMENTAL ANALYSIS

Consistent with the requirements of Public Resources Code Section 21168.9(b), this Recirculated Draft EIR contains only the information required to comply with the California Supreme Court's decision and other portions of the EIR for which significant new information is provided. All such information is considered significant new information based on Section 15088.5(a) of the State CEQA Guidelines. No other chapters or portions of the Draft EIR are addressed in this Recirculated Draft EIR because there is no significant new information due to new or changed circumstances that would warrant revision of these other chapters or portions. As noted in Chapter 1, the County prepared an extensive analysis addressing whether any new or changed circumstances have arisen since the Board of Supervisors certified the original EIR in February 2011 that may have created new significant environmental effects or substantial increases in the severity of any of the environmental effects identified in the original Final EIR. No such significant new information was found. (See Appendix C.)

All chapter and section numbering is consistent with the chapter and section numbering outline in the Draft EIR (released October 2009). The remainder of this chapter addresses the following resource topic:

- Section 3.3, Additional Analysis Addressing Air Pollutant Emissions and Human Health Consequences

Section 3.3 follows this general format:

Regulatory Setting presents the laws, regulations, plans, and policies that are relevant to each issue area. Regulations originating from the federal, state, and local levels are each discussed as appropriate.

Physical Setting presents the existing environmental conditions on the project site and in the surrounding area as appropriate, in accordance with State CEQA Guidelines (California Code of Regulations [CCR] Section 15125). This setting generally serves as the baseline against which environmental impacts are evaluated. Air quality impacts are assessed for the air basin (macroscale) as well as the site vicinity (microscale).

Impact Evaluation Criteria identifies the thresholds of significance used to determine the level of significance of the environmental impacts for each resource topic, in accordance with the State CEQA Guidelines (CCR Sections 15126, 15126.2, and 15143). The thresholds of significance used in this Recirculated Draft EIR are based on the checklist presented in section 15065[a] and Appendix G of the State CEQA Guidelines; best available data; and regulatory standards of federal, state, and local agencies. The level of each impact is determined by comparing the effects of the project to the environmental setting. Key methods and assumptions used to frame and conduct the impact analysis as well as issues or potential impacts not discussed further (such issues for which the project would have no impact) are also described.

Project impacts are organized numerically (e.g., Impact 3.1-1, Impact 3.1-2, Impact 3.1-3). A bold-font impact statement, a summary of each impact, and its level of significance precedes the discussion of each impact. The discussion that follows the impact summary includes the substantial evidence supporting the impact significance conclusion.

The Recirculated Draft EIR must describe any potentially feasible measures that could avoid, minimize, rectify, reduce, or compensate for significant adverse impacts, and the measures, if adopted, are to be fully enforceable through incorporation into the project and adoption of a Mitigation Monitoring and Reporting Plan (Public Resources Code Section 21081.6[b]). Mitigation measures are not required for effects that are found to be less than significant. Where potentially feasible mitigation for a significant impact is available, it is described following the impact along with its effectiveness at addressing the impact. Each identified mitigation measure is labeled numerically to correspond with the number of the impact that would be mitigated by the measure. Where sufficient potentially feasible mitigation is not available to reduce impacts to a less-than-significant level, or where the County lacks the authority to ensure that the mitigation is implemented when needed, the impacts are identified as remaining "significant and unavoidable."

3.3 ADDITIONAL ANALYSIS ADDRESSING AIR POLLUTANT EMISSIONS AND HUMAN HEALTH CONSEQUENCES

3.3.1 Introduction

This section of the Recirculated Draft EIR provides the additional, revised air quality analysis for the project as required by the Friant Ranch Decision, as discussed in Chapter 1, "Introduction." In the Friant Ranch Decision, the California Supreme Court determined that the air quality analysis performed for the Friant Ranch Development Project (proposed Project) did not adequately explain the nature and magnitude of long-term air quality impacts from emissions of criteria pollutants and ozone precursors. The Court held that the EIR lacked "sufficient detail to enable those who did not participate in its preparation to understand and consider meaningfully the issues the proposed project raises" (*Sierra Club v. County of Fresno*, 6 Cal.5th 402, 408).

The Court directed the County to further analyze and discuss the connection between the significant project emissions and the human health impacts associated with such emissions. The Supreme Court summarized its conclusion as follows (*Sierra Club v. County of Fresno, 6 Cal.5th 402, 408*):

> When reviewing whether a discussion is sufficient to satisfy CEQA, a court must be satisfied that the EIR (1) includes sufficient detail to enable those who did not participate in its preparation to understand and to consider meaningfully the issues the proposed project raises…and (2) makes a reasonable effort to substantively connect a project's air quality impacts to likely health consequences. …The EIR should be revised to relate the expected adverse air quality impacts to likely health consequences or explain in meaningful detail why it is not feasible at the time of drafting to provide such an analysis, so that the public may make informed decisions.

In response to the Court's direction, the air quality analysis evaluates the potential connection between construction and operation emissions and public health. In order to evaluate this, the analysis considers those emissions, constituents, and pathways that could cause adverse human health effects. Therefore, in response to the Friant Ranch Decision, this chapter contains additional air quality analysis, including the results of a Health Impact Assessment (HIA) that make a reasonable effort to connect the project's construction and operational emissions of criteria air pollutants to potentially adverse human health impacts using the best available modeling software (discussed in greater detail in Section 3.3.1, "Impact Evaluation Criteria," and in Appendix E – Regional Air Dispersion Modeling and Health Impact Assessment). Specifically, the analysis estimates, based on extensive modeling discussed below, the level of ozone and fine particulate matter with aerodynamic diameter of 2.5 micrometers or less ($PM_{2.5}$) that would be produced from the project, assesses the extent to which human health would be affected, and describes where daily exceedances of the national ambient air quality standards (NAAQS) and California ambient air quality standards (CAAQS) would occur in the San Joaquin Valley Air Basin (SJVAB). This detailed approach to modeling is intended to provide the public and decision makers with a meaningful connection (correlation) between a project's emissions and future adverse health effects of such emissions. The Friant Ranch Decision neither established nor provided guidance to develop CEQA significance thresholds for assessing health impacts.

This analysis also includes the results of a health risk assessment (HRA) to evaluate potential adverse exposure of sensitive receptors to toxic air contaminants (TACs) from project operation. As discussed in greater detail in Section 3.3.1, "Impact Evaluation Criteria," and Appendix F – Health Risk Assessment, the HRA was prepared using established guidance and methodologies developed by the Office of Environmental Health Hazard Assessment (OEHHA) and the San Joaquin Valley Air Pollution Control District (SJVAPCD).

The HIA prepared for the project first performs a photochemical model of daily maximum estimates of air pollution to determine the concentrations of pollutants that may be experienced by receptors (expressed as mass of pollutant per volume of air). The results of the photochemical modeling were then used to try to quantify potential health outcomes from the project's combined construction and operational emissions of criteria air pollutants. This analysis was prepared to provide the public and decision makers with a meaningful correlation between project-generated emissions and potential human health impacts. It is intended to demonstrate a good faith effort to comply with the direction of the California Supreme Court using the best available science and tools.

This section describes the impacts of the proposed Project on local and regional air quality, based on the assessment guidelines of SJVAPCD and supplemented with professional expertise and judgment where such guidelines are unclear or have not been developed. This section describes existing air quality, construction- and operation-related impacts, direct and indirect emissions associated with the proposed project, the local and regional impacts of those emissions, and mitigation measures required to reduce or eliminate any identified significant impacts. The project's estimated construction and operational emissions were modeled to connect or correlate the project's emissions to likely health consequences from exposure to criteria air pollutants in the cumulative context of the SJVAB.

Given the length of time between the public release of the original 2009 Draft EIR, the regulatory and physical settings presented therein have been updated to reflect the current regulatory and air quality conditions at the project site and in the region as they pertain to criteria air pollutants, ozone precursors, and TACs. As an additional analysis prepared in response to the Friant Ranch Decision, it focuses on the deficiencies found by the Court in the original analysis, which related to criteria air pollutants and toxic air contaminants.

It should be noted that, although many regulations and modeling tools use the term volatile organic compounds (VOC), throughout this analysis, the shorthand "ROG," which stands for reactive organic gases, will be used consistently instead of VOC. This terminology convention is applied for several reasons: 1) the modeling software used to inform this analysis directly calculates reactive organic gases (ROG) in place of VOC, 2) there are only minor differences between the definitions of VOC and ROG, and 3) the public is more likely to understand this analysis if consistent terminology is applied throughout.

3.3.2 Regulatory Setting

Air quality in the project area is regulated through the efforts of various federal, State, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, planning, policy making, education, and a variety of programs. The agencies responsible for improving the air quality within the SJVAB are discussed below.

REGULATORY

Federal Plans, Regulations, and Laws

The US Environmental Protection Agency (EPA) has been charged with implementing national air quality programs. EPA's air quality mandates draw primarily from the federal Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments were made by Congress in 1990. EPA's air quality efforts address both criteria air pollutants and hazardous air pollutants (HAPs).

Criteria Air Pollutants

The CAA required EPA to establish NAAQS for six common air pollutants found all over the US, referred to as criteria air pollutants. EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter with aerodynamic diameter of 10 micrometers or less (PM_{10}) and $PM_{2.5}$, and lead. Criteria air pollutants are compounds that, at certain concentrations, can cause harm to human and animal health and the environment. Extensive scientific and economic research has been conducted to evaluate the specific concentrations where these pollutants may cause harm to health and environment and are reflected in EPA's NAAQS, which are shown in Table 3.3-1. The primary standards protect public health and the secondary standards protect public welfare. The CAA also required each state to prepare a State Implementation Plan (SIP) for attaining and maintaining the NAAQS. The federal Clean Air Act Amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. California's SIP is updated periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and whether implementation will achieve air quality goals. If EPA determines a SIP to be inadequate, EPA may prepare a federal implementation plan that imposes additional control measures. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary air pollution sources in the air basin.

Table 3.3-1 National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California (CAAQS)[a,b]	National (NAAQS)[c]	
			Primary[b,d]	Secondary[b,e]
Ozone	1-hour	0.09 ppm (180 μg/m^3)	–[e]	Same as primary standard
	8-hour	0.070 ppm (137 μg/m^3)	0.070 ppm (147 μg/m^3)	
Carbon monoxide (CO)	1-hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	Same as primary standard
	8-hour	9 ppm[f] (10 mg/m^3)	9 ppm (10 mg/m^3)	
Nitrogen dioxide (NO_2)	Annual arithmetic mean	0.030 ppm (57 μg/m^3)	53 ppb (100 μg/m^3)	Same as primary standard
	1-hour	0.18 ppm (339 μg/m^3)	100 ppb (188 μg/m^3)	—
Sulfur dioxide (SO_2)	24-hour	0.04 ppm (105 μg/m^3)	—	—
	3-hour	—	—	0.5 ppm (1300 μg/m^3)
	1-hour	0.25 ppm (655 μg/m^3)	75 ppb (196 μg/m^3)	—
Respirable particulate matter (PM_{10})	Annual arithmetic mean	20 μg/m^3	—	Same as primary standard
	24-hour	50 μg/m^3	150 μg/m^3	
Fine particulate matter ($PM_{2.5}$)	Annual arithmetic mean	12 μg/m^3	12.0 μg/m^3	15.0 μg/m^3
	24-hour	—	35 μg/m^3	Same as primary standard
Lead [f]	Calendar quarter	—	1.5 μg/m^3	Same as primary standard
	30-Day average	1.5 μg/m^3	—	—
	Rolling 3-Month Average	–	0.15 μg/m^3	Same as primary standard
Hydrogen sulfide	1-hour	0.03 ppm (42 μg/m^3)	No national standards	
Sulfates	24-hour	25 μg/m^3		
Vinyl chloride [f]	24-hour	0.01 ppm (26 μg/m^3)		
Visibility-reducing particulate matter	8-hour	Extinction of 0.23 per km		

Notes: μg/m^3 = micrograms per cubic meter; km = kilometers; ppb = parts per billion; ppm = parts per million.

a California standards for ozone, carbon monoxide, SO_2 (1- and 24-hour), NO_2, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

b Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

c National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over three years, is equal to or less than the standard. The PM_{10} 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m^3 is equal to or less than one. The $PM_{2.5}$ 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the US Environmental Protection Agency for further clarification and current federal policies.

d National primary standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

e National secondary standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

f The California Air Resources Board has identified lead and vinyl chloride as toxic air contaminants with no threshold 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.

Source: CARB 2016.

The National Highway Traffic Safety Administration (NHTSA) and EPA set the Corporate Average Fuel Economy Standards (CAFE) standards to improve the average fuel economy and reduce greenhouse gas (GHG) emissions generated by cars and light duty trucks. NHTSA and EPA adopted a rule in 2019 for the current fuel efficiency standards for passenger cars and light trucks and establish new standards covering model years 2021 through 2026 by maintaining the current model year 2020 standards through 2026 (Safer Affordable Fuel-Efficient [SAFE] Vehicles Rule). NHTSA and EPA also issued a regulation revoking California's CAA waiver, which allows California to set its own emissions standards, asserting that the waiver was preempted by federal law (SAFE Rule Part One, 84 *Federal Register* 51310, September 27, 2019). California, 22 other states, the District of Columbia, and two cities have filed suit against the SAFE Rule Part One (*California et al. v. United States Department of Transportation et al.*, 1:19-cv-02826, US District Court for the District of Columbia). The lawsuit requests a "permanent injunction prohibiting Defendants from implementing or relying on the Preemption Regulation," but does not stay its implementation during legal proceedings. Part One of the SAFE Vehicles Rule went into effect on November 26, 2019. However, on April 26, 2021, EPA announced plans to reconsider Part One of the SAFE Rule as directed in Executive Order 13990, "Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis" (discussed below). Public comments to the Notice of Reconsideration ended on June 6, 2021, and EPA held a public hearing on June 22, 2021 (EPA 2021a). On December 21, 2021, NHSTA published its CAFE Preemption Rule, which finalized the repeal of the SAFE Rule Part 1, allowing states, like California, to continue to set its own fuel economy standards (EPA 2021b).

SAFE Rule Part Two was finalized on March 31, 2020 and went into effect on June 29, 2020. Part Two of the SAFE Rule sets the CAFE standards to increase in stringency by 1.5 percent per year above Model Year (MYs) 2020 levels for MYs 2021–2026. These standards are lower than the previous CAFE standards which required that MYs 2021–2026 increase in stringency by 5 percent per year. On Friday 1, 2022, the CAFE standards were updated following the repeal of Part 6 of the SAFE Rule establishing new standards for 2024–2026 model year passenger cars and light-duty trucks sold in the US to meet an average of 40 miles per gallon.

EPA has established a number of emission standards for on- and off-road heavy-duty diesel engines used in trucks and other equipment. This was done in part because diesel engines are a significant source of oxides of nitrogen (NO_X), PM_{10}, and $PM_{2.5}$, and because the EPA has identified diesel particulate matter as a probable carcinogen. Implementation of the heavy-duty diesel on-road vehicle standards and the non-road diesel engine standards are estimated to reduce particulate matter and NO_X emissions from diesel engines up to 95 percent in 2030 when the heavy-duty vehicle fleet is completely replaced with newer heavy-duty vehicles that comply with these emission standards.

In concert with the diesel engine emission standards, EPA regulations have also substantially reduced the amount of sulfur allowed in diesel fuels. The sulfur contained in diesel fuel is a significant contributor to the formation of particulate matter in diesel-fueled engine exhaust. The new standards reduced the amount of sulfur allowed by 97 percent for highway diesel fuel (from 500 parts per million by weight [ppmw] to 15 ppmw), and by 99 percent for off-highway diesel fuel (from about 3,000 ppmw to 15 ppmw). The low sulfur highway fuel (15 ppmw sulfur), also called ultra-low sulfur diesel is currently required for use by all vehicles in the US. All the aforementioned federal diesel engine and diesel fuel requirements have been adopted by California, in some cases with modifications making the requirements more stringent or the implementation dates sooner.

Hazardous Air Pollutants and Toxic Air Contaminants

TACs, or in federal parlance, HAPs, are a defined set of airborne pollutants that may pose a present or potential hazard to human health. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in 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.

A wide range of sources, from industrial plants to motor vehicles, emit TACs. The health effects associated with TACs are quite diverse and generally are assessed locally, rather than regionally. TACs can cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage; or short-term acute effects such as eye watering, respiratory irritation (a cough), running nose, throat pain, and headaches.

For evaluation purposes, TACs are separated into carcinogens and non-carcinogens based on the nature of the physiological effects associated with exposure to the pollutant. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. This contrasts with criteria air pollutants for which acceptable levels of exposure can be determined and for which the ambient standards have been established (Table 3.3-1). Cancer risk from TACs is expressed as excess cancer cases per one million exposed individuals, typically over a lifetime of exposure.

EPA regulates HAPs through its National Emission Standards for Hazardous Air Pollutants. The standards for a particular source category require the maximum degree of emission reduction that the EPA determines to be achievable, which is known as the Maximum Achievable Control Technology—MACT standards. These standards are authorized by Section 112 of the 1970 CAA and the regulations are published in 40 CFR Parts 61 and 63.

STATE PLANES, POLICIES, REGULATIONS, AND LAWS

California Air Resources Board

The California Air Resources Board (CARB) is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, required CARB to establish CAAQS (Table 3.3-1).

Criteria Air Pollutants

CARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned federally regulated criteria air pollutants. In most cases the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

The CCAA requires that all local air districts in the state endeavor to attain and maintain the CAAQS by the earliest date practical. The CCAA specifies that local air districts should focus particular attention on reducing the emissions from transportation and area-wide emission sources. The CCCA also provides air districts with the authority to regulate indirect sources, such as vehicle movement and residential, commercial, and industrial development.

Toxic Air Contaminants

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807, Chapter 1047, Statutes of 1983) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588, Chapter 1252, Statutes of 1987). AB 1807 sets forth a formal procedure for CARB to designate substances as TACs. Research, public participation, and scientific peer review are required before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs and adopted EPA's list of HAPs as TACs. Most recently in 1998, particulate matter exhaust from diesel engines (diesel PM) was added to CARB's list of TACs.

After a TAC is identified, CARB then adopts an airborne toxics control measure for sources that emit that particular TAC. If a safe threshold exists for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If no safe threshold exists, the measure must incorporate best available control technology for toxics to minimize emissions.

The Hot Spots Act requires that existing facilities that emit toxic substances above a specified level prepare an inventory of toxic emissions, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

CARB has adopted diesel exhaust control measures and more stringent emissions standards for various transportation-related mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) have been reduced significantly over the last decade and will be reduced further in California through a progression of regulatory measures (e.g., Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. With implementation of CARB's Risk Reduction Plan, it is expected that diesel PM concentrations will be 85 percent less in 2020 in comparison to year 2000 (CARB 2000). Adopted regulations are also expected to continue to reduce formaldehyde emissions emitted by cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Air pollution transcends political boundaries; therefore, many air quality problems are best managed on a regional basis. This was the case for the San Joaquin Valley where until 1991, each County operated a local air pollution control district (APCD). The State Legislature then determined that management of the entire air basin by a single agency would be more effective. Air basins are geographic areas sharing a common "air-shed." Most major metropolitan including their surrounding areas in California are now regulated by an air district. For instance, the existing project area and its surroundings are regulated by the SJVAPCD.

San Joaquin Valley Air Pollution Control District

Criteria Air Pollutants

SJVAPCD is the primary agency responsible for meeting the NAAQS and CAAQS in the SJVAB. The SJVAB has been designated as nonattainment with respect to the NAAQS and CAAQS for ozone and $PM_{2.5}$ (Table 4.3-2) (CARB 2020, EPA 2023). SJVAPCD works with CARB and EPA to maintain the region's portion of the SIP for ozone and $PM_{2.5}$. The SIP is a compilation of plans and regulations that govern how the region and state will comply with the CAA requirements to attain and maintain the NAAQS for ozone and $PM_{2.5}$.

SJVAPCD also enforces air quality regulations, educates the public about air quality, and implements a number of programs to provide incentives for the replacement or retrofit of older diesel engines. SJVAPCD's air quality guidance also influences land use development in the SJVAB by providing decision makers with suggested goals, policies, and science pertaining to siting receptors to known or planned locations of stationary and/or mobile sources of air pollution.

SJVAPCD adopted its 2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ NAAQS Standards ($PM_{2.5}$ Plan) on November 15, 2018. The $PM_{2.5}$ Plan utilizes extensive science and research, state of the art air quality modeling, and best available information to develop a strategy to attain the federal health-based 1997, 2006, and 2012 NAAQS (SJVAPCD 2018a). Additionally, SJVAPCD adopted its 2016 Ozone Plan for 8-Hour Ozone NAAQS Standard (2016 Ozone Plan) in June 2016. The 2016 Ozone Plan provides a comprehensive strategy to reduce NO_X emissions, which combine with ROG to form ground-level ozone, by 60 percent between 2012 and 2031 to assist SJVAPCD in attaining the 2008 8-hour ozone NAAQS (SJVAPCD 2016).

All projects are subject to adopted SJVAPCD rules and regulations in effect at the time of construction. Specific rules applicable to the project may include but are not limited to the following:

- **Regulation VIII—Fugitive Dust PM_{10} Prohibitions:** Rules 8011–8081 are designed to reduce PM_{10} emissions (predominantly dust and dirt) generated by human activity, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and track out, and landfill operations. Compliance with Regulation VIII is mandatory and enforced through civil penalties, so compliance by the project proponent is assumed in this analysis. SJVAPCD is made aware of actions that violate their regulations and rules, such as Regulation VIII, and may investigate claims that, if found to be accurate, may incur financial penalties.
- **Rule 2010—Permits Required:** This rule applies to anyone who plans to or does operate, construct, alter, or replace any source operation that may emit air contaminants or may reduce the emission of air contaminants. The proposed project would be subject to SJVAPCD permitting requirements for stationary sources such as boilers or back-up generators.

- **Rule 2201—New and Modified Stationary Source Review Rule:** This rule applies to all new stationary sources and all modifications of existing stationary sources. Stationary sources are subject to SJVAPCD permit requirements if, after construction, they emit or may emit one or more affected pollutant. The project would include the operation of a back-up diesel generator to support the proposed wastewater treatment plant in scenarios where electrical power is unavailable.
- **Rule 3180—Administration Fees for Indirect Source Review:** This rule serves to recover SJVAPCD's costs for administering the requirements of Rule 9510, Indirect Source Review (summarized below).
- **Rule 3135—Dust Control Plan Fee:** This rule requires applicants to submit a fee in addition to a dust control plan. The purpose of this fee is to recover SJVAPCD's cost for reviewing such plans and conducting compliance inspections.
- **Rule 4002—National Emissions Standards for Hazardous Air Pollutants**: This rule applies to all stationary sources of HAPs and requires them to comply with the standards, criteria, and requirements set forth therein.
- **Rule 4101—Visible Emissions:** This rule prohibits emissions of visible air contaminants to the atmosphere and applies to any source operation that emits or may emit air contaminants.
- **Rule 4102—Nuisance:** This rule applies to any source operation that emits or may emit air contaminants or other materials. If such emissions create a public nuisance, the owner/operator could be in violation and be subject to enforcement action by SJVAPCD.
- **Rule 4601—Architectural Coatings:** This rule limits ROG from architectural coatings by specifying storage, cleanup, and labeling requirements for architectural coatings. This rule also establishes ROG limits for various architectural coating types.
- **Rule 4641—Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations:** This rule applies to the manufacture and use of certain asphalt types for paving and maintenance operations.
- **Rule 9510—Indirect Source Review:** Also known as the Indirect Source Rule (ISR), this rule is intended to reduce or mitigate emissions of NO_X and PM_{10} from the construction- and operation-related emissions of new land use development in the SJVAPCD. This rule requires specific percentage reductions in estimated onsite construction and operation emissions, and/or payment of a prescribed off-site mitigation fee for required reductions that cannot be met on the project site. Construction emissions of NO_X and PM_{10} exhaust must be reduced by 20 percent and 45 percent, respectively. Operational emissions of NO_X and PM_{10} must be reduced by 33.3 percent and 50 percent, respectively. The rule applies to residential developments of 50 units or more, and commercial development projects of 2,000 square feet and larger, so the proposed development would be subject to the ISR. The provisions of Rule 9510 are described in more detail in the analysis of environmental impacts and mitigation measures.

SJVAPCD's *Guidance for Assessing and Mitigating Air Quality Impacts* (GAMAQI) is an advisory document that provides lead agencies, consultants, and project applicants with analysis guidance and uniform procedures for addressing air quality in environmental documents. The GAMAQI describes the criteria that the SJVAPCD uses when reviewing and commenting on the adequacy of environmental documents. It recommends thresholds for determining whether projects would have significant adverse environmental impacts, identifies methods for predicting project emissions and impacts, and identifies measures that can be used to avoid or reduce air quality impacts. If modeled construction- or operation-related emissions for a project exceed SJVAPCD's mass emission thresholds for criteria air pollutants and precursors, then SJVAPCD recommends implementing mitigation to reduce these emissions. As discussed in Section 3.3.3, "Impact Evaluation Criteria," as a form of mitigation, a project proponent may enter into a Voluntary Emission Reduction Agreement (VERA) with SJVAPCD to reduce the project-related impact on air quality to a less-than-significant level. A VERA is a measure by which the project proponent provides pound-for-pound mitigation of emissions increases through a process that funds and implements emission reduction projects (SJVAPCD 2015a). Engagement in the VERA would occur following proven compliance, as confirmed by SJVAPCD, with Rule 9510, "Indirect Source Review" if emissions still exceed SJVAPCD's annual mass emissions thresholds after a project achieves ISR emissions reductions. SJVAPCD's mass emission thresholds are presented in Section 3.3.3, "Impact Evaluation Criteria."

Typically, air districts develop thresholds of significance for CEQA evaluation (summarized below) in consideration of maintaining or achieving attainment under the NAAQS and CAAQS for the geographical area they oversee (long-term regional air quality planning). Typically, these thresholds are tied to the SIP (of an air district in nonattainment) for criteria air pollutants within a cumulative context. These SIPs are submitted to CARB and contain an inventory of existing ambient air pollutant concentrations and, if applicable, a suite of measures to reduce air pollution along with a projected date of achieving attainment under the NAAQS and CAAQS. Air quality plans identify a budget that accounts for new, future sources of pollution from land use development and stationary sources. These budgets inform the development of CEQA thresholds of significance; "projects with emissions below the thresholds of significance for criteria pollutants would be determined to 'not conflict or obstruct implementation of [SJVAPCD's] air quality plan' (SJVAPCD 2015a:65)."

As discussed previously, the NAAQS and CAAQS represent concentrations of criteria air pollutants protective of human health and are substantiated by extensive scientific evidence. CARB states that ambient air quality standards "are established to protect even the most sensitive individuals in our communities. An air quality standard defines the maximum amount of a pollutant that can be present in outdoor air without harm to the public's health" (CARB 2023). As stated previously, SJVAPCD, like other air districts in California and within the US, are tasked with producing local air quality plans to attain the NAAQS and CAAQS by an eventual date. These plans include mass emissions inventories coupled with control measures that achieve necessary reductions in certain criteria pollutants and precursors to meet the concentration-based NAAQS and CAAQS. In developing CEQA thresholds of significance, SJVAPCD has developed quantitative, project-level thresholds based on anticipated levels of growth in the SJVAB in consideration of existing sources of air pollution and a future attainment date. These thresholds of significance are intended to optimize emission elimination of proposed projects while requiring a level of mitigation that is realistic and achievable. Thus, projects that demonstrate levels of construction and/or operational emissions below these thresholds would be consistent with long-term regional planning efforts in the SJVAB to attain the NAAQS and CAAQS and, therefore, avoid subjecting residents of the region to harmful concentrations of criteria air pollutants. Consequently, such projects would not result in emissions that would conflict with an area achieving future attainment status under the NAAQS and CAAQS as outlined by an applicable air quality plan.

Similarly, projects that demonstrate emissions levels in exceedance of an applicable threshold could contribute to the continued nonattainment designation of a region or potentially degrade a region from attainment to nonattainment, resulting in acute or chronic respiratory and cardiovascular illness associated with exposure to concentrations of criteria air pollutants above what EPA and CARB consider safe. Symptoms can include coughing, difficulty breathing, chest pain, eye and throat irritation and, in extreme cases, death caused by exacerbation of existing respiratory and cardiovascular disease, cancer, and impaired immune and lung function. However, the exact location and magnitude of specific health impacts that could occur as a result of an individual project's construction or operational emissions of primary and secondary pollutants are difficult to model with any degree of reliability for several reasons. Below includes a discussion of the types of modeling that may be used to estimate dispersion of pollutants, their inputs and scientific limitations, and use in estimating health impacts.

The most common approach to determining the fate and transport of directly emitted criteria air pollutants is through dispersion modeling.

Dispersion modeling is the mathematical simulation of how air pollution disperses in the ambient atmosphere. It is performed using computer programs that are equipped with algorithms that solve the complex mathematics that govern pollution dispersion. These models are used to estimate downwind concentrations of air pollution and toxics emitted from stationary sources such as industrial plants and mobile sources including vehicular activity. Dispersion models vary by program, but all require the input of these data points:

- meteorological conditions such as wind speed and direction, the amount of atmospheric turbulence (characterized by what is referred to as "stability class"), ambient air temperature, the height of the air column, cloud cover, and solar radiation;

- source term, or the concentration of quantity of toxics in emissions or accidental release sources, and its temperature;
- emissions or release parameters such as source location and height, type of source (e.g., fire, pool, or vent stack) and exit velocity, exit temperature, and mass flow rate or release rate;
- terrain elevations at the source location and receptor location(s), such as nearby homes, schools, business, and hospitals; and
- location, height, and width of any physical barriers such as buildings or structures in the path of the emitted gaseous plume, surface roughness, or the use of a more generic parameter such as "rural" or "urban" terrain.

Dispersion modeling is best suited for primary criteria air pollutants, such a CO, PM_{10} and $PM_{2.5}$, which are directly emitted into the atmosphere and, at certain concentrations, cause adverse health and environmental impacts. Other pollutants of concern are identified as secondary pollutants, which are emitted as one compound, which then combines with other pollutants, to form criteria air pollution. To follow these secondary pollutants into the ambient atmosphere, use of a photochemical model is required.

The secondary pollutants of concern for this EIR's analysis are ROG, NO_X, and oxides of sulfur (SO_X), which combine in the atmosphere to form ground-level ozone and secondary PM. Photochemical modeling of these secondary pollutants is a more difficult exercise than the modeling of primary pollutants for the following reasons. With respect to the formation of ground-level ozone from the oxidation (i.e., combination) of ROG and NO_X in the presence of sunlight, rates of ozone formation are a function of a variety of complex physical factors, including topography, building influences on air flow (e.g., downwash), ROG and NO_X concentration ratios, multiple meteorological conditions, and sunlight exposure (Seinfeld and Pandis 1996:298). For example, rates of ozone formation are highest in elevated temperatures and when the ratio of ROG to NO_X is 5.5:1. When temperatures are lower and this ratio shifts, rates of ozone formation are stunted (Seinfeld and Pandis 1996:299–300). In addition, ROG emissions are composed of many compounds that have different levels of reactivity leading to ozone formation. Methane, for instance, is the most common ROG compound, yet it has one of the lowest reactivity potentials (Seinfeld and Pandis 1996:309, 312).

Moreover, as confirmed by epidemiological studies reviewed and confirmed by EPA and CARB, some groups may develop more severe health impacts than others. For instance, infants, children, the elderly, and individuals with preexisting medical conditions are more susceptible to developing illnesses from exposure to air pollutants. Additionally, environmental conditions (e.g., exposure to secondhand smoke), lifestyle choices (e.g., diet, exercise, use of drugs or tobacco products), and presence of a health condition (e.g., cancer, chronic illness) that may affect an individual's existing health is privileged information unknown to an air quality expert, regulator, lead agency, or any other person using photochemical models. Air dispersion and photochemical modeling cannot account for the locations of these individuals on a regional basis, and, therefore, the degree to which an individual may respond to certain concentrations of criteria air pollutants (e.g., the development of lifelong chronic conditions such as asthma or the exacerbation of an existing respiratory or cardiovascular condition) cannot be meaningful predicted. As explained in greater detail in Section 3.3.3, "Impact Evaluation Criteria," the best modeling tools available use regional and national health data to quantify potential health effects; however, these results are not specific to any one location and cannot account for nuances in health data that are unknown.

During the litigation process that led to the Friant Ranch Decision, SJVAPCD submitted an *amicus curiae* brief in support of Fresno County and Friant Ranch LP (the parties that ultimately did not prevail in the Friant Ranch Decision). In that brief, SJVAPCD provided scientific context and expert opinion regarding the feasibility of performing regional dispersion and photochemical modeling for ozone from one specific project. SJVAPCD described the challenges of trying to correlate pollutants in the atmosphere and cited several variables as to how and where pollutants would ultimately settle and the connection to actual health effects that would be realized in any one specific location from the generation of such pollutants. Such modeling, as existed at that time in 2009, that could reasonably link secondary pollution formation to specific health effects in a meaningful context from one project *alone* was not readily available for use by lead agencies. This concern led SJVAPCD to state that "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." As SJVAPCD explains (SJVAPCD 2015b [footnotes omitted]):

> 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. 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 (NO_X, SO_X and [ROG]) and the atmospheric chemistry and meteorology of the Valley. At a very basic level, the models simulate future ozone or PM levels based on predicted changes in precursor emissions Valley wide. 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.
>
> Accordingly, the Air District has based its thresholds of significance for CEQA purposes on the levels that scientific and factual data demonstrate that the [SJVAB] can accommodate without affecting the attainment date for the NAAQS. The Air District has tied its CEQA significance thresholds to the level at which stationary pollution sources must “offset” their emissions…. Thus the CEQA air quality analysis for criteria air pollutants is not really a localized, project-level impact analysis but one of regional cumulative impacts.

The brief explains that these CEQA thresholds of significance are not intended to be applied such that any localized human health impact associated with a project’s emissions could be identified. Rather, CEQA thresholds of significance are used to determine whether a project’s emissions would obstruct a region’s capability of attaining the NAAQS and CAAQS according to the emissions inventory prepared in a SIP, which is then submitted and reviewed by CARB and EPA. This sentiment is corroborated in an additional brief submitted to the California Supreme Court by the South Coast Air Quality Management District (SCAQMD 2015).

SJVAPCD has not developed its own model(s) for project-level evaluation of resulting concentrations of ozone precursors within the SJVAB that link emissions of an individual project to changes in health of individuals. Nonetheless, as stated on page 3.3-1 of this chapter, the analysis in this Recirculated EIR includes the results of photochemical modeling developed by air quality modeling experts to make a reasonable effort to provide a correlation between the project’s construction and operational emissions of criteria air pollutants and precursors to potentially adverse human health outcomes. In other words, expert input was sought to provide a reasonably calculated correlation between a project’s emissions to likely health consequences “or explain in meaningful detail why it is not feasible at the time of drafting to provide such an analysis” (*Sierra Club v. County of Fresno,* 6 Cal.5th 402, 408*)*.

<u>Toxic Air Contaminants</u>

At the local level, air districts may adopt and enforce CARB control measures. Under SJVAPCD Rule 2010 (“Permits Required”) and Rule 2201 (“New and Modified Stationary Source Review”), all sources that possess the potential to emit TACs are required to obtain permits from SJVAPCD. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including New Source Review standards and air toxics control measures. SJVAPCD limits emissions and public exposure to TACs through multiple programs. SJVAPCD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. Sensitive receptors are people, or facilities that generally house people (e.g., residences, schools, hospitals), that may experience adverse effects from unhealthful concentrations of air pollutants. SJVAPCD’s *District’s Risk Management Policy to Address OEHHA’s Revised Risk Assessment Guidance Document*, *Framework for Performing Health Risk Assessments,* and *Draft Guidance for Air Dispersion Modeling* are tools that may be utilized by experts to assess potential health effects at locations of sensitive receptors from the construction and operation of projects emitting TACs (SJVAPCD 2015c and 2018b)

Fresno County General Plan

The following existing Fresno County General Plan Policies have been adopted to protect air quality:

- Policy OS-G.12: The County shall continue, through its land use planning processes, to avoid inappropriate location of residential uses and sensitive receptors in relation to uses that include but are not limited to industrial and manufacturing uses and any other use which have the potential for creating a hazardous or nuisance effect.
- Policy OS-G.13: The County shall include fugitive dust control measures as a requirement for subdivision maps, site plans, and grading permits. This will assist in implementing the SJVAPCD's [sic] particulate matter of less than ten (10) microns (PM_{10}) regulation (Regulation VIII). Enforcement actions can be coordinated with the Air District's Compliance Division.
- Policy OS-G.14: The County shall require all access roads, driveways, and parking areas serving new commercial and industrial development to be constructed with materials that minimize particulate emissions and are appropriate to the scale and intensity of use.
- Policy OS-G.15: The County shall continue to work to reduce PM_{10} and $PM_{2.5}$ emissions from County-maintained roads by considering shoulder treatments for dust control as part of road reconstruction projects.
- Policy OS-G.16: The County shall require the use of natural gas or the installation of low emission, EPA-certified fireplace inserts in all open hearth fireplaces in new homes. The County shall promote the use of natural gas over wood products in space heating devices and fireplaces in all existing and new homes.

A discussion of the project's consistency with the policies above is located in the impact analysis section where applicable.

3.3.3 Physical Setting

The project site is within unincorporated Fresno County and the SJVAB. Ambient concentrations of air pollutants are determined by the levels of emissions released by pollutant sources and the ability of the atmosphere to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and the presence of sunlight.

The SJVAB is the southern half of California's Central Valley and is approximately 250 miles long and averages 35 miles wide. The SJVAB is bordered by the Sierra Nevada in the east, the Coast Ranges in the west, and the Tehachapi mountains in the south. There is a slight downward elevation gradient from Bakersfield in the southeast end (elevation 408 feet) to sea level at the northwest end where the valley opens to the San Francisco Bay at the Carquinez Straits. The bowl-shaped topography inhibits movement of pollutants out of the SJVAB.

The SJVAB is in a Mediterranean Climate Zone and is influenced by a subtropical high-pressure cell most of the year generated by the Pacific Ocean that influences the amount of rain that is deposited, the characteristics of temperature, and the deposition/collection of air pollution in the SJVAB. Rainfall is sparse and occurs mainly in winter. Summers are hot and dry. Summertime maximum temperatures often exceed 100 degrees Fahrenheit (°F).

The subtropical high-pressure cell is strongest during spring, summer and fall and produces subsiding air, which can result in temperature inversions, or a reversal of the normal behavior of temperature in the troposphere that results in a layer of cool air at the surface is overlaid by a layer of warmer air, in the SJVAB. A temperature inversion can act like a lid, inhibiting vertical mixing of the air mass at the surface. Any emissions of pollutants can be trapped below the inversion. Most of the surrounding mountains are above the normal height of summer inversions (1,500–3,000 feet). These mountains can function as a physical barrier to trap emissions of regional pollutants in the SJVAB leading to degraded, stagnant air quality.

Winter-time high pressure events can often last many weeks with surface temperatures often lowering to 30–40°F. During these events, fog can be present, and inversions are extremely strong. These wintertime inversions can inhibit vertical mixing of pollutants to a few hundred feet.

Solar radiation and temperature are particularly important in the chemistry of photochemical smog (ozone) formation. The SJVAB averages over 260 sunny days per year. Photochemical air pollution (primarily ozone) is produced by the atmospheric reaction of organic substances (such as ROG and NO_X) under the influence of sunlight (SJVAPCD 2015a).

The local meteorology of the project site and surrounding area is represented by measurements recorded at the Western Regional Climate Center Friant Government CP Station. The average annual precipitation from a 1912 to 2016 period is approximately 14.3 inches. Average January temperatures range from a normal minimum of 36.7°F to a normal maximum of 55.4°F. July temperatures range from a normal minimum of 61.0°F to a normal maximum of 100.3°F (WRCC 2016). The prevailing wind direction is from the northwest (WRCC 2002).

EXISTING AMBIENT AIR QUALITY

Concentrations of criteria air pollutants are used to indicate the quality of the ambient air. A description of key criteria air pollutants in the SJVAB and their potential impacts on human health is provided below. Emission source types and health effects are summarized in Table 3.3-2. Fresno County's attainment status for the CAAQS and the NAAQS are shown in Table 3.3-3.

Ozone

Ozone is a photochemical oxidant (a substance whose oxygen combines chemically with another substance in the presence of sunlight) and the primary component of smog. Ozone is not directly emitted into the air but is formed through complex chemical reactions between precursor emissions of ROG and NO_X in the presence of sunlight. ROG are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_X are a group of gaseous compounds of nitrogen and oxygen that result from the combustion of fuels. As discussed in greater detail above under the heading, "San Joaquin Valley Air Pollution Control District," in Section 3.3.1, "Regulatory Setting," the formation of ozone from the oxidation of ROG and NO_X is a complex interaction and is reliant on various functions and conditions.

Acute health effects of ozone exposure include increased respiratory and pulmonary resistance, cough, pain, shortness of breath, and lung inflammation. Chronic health effects include restriction of lung function and possibility of permanent lung impairment (EPA 2022). Emissions of the ozone precursors ROG and NO_X have decreased over the past several years because of more stringent motor vehicle standards and cleaner burning fuels. Emissions of ROG and NO_X decreased from 2000 to 2010 and are projected to continue decreasing from 2010 to 2035 (CARB 2013).

Nitrogen Dioxide

NO_2 is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide, which reacts through oxidation in the atmosphere to form NO_2. The term NO_X is used to represent the combined emissions of seven compounds. The combined emissions are reported as equivalent NO_2, which are regulated by EPA and CARB through the CAA and CCAA. Because NO_2 is formed and depleted by reactions associated with photochemical smog (ozone), the NO_2 concentration in a particular geographical area may not be representative of the local sources of NO_X emissions (EPA 2022).

Acute health effects of exposure to NO_X includes coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis, or pulmonary edema, breathing abnormalities, cyanosis, chest pain, rapid heartbeat, and death. Chronic health effects include chronic bronchitis and decreased lung function (EPA 2022).

Particulate Matter

Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10}. PM_{10} consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires and natural windblown dust, and particulate matter formed in the atmosphere by reaction of gaseous precursors (CARB 2013). Fine particulate matter ($PM_{2.5}$) includes a subgroup of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less. PM_{10} emissions in the SJVAB are dominated by emissions from area sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, farming operations, construction and demolition, and particles from residential fuel combustion. Direct emissions of PM_{10} are projected to remain relatively constant through 2035. Emissions of $PM_{2.5}$ in the SJVAB are dominated by the same sources as emissions of PM_{10} (CARB 2013). Additionally, emissions of $PM_{2.5}$ are heavily influenced from the secondary sources such as nitrates, sulfates, and organic compounds from combustion processes including biomass burning, soil and road dust, livestock operations, and use of aerosols (Behera and Sharma 2010). While primary $PM_{2.5}$ is from direct emissions, secondary $PM_{2.5}$ is formed in the atmosphere through photochemical reactions, condensation, and other atmospheric processes.

A number of adverse health impacts have been associated with exposure to both $PM_{2.5}$ and PM_{10} (CARB 2023). Short-term exposures to PM_{10} have been associated primarily with worsening of respiratory diseases, including asthma and chronic obstructive pulmonary disease, leading to hospitalization and emergency department visits. For $PM_{2.5}$, short-term exposures (up to 24 hours in duration) have been associated with premature mortality, increased hospital admissions for heart or lung cases, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted activity days. These adverse health effects have been reported primarily in infants, children, and older adults with preexisting heart or lung diseases. In addition, of all the common air pollutants, $PM_{2.5}$ is associated with the greatest proportion of adverse health effects related to air pollution, both in the US and worldwide. Long-term (months to years) exposure to $PM_{2.5}$ has been linked to premature death, particularly in people who have chronic heart or lung diseases, and reduced lung function growth in children.

Table 3.3-2 Sources and Health Effects of Criteria Air Pollutants

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

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

[1] Acute health effects refer to immediate illnesses caused by short-term exposures to criteria air pollutants at fairly high concentrations. An example of an acute health effect includes fatality resulting from short-term exposure to carbon monoxide levels in excess of 1,200 parts per million.

[2] Chronic health effects refer to cumulative effects of long-term exposures to criteria air pollutants, usually at lower, ambient concentrations. An example of a chronic health effect includes the development of cancer from prolonged exposure to particulate matter at concentrations above the national ambient air quality standards.

Source: CARB 2023.

Table 3.3-3 Attainment Status Designations for Fresno County

Pollutant	National Ambient Air Quality Standard	California Ambient Air Quality Standard
Ozone	—	Nonattainment (1-hour) Classification-Serious[1]
	Nonattainment (8-hour)[2] Classification=Extreme	Nonattainment (8-hour)
Respirable particulate matter (PM_{10})	Attainment (24-hour)	Nonattainment (24-hour)
	—	Nonattainment (Annual)
Fine particulate matter ($PM_{2.5}$)	Nonattainment (24-hour)	—
	Nonattainment (Annual)	Nonattainment (Annual)
Carbon monoxide (CO)	Unclassified/Attainment (1-hour)	Attainment (1-hour)
	Unclassified/Attainment (8-hour)	Attainment (8-hour)
Nitrogen dioxide (NO_2)	Unclassified/Attainment (1-hour)	Attainment (1-hour)
	Unclassified/Attainment (Annual)	Attainment (Annual)
Sulfur dioxide (SO_2)[5]	Unclassified/Attainment (1-Hour)	Attainment (1-hour)
		Attainment (24-hour)
Lead (Particulate)	Attainment (3-month rolling avg.)	Attainment (30 day average)
Hydrogen Sulfide	No Federal Standard	Unclassified (1-hour)
Sulfates		Attainment (24-hour)
Visibly Reducing Particles		Unclassified (8-hour)
Vinyl Chloride		Unclassified (24-hour)

[1] Per Health and Safety Code (HSC) § 40921.5(c), the classification is based on 1989 – 1991 data, and therefore does not change.

[2] 2015 Standard.

Sources: CARB 2020; EPA 2023.

MONITORING STATION DATA AND ATTAINMENT DESIGNATIONS

Criteria air pollutant concentrations are measured at several monitoring stations in the SJVAB. The Table Mountain station is the closest and most representative station to the project area with recent data for ozone. Because no PM_{10} and $PM_{2.5}$ concentrations are collected at the Table Mountain station, measured concentrations from the next closest station, the Clovis-N Villa Avenue station, was used. Table 3.3-4 summarizes the air quality data from the last 3 years (2018–2020).

Both CARB and EPA use this type of monitoring data to designate areas according to their attainment status for criteria air pollutants (attainment designations are summarized above in Table 3.3-2). As shown in Table 3.3-4, measured emissions of PM_{10}, and $PM_{2.5}$ in 2020 were elevated due to wildfire activity in southern and central California.

Table 3.3-4 Summary of Annual Data on Ambient Air Quality (2018-2020)[1]

	2018	2019	2020
Ozone			
Maximum concentration (1-hour/8-hr avg, 0.09 ppm/0.070 ppm)[2]	*	*	0.096/0.085
Number of days state/national standard exceeded (8-hr avg, 0.070 ppm)	*	*	5
Number of days national standard exceeded (1-hr, 0.09 ppm)	*	*	2
Fine Particulate Matter ($PM_{2.5}$)			
Maximum concentration (24-hour 12 µg/m^3)	82.3	39.1	193.7

	2018	2019	2020
Number of days national standard exceeded (24-hour measured 12 μg/m³)[2]	25	1	40
Respirable Particulate Matter (PM_{10})			
Maximum concentration (24-hour 50 μg/m³)	118.6	155.7	296.0
Number of days state standard exceeded (24-hour 50 μg/m³)	14	11	114
Number of days national standard exceeded (24-hour 150 μg/m³)	0	0	1

Notes: μg/m³ = micrograms per cubic meter; ppm = parts per million.

[1] Measurements from the Table Mountain station for ozone. Measurement for respirable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$) were taken from the Clovis-N Villa Avenue station.

[2] The 2015 8-hour ozone NAAQS matches the 8-hour ozone CAAQS.

Source: CARB 2023.

TOXIC AIR CONTAMINANTS

According to the *California Almanac of Emissions and Air Quality* (CARB 2013), the majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being diesel PM. Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emissions control system is being used. Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, CARB has made preliminary concentration estimates based on a PM exposure method. This method uses the CARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM. These estimates can be used as a surrogate for diesel PM where information specific to diesel PM is limited due to its highly dispersive character. In addition to diesel PM, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene.

Diesel PM poses the greatest health risk among these 10 TACs mentioned. Overall, levels of most TACs, except para-dichlorobenzene and formaldehyde, have decreased since 1990 (CARB 2013).

Existing sources of TACs in the proposed project area include gasoline vapors such as benzene, toluene, and methyl tertiary-butyl ether from operation of the Shell gas station on the north portion of the project site. Also, diesel PM emissions are produced from vehicle trips on North Friant Roach and Millerton Road.

SENSITIVE RECEPTORS

Sensitive receptors include those land uses where exposure to pollutants could result in health-related risks to sensitive individuals, such as children or the elderly. Residential dwellings, schools, hospitals, playgrounds, and similar facilities are of primary concern because of the presence of people particularly sensitive to pollutants and/or the potential for increased and prolonged exposure to pollutants. The project site is in a mostly rural area, with scattered neighborhoods and houses to the northwest, northeast, and southwest of the Project site. Based on census tract data, these neighbors are characterized as low-density, rural development compared to the highly dense areas of the City of Fresno to the southwest. Off-site roads near the Project site include North Friant Road, which runs in a northwest/southwest direction directly along the eastern property line of the Project. North Friant Road becomes Millerton Road at the northern tip of the Project site where the direction changes to mostly an east/west direction. North Fork Road/Road 206 branches off at the North Friant Road / Millerton Road transition and runs in an east/west direction. The closest receptor is located right next to North Friant Road approximately 450 feet to the east of the project site and will be used in this EIR's analysis under Impact 3.3-4 as the Maximally Exposed Individual (MEI). An MEI describes the uppermost portion of the high-end exposure range to a TAC or TACs.

3.3.4 Impact Evaluation Criteria

METHODOLOGY

The following resources were used for this additional analysis:

- the 2009 Draft and 2010 Final EIR for the Friant Community Plan Update and Friant Ranch Specific Plan (Fresno County 2009, 2010),
- the California Emissions Estimator Model (CalEEMod) 2016.3.2 Computer Program (CAPCOA 2017),
- SJVAPCD's *Guide to Assessing and Mitigating Air Quality Impacts* (GAMAQI) (SJVAPCD 2015a),
- the Air Emissions Report for the Friant Ranch Community Development Project (BlueScape Environmental 2021a) (included as Appendix D to this Recirculated Draft EIR),
- the Regional Air Quality Modeling and Health Impact Analysis (BlueScape Environmental 2021b) (included as Appendix E to this Recirculated Draft EIR), and
- the Health Risk Assessment (BlueScape Environmental 2021c) (included as Appendix F to this Recirculated Draft EIR).

Criteria Air Pollutants

SJVAPCD has established thresholds for determining environmental significance of air pollutant emissions. These thresholds distinguish between a project's short-term emissions from its long-term emissions. The short-term emissions are related to the construction phase of a project, which are recognized to be short in duration. The long-term emissions are related to the activities that will occur on an ongoing basis as a result of project operations.

Impacts are evaluated both on the basis of CEQA Guidelines Appendix G questions and SJVAPCD significance criteria. The impacts evaluated are those involving construction, operational emissions of criteria pollutants [i.e., ROG and NO_X (precursors to ozone), CO, SO_2, PM_{10}, and $PM_{2.5}$], and cumulative air quality impacts. Because the area is nonattainment for ozone and PM_{10}, a major criterion for review is whether the project would result in a net increase of pollutants impacting ozone precursor pollutants and of particulate matter (PM_{10}).

The 2009 EIR estimated emissions of criteria air pollutants using the URBEMIS 2007 Version 9.2.4 (URBEMIS). At the time of preparing the 2009 EIR, URBEMIS was the recommended modeling software to estimate emissions of criteria air pollutants. However, for the purposes of this Recirculated Draft EIR, emissions estimates have been remodeled using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2 computer program, which is representative of the most up to date modeling program available at the time this recirculated analysis was initiated. Notably, the 2009 EIR estimated emissions for the proposed project using a full buildout date of 2020; however, based on an updated construction start date of 2022, operational project emissions are estimated for full buildout in 2031.

Modeling was based on project-specific information (e.g., size, area to be graded, area to be paved) where available; reasonable assumptions based on typical construction activities; and default values in CalEEMod that are based on the project's location and land use types. Based on scheduling information provided by the project applicant, construction would commence in 2022 and end in 2031.

Table 3.3-5 Construction Phasing

Phase	Acres	Dwelling Units	Com. Center (sq. ft.)	Rec. Center (sq. ft.)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total Dwelling Units
Phase 1	108.3	614		40,000	230	230	154								614
Phase 2	117.7	618	50,000				76	230	230	82					618
Phase 3	98.9	778	100,000							148	230	230	170		778
Phase 4	87.2	490	100,000									50	130	310	490
Total	412.1	2,500	250,000	40,000	230	230	230	230	230	230	230	280	300	310	2,500
Roadways	47.7														
Slopes	22.4														
Open Space	460.0														
Cumulative Total	942.2				230	460	690	920	1,150	1,380	1,610	1,890	2,190	2,500	2,500

Notes: Com. Center = Community Center, Rec. Center = Recreational Center, sq. ft. = square feet.

Source: Provided by project applicant in 2022.

Construction emissions are developed for the Specific Plan phases 1 through 5 and the Depot Parcel. Each year of active construction in a development phase was run separately in CalEEMod, and results for overlapping emissions were summed by year. Emissions were estimated for each phase of construction including site preparation, grading, building construction, paving, and architectural coatings. Construction equipment and activities were developed using CalEEMod default values with adjustments in equipment load factors based on project-specific information (e.g., number and types of construction equipment anticipated for use). Specific model assumptions and inputs for these calculations can be found in Appendix D – Air Emissions Report.

Under these model assumptions and inputs, operational emissions would be generated from natural gas combustion (energy sources); vehicle trips (mobile sources); and landscape equipment, consumer projects, and application of paint (area sources).

Residences and other land uses would generate emissions from the combustion of natural gas and consumption of electricity; however, emissions from electricity use are only quantified for GHG emissions in CalEEMod, as associated emissions occur offsite at generation plants and are typically regulated as stationary sources. Natural gas use was estimated using CalEEMod default values based on local data determined by the project's climate zone. Notably, the project would use propane, not natural gas; however, natural gas is the assumed fuel used in CalEEMod. Based on the default emission factors provided in the CalEEMod User Guide, Appendix E, Table 5.2, natural gas and propane emission factors for fireplaces are comparable and would be similar for fuel combustion in general (CAPCOA 2017). The chemical/carbon composition and heating content of natural gas and propane are similar. Propane may have nominally higher CO and NO_X emissions, but adjustments for propane fuel use in the energy profile would yield a minimal difference in the total operational emissions. The largest source of operational criteria pollutant emissions are mobile sources and area sources (see Appendix D to this Recirculated Draft EIR, page 12, Table 4-2). Also of note, the project was modeled assuming compliance with 2019 California Energy Code, which still permits the use of on-site natural gas; however, it is anticipated that as future updates to the California Energy Code are adopted, future development may be fully decarbonized (restricted use of on-site natural gas).

The project would also generate criteria pollutants and diesel PM emissions from mobile sources (vehicular traffic). Daily vehicle miles traveled were estimated using the CalEEMod calculation methodology for each land use type. Daily trip rates are based on the Institute of Transportation Engineers Trip Generation Manual, 8th edition; however, these trip lengths were adjusted to account for mixed-use development, which comprises the majority of the proposed project. The lengths for residential trips traveling for work, shopping, or other activities are reasonably expected to originate from within the community with destinations also within the community. Therefore, using a weighted average of default trip lengths and a general layout of the proposed roads, trip lengths were adjusted. An estimated 80 percent of trips within the community would average 2 miles in length and 20 percent of the trips assumed the applicable CalEEMod trip length by land use type. Additionally, emissions factors were adjusted in CalEEMod using CARB's Emission FACtor 2017 Model (EMFAC) for the Fresno/San Joaquin Valley region, while also accounting for implementation of the SAFE Rule. Direct area source emissions were based on CalEEMod defaults for each land use category except for consumer product emissions and fireplaces, which were adjusted to better characterize project conditions.

For consumer products, a ROG emission factor was derived using a methodology consistent with that applied in CalEEMod, but with updated statewide parameters. The CalEEMod default emissions factor assumes a 2008 statewide ROG inventory and building square footage; however, an updated ROG inventory was developed using data from CARB for 2017 using 2017 population estimates. The reapplication of architectural coatings was also assumed to apply to 10 percent of each building interior exterior surface area with low-ROG paint.

Additionally, new residential dwellings within the Specific Plan would not include wood burning fireplaces; however, existing residential dwellings within the Community Plan area may have already been built with operational wood burning fireplaces. Thus, it was estimated that 12.4 percent of multi-family dwellings and 10 percent of single-family dwellings would include wood burning fireplaces. Also, 55 percent of all dwelling types are assumed to be built with a natural gas hearth, consistent with CalEEMod defaults, and the remaining units would have no fireplace.

Specific model assumptions and inputs for these calculations can be found in Appendix D – Air Emissions Report.

Health Impact Assessment

An HIA was prepared using the construction and operational outputs estimated above under the heading, "Criteria Air Pollutants," using a model that was developed to estimate regional ambient concentrations of criteria air pollutants at specific locations. This analysis relies on the Comprehensive Air Quality Model with Extensions (CAMx) model with appropriate Community Multiscale Air Quality (CMAQ)-to-CAM_X conversion tools using the relevant CARB-provided 2013 Weather Research and Forecasting Model meteorological data. CAMx is a photochemical grid model that simulates the chemical interactions and three-dimensional dispersion patterns on a regional, statewide, and national scale. This type of model is used to assess how well emissions control strategies attain ambient air quality health standards. CAMx builds on other models and tools that describe meteorology, emissions, and other environmental conditions, such as land cover. While the CAMx model is best suited for air dispersion modeling conducted on a national, state, or regional scale, it is the best available known tool for quantitatively evaluating dispersion of criteria air pollutant emissions and is therefore used for the analysis herein to assess the dispersion of the project's individual emissions to the region.

To update the analysis, 2020 was selected as the existing baseline year to describe existing environmental conditions and evaluate the project's contribution of emissions, because it is the most current, full year of data. 2031 is representative of the earliest date that the project would be fully operational. For cumulative conditions in 2031, the 2020 CAMx regional emissions inventory was expanded based on growth factors for Fresno County using CARB's 2016 SIP – Standard Emission Tool.

The CAM_X model was performed for the following six scenarios to assess the project's incremental contribution of air pollution when compared to the project's baseline year:

- 2020 Existing Baseline year without project emissions,
- 2020 Existing Baseline year with unmitigated project emissions,
- 2020 Existing Baseline year with mitigated project emissions,
- 2031 Future Baseline year without project emissions,
- 2031 Future Baseline year with unmitigated project emissions, and
- 2031 Future Baseline year with mitigated project emissions.

CAMx was used to estimate maximum daily 8-hour ozone concentrations and maximum annual 24-hour average $PM_{2.5}$ concentrations. These estimates were imported into EPA's BenMAP-CE model Version 1.5. BenMAP-CE is a program that estimates human health impacts and/or benefits to air quality changes. The program uses air quality monitoring data, recent and projected demographic and health data, and health responses to pollutant emissions from published epidemiological literature. The principal function of the program relevant to this analysis is to apply the findings of epidemiological studies to estimate health impacts from concentrations of air pollution.

To estimate human health effects, BenMAP-CE determines the change in ambient air pollution using air quality data for the baseline and project scenarios. BenMAP-CE then applies the relationship between air pollution and certain health effects, or, as referred to by the model, health endpoints. Examples of health endpoints are emergency room visits associated with acute respiratory illness, restricted outdoor activity, school days lost, and mortality.

These health endpoints, which are presented as numbers of health incidences such as emergency room visits and mortalities, can be used to meaningfully disclose a project's individual contribution of air pollution to a region and the potential adverse health outcomes. Using BenMAP-CE, the projected ozone and $PM_{2.5}$ concentration changes produced by the CAMx model were converted into incidences of health endpoints, including premature mortality, hospitalization, and emergency room visits, then compared to the "background health incidence." The background health incidence is the actual incidences of health effects, as measured in the local population without additional emissions from a project. The incremental difference between the "background health incidences" and the incidences of health end points associated with the project represent the health effects attributable to the project.

Specific model assumptions and inputs for these calculations can be found in Appendix E – Regional Air Quality Modeling and Health Impact Analysis.

Toxic Air Contaminants

To determine whether emissions from project construction activities should be analyzed in an HRA, the SJVAPCD's Prioritization Risk Screening Tool was used to screen cancer, chronic, and acute risk impacts from diesel PM. This tool calculates potential health risk impacts from exposure to TACs associated with the operation of stationary equipment or industrial processes. The annual and maximum pounds of TAC emissions are the inputs to determine the maximum cancer, chronic, and acute risk impacts to receptors at different receptor distances.

Based on SJVAPCD's guidance in using its Prioritization Risk Screening Tool, if a cancer prioritization score exceeds a value of a cancer risk of 10 (shorthand for a concentration of a cancer risk of 10 in one million) at the nearest residential receptor, construction emissions shall be incorporated into the HRA. A cancer risk score of 10 in one million is used by several air districts in California to determine the significance of TAC impacts and is therefore similarly applied in the Prioritization Risk Screening Tool. However, of note, SJVAPCD's CEQA threshold for assessing the significance of TAC impacts is 20 in one million, not 10 in one million. Following the use of the Prioritization Risk Screening Tool, the highest prioritization score totaled 5.39 in one million, which is below SJVAPCD's prioritization screen score of 10 in one million, thus not warranting the preparation of a construction HRA. Construction TACs are, therefore, evaluated qualitatively.

An HRA was prepared to quantify and evaluated TAC impacts from operational activities including project-generated traffic and operation of diesel generators to support the wastewater treatment plant over a 70-year duration. The HRA was completed by referencing the SJVAPCD *Update to District's Risk Management Policy to Address OEHHA's Revised Risk Assessment Guidance Document*, the SJVAPCD *Framework for Performing Health Risk Assessments*, the SJVAPCD *Draft Guidance for Air Dispersion Modeling*, and the Office of Environmental Health Hazard Assessment *Risk Assessment Guidelines* (SJVAPCD 2015c, SJVAPCD 2018b, and OEHHA 2015). Specific model assumptions and inputs for these calculations can be found in Appendix F – Health Risk Assessment.

THRESHOLDS OF SIGNIFICANCE

Appendix G of the CEQA Guidelines provides an Initial Study checklist, the purpose of which is to address a series of questions that help determine if a project would result in a significant effect to the environment. The questions in the checklist are often used in EIRs to help establish thresholds, above which significant impacts to the environment may occur. The 2009 EIR used thresholds of significance derived from the sample Initial Study checklist as it appeared in Appendix G of the CEQA Guidelines as they existed in 2008. In December 2018, the Governor's Office of Planning and Research (OPR) and the California Natural Resources Agency finalized a substantial set of updates to the CEQA Guidelines, which included revisions to the air quality questions in an updated version of the Appendix G Initial Study checklist. The following impact analysis uses language from the most recent version of the Appendix G checklist.

The thresholds shown below include the thresholds from the 2009 EIR, with revisions to reflect the current thresholds that related to the air quality resources evaluated in this analysis (i.e., criteria air pollutants and TACs). Text deletions are shown in ~~strikethrough~~ and text additions are shown in underline. The numbering of these updated thresholds correspond to the impacts evaluated below. Under these updated thresholds, the proposed project would cause a significant effect on air quality if the project would:

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

~~b) Violate any air quality standards or contributes substantially to an existing or projected air quality violation.~~

~~c)~~ b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard ~~(including releasing emissions which exceed quantitative thresholds for ozone precursors)~~.

~~d)~~ c) Expose sensitive receptors to substantial pollutant concentrations.

These are important thresholds to consider and are used in the analyses below. However, none of the questions derived from Appendix G of the CEQA Guidelines directly tackle the question posed by the Court of whether the project would result in likely health consequences to people. The CEQA Guidelines were explored for additional guidance. One section of the CEQA Guidelines that addresses this issue is Section 15065[a][4] (Mandatory Findings of Significance), by which a proposed project would have a significant environmental effect where "[t]he environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly." (See also Public Resources Code Section 21083[b] and *California Building Industry Assn. v. Bay Area Air Quality Management Dist.* (2015) 62 Cal.4th 369, 386 [citing this mandatory threshold language as indicating that "CEQA addresses human health and safety"].) This language does not provide a specific threshold, but it does include a requirement that adverse effects on human beings are considered. Because the language in this guideline is general, the County has given considerable thought to determine if a specific threshold can be expressed in quantitative terms. As explained below in the section entitled, "Regional Health Effects," the County did not formulate additional health-focused significance criteria for regional air pollutants based on the BenMAP-CE described above due to the reasons described in the same section. Rather, the results of the BenMAP-CE model are presented in the context of existing health incidences in Fresno County to determine whether the project's incremental health impacts would be considered an indirect or direct "substantial adverse [effect] on human beings."

Criteria Air Pollutants

SJVAPCD has also published new guidance since 2009 for the evaluation of air pollutants during CEQA review and are used to determine the significance of criteria (a) and (b) of the Appendix G Guidelines. In its GAMAQI, SJVAPCD provides evidence to support the development and applicability of its thresholds of significance for project-generated emissions of criteria air pollutants and precursors, which may be used at the discretion of a lead agency overseeing the environmental review of projects located within the SJVAB. The GAMAQI states that SJVAPCD's thresholds of significance are "based on District New Source Review (NSR) offset requirements for stationary sources. Stationary sources in the District are subject to some of the toughest regulatory requirements in the nation. Emission reductions achieved through implementation of District offset requirements are a major component of the District's air quality plans. Thus, projects with emissions below the thresholds of significance for criteria pollutants would be determined to 'not conflict or obstruct implementation of the District's air quality plan'" (SJVAPCD 2015a).

As stated in the Section 15064.7 of the State CEQA Guidelines, "a Lead Agency may consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the Lead Agency to adopt such thresholds is supported by substantial evidence." CEQA-related air quality thresholds of significance are tied to long-term air quality planning, which focuses on achieving or maintaining attainment designations with respect to the NAAQS and CAAQS for criteria air pollutants, which are scientifically substantiated, numerical concentrations considered to be protective of human health.

These numerical thresholds (i.e., designed to answer the questions listed under criteria [a] and [b] listed above) for construction- and operation-related emissions of criteria air pollutants and precursors would determine whether a project's discrete emissions would result in a regional contribution (i.e., significant) to the baseline nonattainment status of SJVAPCD. In developing thresholds of significance for individual project emissions, SJVAPCD analyzed emissions values against the SJVAPCD's offset thresholds to ozone precursors (Rule 2201), which, when applied, prevent further deterioration of ambient air quality in the SJVAB. Thresholds for PM_{10} and $PM_{2.5}$ were adopted from the SJVAPCD's PM_{10} NSR offset thresholds for stationary sources, which represent the greatest component of SJVAPCD's long-term regional air quality planning (SJVAPCD 2015a:82). Using these parameters, SJVAPCD developed quantitative thresholds of significance for project-level CEQA evaluation that may be used to determine if a project's emissions of criteria air pollutants and precursors would contribute to the regional degradation of ambient air quality within the SJVAB. According to SJVAPCD, projects with emissions below these thresholds of significance would demonstrate consistency with SJVAPCD's air quality plans. Notably, annual mass emissions thresholds of significance are not designed to determine whether a project's contribution of emissions would directly result in a violation of the NAAQS or CAAQS, which are hourly, concentration-based standards.

SJVAPCD has also developed daily mass emissions screening criteria (i.e., 100 pounds per day [lb/day]) for ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$ to determine whether project emissions would result in a violation of an AAQS. In its GAMAQI, SJVAPCD states, "[w]hen assessing the significance of project-related impacts on air quality, it should be noted that the impacts may be significant when on-site emission increases from construction activities or operational activities exceed the 100 pounds per day screening level of any criteria pollutant after implementation of all enforceable mitigation measures. Under such circumstance, the District recommends that an ambient air quality analysis be performed. An ambient air quality analysis uses air dispersion modeling to determine if emission increases from a project will cause or contribute to a violation of the ambient air quality standards" (SJVAPCD 2015a:93).

Unlike SJVAPCD's annual mass emissions thresholds, which are used to evaluate a project's consistency with long-term regional air quality planning, these daily mass emissions screening criteria serve to determine the location of where an exceedance of an AAQS could occur. Because the NAAQS and CAAQS are concentration-based standards presented hourly, daily mass emissions are a more suitable estimate to determine whether a project would contribute to a violation of an AAQS. Projects that emit emissions below these mass daily screening criteria would likely not generate emissions in levels that would result in a violation of an AAQS, and air dispersion modeling would not be required. Consequently, projects that emit emissions above these criteria are recommended to perform an ambient air quality analysis (AAQA) to evaluate whether an exceedance would occur using SJVAPCD's *Guidance for Air Dispersion Modeling*.

SJVAPCD has established Significant Impact Levels (SILs) as thresholds that apply to a fraction of the ambient air quality standards in APR 1925 *Policy for District Rule 2201 AAQA Modeling* (SJVAPCD 2019). As stated in the guidance document, SILs are used to "determine whether a proposed source's emissions will have a significant impact on air quality in the area." At this time, SJVAPCD only has SILs for ozone and $PM_{2.5}$ and these SILs are applied to new or modified stationary sources that comply with Rule 2201. SJVAPCD has not established SILs that would apply to land use development projects, primarily because once construction of a land use development project has been completed, operational emissions from such a project would largely be outside of the permitting authority of SJVAPCD. However, in the absence of a land use development–specific SIL, the SILs established in APR 1925 *Policy for District Rule 2201 AAQA Modeling* for stationary projects will be applied to the proposed project. SILs will be used in this analysis to assess whether the project's emissions would result in an exceedance of an ambient air quality standard following the photochemical modeling (or AAQA using SJVAPCD nomenclature) of the project's emissions consistent with SJVAPCD guidance.

Regional Health Effects

As noted previously, this analysis was prepared to address deficiencies described in the California Supreme Court's ruling in the Friant Ranch Decision. As such, this analysis undertakes a reasonable effort to substantively connect a project's air pollutant emissions to likely health consequences. In response to the decision, an HIA (discussed above under the heading, "Health Impact Assessment") has been prepared to provide quantifiable evidence of potentially adverse health outcomes from project emissions using the best modeling tools available.

This analysis also seeks to address the existing limitation associated with the use of annual mass emissions uniformly. The extent to which a project would degrade regional air quality depends on the degree to which these thresholds are exceeded. For instance, a project that emits 11 tons per year of NO_X, which would be considered significant using SJVAPCD's CEQA thresholds, would not contribute to the deterioration of ambient air quality to the same degree that a project emitting 110 tons per year of NO_X would.

To address this discrepancy, the HIA is used to determine the magnitude of this project's emissions of criteria air pollutants and associated human health impacts.

The SILs mentioned above are not designed to estimate specific human health consequences from exposure to air pollution. SILs are used in this analysis as a mechanism to evaluate how the project's emissions may alter the concentrations of certain pollutants that would result in an exceedance of an ambient air quality standard in the SJVAB. SILs cannot be used solely to determine the specific instances of new cases of asthma, cancer, acute respiratory or cardiac distress, or any other health outcome related to acute or chronic exposure to high concentrations of air pollution. Individual cases of acute or chronic illness specifically caused by exposure to air pollution are determined by several factors, including, but not limited to, exposure duration, preexisting conditions, genetics, age, and lifestyle choices.

To estimate health risk impacts, the resulting concentrations of air pollution modeled by CAMx are input into the BenMAP-CE program. The BenMAP-CE program, the modeling tool used in this analysis to estimate health impacts from the project, uses national health inputs in its assumptions and does not have a dataset specific to Fresno County or the SJVAB. As discussed in greater detail under Impact 3.3-1 and 3.3-2, this lack of local data affects the confidence in the BenMAP-CE results as they apply to the project. Therefore, the analysis compares the BenMAP-CE results to background health incident rates to estimate the health effects. The predicted health effects are provided to help provide an understanding of the nature and magnitude of impacts determined to be significant (e.g., Impacts 3.3-1 and 3.3-2) based on other measurable criteria, such as SJVAPCD's thresholds.

As discussed further under Impacts 3.3-1 and 3.3-2, serious health impacts, including human mortality (death) are estimated and disclosed, despite some acknowledged unreliability in the modeling results. However, in order to conclude whether an impact is significant, a threshold of significance is necessary. The prospect of identifying a threshold of significance for mortality presents a challenge as Fresno County has no such adopted threshold, nor has it ever applied such a threshold in a previous CEQA analysis. Section 15064.6(d) of the State CEQA Guidelines provides that lead agencies may consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision to use the threshold is supported by substantial evidence. Risk acceptability thresholds expressed numerically from exposure to criteria air pollutants, especially those related to human mortality associated with criteria air pollutant exposure, have not been established by resource agencies, including those charged with protecting air resources. CARB and local air districts, including SJVAPCD, have not identified thresholds, or guidance for developing thresholds for increased risk of mortality. However, if we expand our search beyond local and state agencies, some precedent exists for identifying such thresholds. For example, the World Health Organization (WHO) published a document in 2001 titled "Water Quality: Guidelines, Standards, and Health" in which a tiered structure of risk acceptability is described for mortality. The paper identified 1 death in 1 million as the level of "acceptable risk at which no further improvements in safety need to be made" (WHO 2001:209). The WHO document cites these guidelines from the United Kingdom's (UK) Health and Safety Executive (HSE), which is the UK government agency responsible for regulating workplace health, safety, and welfare, and for research into occupational risks in Great Britain. HSE describes these guidelines as part of their decision-making process in a document titled "Reducing risks, protecting people. HSE's decision-making process," within which the guidance of 1 death per 1 million people is described on page 45:

> HSE believes that an individual risk of death of one in a million per annum for both work and the public corresponds to a very low level of risk and should be used as a guideline for the boundary between the broadly acceptable and tolerable regions… [W]e live in an environment of appreciable risks of various kinds which contribute to a background level of risk – typically a risk of death of one in a hundred per year averaged over a lifetime. A residual risk of one in a million per year is extremely small when compared to this background level of risk. Indeed many activities which people are prepared to accept in their daily lives for the benefits they bring, for example, using gas and electricity, or engaging in air travel, entail or exceed such levels of residual risk (HSE 2001).

While some examples can be found of risk acceptability for mortality, Fresno County has not found similar acceptability thresholds applied by State or local agencies, especially to assess the impacts of a single project.

It is not known whether the WHO and HSE guidance on acceptable risk would be accepted in California or Fresno County. There are precedents, including by EPA for conducting cost-benefit analyses for evaluating death prevention through new environmental policies, which is not exactly the same as a risk acceptability threshold, but it still requires placing value on human life to allow for informed decision making and establishment of protective measures considered sufficient (EPA 2021c). EPA has previously used the term "value of statistical life" or VSL to refer to the aggregation of small risk reductions across many individuals until that aggregate reflects a total of one statistical life. For example, a one year decrease in average risk of mortality in the US of 1 in a million would result in 310 "statistical lives" saved (given a population of 310 million). The VSL has been used as shorthand for referring to the monetary value or tradeoff between how much a person is willing to financially commit to ensure mortality risk reduction, i.e., the willingness to pay for small risk reductions across large numbers of people, but it has led to confusion because many have interpreted it as referring to the loss of identified lives. Much indignation has been expressed in public and political settings over the VSL term because it is often perceived as the value of life itself or the value of an individual's life when, in fact, the term is meant to refer to society's willingness to pay for small changes in risk (EPA 2011). EPA has proposed to replace the term VSL with "value of mortality risk reduction" to avoid the impression of a monetary value being placed on individual lives. Notably, EPA's process does not set a level of risk acceptability for mortality; rather, it is meant to quantify cost-benefit of a relative reduction in population risk. The issue with terminology faced by EPA and its reluctance to set a risk acceptability threshold highlights the disproportionate challenge for a local agency, such as Fresno County, to attempt to set a risk acceptability level at a much smaller scale (i.e., individual project) and without the scientific and technical resources available to an agency like EPA.

Other examples of mortality thresholds represent more extreme circumstances such as public health crises. Crude mortality rate (CMR) is one of the most widely used indicators within the humanitarian sector when evaluating the severity of a health crisis within a given population. A CMR equal to or greater than one death per 10,000 persons a day signifies an emergency requiring immediate response. According to the United Nations High Commissioner for Refugees (UNHCR) emergency handbooks, an emergency should be declared when the crude mortality rate among a given population is at least two times greater than its "normal" value. For UNHCR, the normal mortality rate corresponds to the "baseline mortality of the population prior to displacement, or of the population in the host country." Another definition of normal mortality rate is "baseline rate documented for the population prior to the disaster". These metrics are meant to be applied in emergency or disaster situations and are not translatable to risk acceptability for a land use project under routine circumstances. Indeed, the COVID-19 pandemic presents an example of public health crisis that is being actively studied to predict changes in life expectancy and CMR.

Because there are only a few examples where agencies have identified a numeric significance threshold for human mortality, none were found that were identified by State or local agencies that could be applied to the project because the approaches for drawing this line have varied. It is important that the aforementioned threshold was intended to apply to residential development projects because these mortality-based thresholds are designed to determine acceptability of the mortality of an entire sector or activity. As such, they are not designed for a comparison of specific segments (i.e., air pollutant emissions exposure) of a project's overall effect on mortality; thus, the thresholds discussed have not been used to determine the significance of the project's effect (although they are disclosed for context). Moreover, it is uncertain which, if any, approach for identifying an appropriate numeric threshold of significance for mortality could be applied in this circumstance.

For these reasons, the results of the BenMAP-CE model disclosed in this analysis are not compared to any numeric threshold of significance, nor does this analysis attempt to quantify or establish any quantitative threshold for evaluating the significance of a project's contribution of regional air pollution to future health incidences. Rather, these estimates are presented in response to the Friant Ranch Decision. This approach represents how the Recirculated Draft EIR makes a good faith effort to quantify and disclose the potential adverse health impacts from the project's emissions to provide the public and decision makers the information to meaningfully understand the project's environmental effects. In lieu of attempting to derive and apply significance criteria based on the results of the BenMAP-CE model and the health end points it employs, the County has chosen to determine the significance of health-related effects from air pollution using the Applied Thresholds of Significance and the criteria set forth in the Section 15065[a][4] of the CEQA Guidelines, described below.

Toxic Air Contaminants

Using federal and state guidance pertaining to TACs, in addition to the findings of several scientific studies, SJVAPCD developed cancer risk and non-cancer health hazard thresholds for TAC exposure. Unlike criteria air pollutants, there is no known safe concentration of TACs for cancer risk. Moreover, TAC emissions contribute to the deterioration of localized air quality and due to the dispersion characteristics of TACs, emissions generally do not cause regional-scale air quality impacts. SJVAPCD's thresholds are designed to ensure that a source of TACs does not contribute to a localized, significant impact to existing or new receptors.

Applied Thresholds of Significance

Per the questions posed in Appendix G of the CEQA Guidelines and SJVAPCD recommendations, the following thresholds are used to determine whether implementing the project would result in a significant air quality impact and a significant health impact. Note that these thresholds include only those used for the environmental analysis which is focused on responding to direction from the California Supreme Court regarding health-related effects in the Friant Ranch Decision.

- **Short-term increases in regional criteria pollutants (criteria [a] and [b]).** Construction impacts associated with the proposed project would be considered significant if construction emissions would exceed SJVAPCD's mass emissions threshold of 10 tons per year (TPY) for ROG and NO_X, 15 TPY for PM_{10} and $PM_{2.5}$, and 27 TPY for SO_X. Additional air dispersion modeling would be required if construction emissions would exceed SJVAPCD's mass emissions screening criteria of 100 lb/day for ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$. Based on additional modeling using SJVAPCD's guidance, construction-related impacts would be significant if ozone concentrations exceeded 1 part per billion over an 8-hour average and/or $PM_{2.5}$ concentrations from all sources exceeding either 1.2 micrograms per cubic meter (μg/m^3) over 24 hour average or 0.2 μg/m^3 over an annual average, $PM_{2.5}$ concentrations from non-fugitive sources exceeding either 1.2 μg/m^3 over 24 hour average or 0.2 μg/m^3 over an annual average, and $PM_{2.5}$ concentrations from fugitive dust exceeding either 1.2 μg/m^3 over 24 hour average or 0.2 μg/m^3 over an annual average.
- **Long-term increases in regional criteria pollutants (criteria [a] and [b]).** Regional (operational) impacts associated with the proposed project would be considered significant if the project generates emissions of ROG and NO_X that exceed 10 TPY, PM_{10} and $PM_{2.5}$ that exceed 15 TPY, and SO_X that exceed 27 TPY. Additional air dispersion modeling would be required if operational emissions would exceed SJVAPCD's mass emissions screening criteria of 100 lb/day for ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$. Based on additional modeling using SJVAPCD's guidance, operation-related impacts would be significant if ozone concentrations exceeded 1 part per billion over an 8-hour average and/or $PM_{2.5}$ concentrations from all sources exceeding either 1.2 μg/m^3 over 24 hour average or 0.2 μg/m^3 over an annual average, $PM_{2.5}$ concentrations from non-fugitive sources exceeding either 1.2 μg/m^3 over 24 hour average or 0.2 μg/m^3 over an annual average, and $PM_{2.5}$ concentrations from fugitive dust exceeding either 1.2 μg/m^3 over 24 hour average or 0.2 μg/m^3 over an annual average.
- **Increases in Toxic Air Contaminants (criterion [c])**. TAC impacts associated with the proposed project would be considered significant if the project would expose the public to substantial levels of TACs so that the probability of contracting cancer for the Maximally Exposed Individual exceeds 20 in 1 million or an acute or chronic Hazard Index that equals or exceeds 1 for the Maximally Exposed Individual for non-carcinogens. A Maximally Exposed Individual describes the uppermost portion of the high-end exposure range.

IMPACT ANALYSIS

This section identifies and discusses the environmental and health impacts resulting from the project and recommends mitigation measures to reduce the level of impacts. The project would affect air quality during both construction and operational phases. Construction activities would result in criteria pollutant emissions through earthmoving activities, application of architectural coatings, and vehicle and equipment exhaust emissions. Construction activity would also generate diesel PM from the use of heavy-duty equipment and diesel-powered vehicle trips. The proposed project operations would result in criteria pollutant emissions primarily from vehicular sources, landscape maintenance equipment, residential heating sources, and other miscellaneous activities. Operation of the project would also generate TAC emissions from use of back-up generators to power the proposed wastewater treatment plant.

Impact 3.3-1: Short-Term Construction-Generated Emissions of Carbon Monoxide (CO), Reactive Organic Gases (ROG), Nitrogen Oxide (NO_X), Particulate Matter (PM_{10}), & Fine Particulate Matter [$PM_{2.5}$]) [Evaluation Criteria (a), (b), and (c)]

The 2009 EIR estimated annual construction emissions of criteria pollutants during construction of the project and found impacts to be potentially significant and mitigation was recommended. Since 2009, SJVAPCD has issued new guidance for determining construction-related air quality impacts and recommends that emissions be quantified and evaluated against annual mass emissions thresholds and daily mass emissions screening criteria. Considering this new guidance, annual and daily construction-generated emissions were quantified for the project. The project would not generate construction emissions of criteria air pollutants and ozone precursors exceeding SJVAPCD's annual mass emissions thresholds of significance; however, the project would emit levels of ROG, NO_X, and CO in exceedance of SJVAPCD's daily mass emissions screening criteria. In accordance with SJVAPCD, an additional analysis in the form of an AAQA (referred to herein in an HIA) was prepared for the project. Based on the findings of the HIA, the project would not generate substantial emissions that would individually result in an exceedance of the NAAQS or CAAQS. Because construction-generated emissions would not exceed SJVAPCD's annual mass emissions thresholds of significance, construction-generated emissions of criteria air pollutants and ozone precursors would be **less than significant**.

Regional Air Quality Planning (Criteria [a] and [b])

Although the impacts from construction related air pollutant emissions are temporary in duration, such emissions can become a significant air quality impact. Construction activities such as grading, excavation, building construction, and paving can generate substantial amounts of air pollution. Emissions from construction equipment engines also contribute to elevated concentrations of ROG, NO_X, PM_{10}, $PM_{2.5}$, CO, and SO_X.

Several pieces of diesel-powered heavy equipment will operate during the construction of the proposed project. Site preparation activity emissions have been estimated based on the maximum fleet recommended by the SJVAPCD. Exhaust and fugitive dust emissions will be generated by construction activities in the proposed project, such as excavation and grading, construction vehicle traffic, wind blowing over exposed earth, construction workers traveling to and from the construction sites, heavy-duty construction equipment operation, and application of architectural coatings. See the discussion under the heading, "Methodology," for additional modeling information.

Dust from construction activities can cause impacts both locally and regionally. The dry climate of the area during the summer months, combined with regional fine, silty soils, create a high potential for dust generation. Increased dustfall and locally elevated PM_{10} levels near the construction activity are expected. Depending on the weather, soil conditions, the amount of activity taking place at any one time, and the nature of dust control efforts, these impacts could significantly affect existing land uses near the proposed project area. The construction portions of this project are analyzed in phases, since the entire proposed project area will not be built out all at one time. A quantitative approach as well as qualitative approach will be applied for analysis of the construction emissions.

Construction emissions estimates for the proposed project were calculated using CalEEMod (and incorporated into this EIR as Appendix D – Air Emissions Report [BlueScape Environmental 2021a]). Based on the outputs of CalEEMod, the project will produce the emissions shown in Tables 3.3-6 and 3.3-7 are summed by year.

Table 3.3-6 Maximum Annual Emissions of Criteria Pollutants and Precursors Associated with Construction of the Project (2022–2031)

Year	ROG (TPY)[1]	NO_X (TPY)	CO (TPY)	SO_X (TPY)	PM_{10} (TPY)	$PM_{2.5}$ (TPY)
2022	0.5	4.9	5.1	<1	1.0	0.4
2023	1.0	8.7	9.6	<1	1.6	0.7
2024	3.1	6.1	7.8	<1	0.5	0.3
2025	0.8	6.5	8.3	<1	1.2	0.5
2026	5.1	5.7	7.6	<1	0.5	0.3
2027	3.9	7.0	8.9	<1	1.4	0.5

Year	ROG (TPY)[1]	NO_X (TPY)	CO (TPY)	SO_X (TPY)	PM_{10} (TPY)	$PM_{2.5}$ (TPY)
2028	0.4	3.0	3.8	<1	0.4	0.2
2029	4.6	7.6	9.7	<1	1.3	0.5
2030	0.3	1.6	3.4	<1	0.1	<1
2031	3.5	1.7	3.6	<1	0.1	<1
2032 (Depot Parcel)	0.2	1.0	1.8	<1	0.5	0.1
2033 (Depot Parcel)	0.2	0.4	0.8	<1	<1	<1
SJVAPCD CEQA Significance Threshold	10	10	10	27	15	27
Exceeds Threshold?	No	No	No	No	No	No

Notes: TPY = tons per year, ROG = reactive organic gases, NO_X = oxides of nitrogen, CO = carbon monoxide, SO_X = sulfur oxides, PM_{10} = respirable particulate matter, $PM_{2.5}$ = fine particulate matter, SJVAPCD = San Joaquin Valley Air Pollution Control District.

[1] CalEEMod estimates for construction ROG emissions were adjusted to reflect a more accurate emissions estimate of architectural coatings based on construction phasing.

Source: Modeling performed by BlueScape Environmental in 2021 using CalEEMod v. 2016.3.2.

As shown in Table 3.3-6, annual emissions of ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$ would not exceed SJVAPCD's annual mass emissions threshold of significance prior to compliance with regulatory mechanisms in place to reduce air pollutants. The following discussion details the requirements set forth by SJVAPCD that the project would be beholden to.

Regulatory Requirements

As summarized in Section 3.3.1, "Regulatory Setting," of this chapter, the project would be subject to SJVAPCD Rule 9510, Indirect Source Review, which requires that construction equipment greater than 50 horsepower (hp) reduce construction NO_X and PM_{10} emissions by 20 and 45 percent, respectively. This can be achieved by use of a Construction Clean Fleet, as defined by SJVAPCD. A Construction Clean Fleet is defined as a construction fleet mix that is to reduce construction emissions by 20 percent for NOx and 45 percent for PM_{10} from the statewide construction fleet average. A construction fleet for a project includes all the off-road pieces of construction equipment that are greater than 50 horsepower and generate emissions from the use of internal combustion engines related to construction activity. On average a mix of construction fleet with engine model years five (5) years or newer from the current calendar year would likely achieve the required reduction for NO_X and PM_{10}. The construction start year, fleet engine year mix, equipment type, and the number of hours used by each piece of equipment all can affect the ability to achieve the required reductions.

Additionally, SJVAPCD Rule 8021 within Regulation VIII, which addresses fugitive dust emissions, would apply to the project. Compliance with Rule 8021 would also be consistent with Fresno County General Plan Policy OS-G.13 The following measures are required pursuant to SJVAPCD Rule 8021 to be implemented by the project during various construction phases to reduce fugitive dust (SJVAPCD 2004):

- Pre-water site sufficient to limit visible dust emissions (VDE) to 20 percent opacity.
- Phase work to reduce the amount of disturbed surface are at any one time.
- Apply water or chemical/organic stabilizers/suppressants sufficient to limit VDE to 20 percent opacity; or construct and maintain wind barriers sufficient to limit VDE to 20 percent opacity. If utilizing wind barriers, apply water or chemical/organic stabilizers/suppressants sufficient to limit VDE to 20 percent opacity as well.
- Apply water or chemical/organic stabilizers/suppressants to unpaved haul/access roads and unpaved vehicle/equipment traffic areas sufficient to limit VDE to 20 percent opacity and meet the conditions of a stabilized unpaved road surface.
- Restrict vehicular access to the area.

- Apply water or chemical/organic stabilizers/suppressants, sufficient to comply with the conditions of a stabilized surface. If an area having 0.5 acre or more of disturbed surface area remains unused for seven or more days, the area must comply with the conditions for a stabilized surface area as defined in section 3.58 of Rule 8011.1
- Limit the speed of vehicles traveling on uncontrolled unpaved access/haul roads within construction sites to a maximum of 15 miles per hour.
- Post speed limit signs that meet State and Federal Department of Transportation standards at each construction site's uncontrolled unpaved access/haul road entrance. At a minimum, speed limit signs shall also be posted at least every 500 feet and shall be readable in both directions of travel along uncontrolled unpaved access/haul roads.
- Cease outdoor construction, excavation, extraction, and other earthmoving activities that disturb the soil whenever VDE exceeds 20 percent opacity. Indoor activities such as electrical, plumbing, dry wall installation, painting, and any other activity that does not cause any disturbances to the soil are not subject to this requirement.
- Continue operation of water trucks/devices when outdoor construction excavation, extraction, and other earthmoving activities cease, unless unsafe to do so.
- Submit a Dust Control Plan to the Air Pollution Control Officer (APCO) prior to the start of any construction activity for the project, which includes moving, depositing, and relocating more than 2,500 cubic yards per day of bulk materials on at least three days. Construction activities shall not commence until the APCO has approved or conditionally approved the Dust Control Plan. An owner/operator shall provide written notification to the APCO within 10 days prior to the commencement of earthmoving activities via fax or mail. The requirement to submit a Dust Control Plan shall apply to all such activities conducted for the project.

Using the mitigation module of CalEEMod, these regulatory measures were applied to the project's construction emissions. To demonstrate compliance with SJVAPCD Rule 9510, the construction fleet included in CalEEMod was altered to include a combination of Tier 3 and Tier 4 engines. Additionally, also using CalEEMod's mitigation module, watering of disturbed areas at least 3 times per day and limiting vehicle travel speeds on unpaved roads within the construction area to a maximum of 15 miles per hour was incorporated. Following compliance with ISR and using SJVAPCD's annual thresholds, the project's construction emissions would not conflict with long-term regional air quality planning. Thus, this impact would be **less than significant**.

Violation of an Ambient Air Quality Standard (Criteria [a] and [b])

As discussed above under the heading, "Thresholds of Significance," annual mass emissions thresholds should not be used to determine whether a violation of an AAQS would occur, as AAQS are presented as an hourly, concentration-based standard. Thus, to determine whether the project would generate substantial construction emissions that could result in a violation of an AAQS, maximum daily emissions for a worst-case construction scenario were modeled to assess whether SJVAPCD's 100 lb/day daily emissions screening criteria would trigger the preparation of an AAQA consistent with guidance provided in SJVAPCD's GAMAQI.

SJVAPCD has established daily mass emissions screening criteria for criteria air pollutants. These criteria were developed to assess the likelihood that a project would cause or contribute to a violation of the NAAQS or CAAQS under a worst-case daily construction emissions scenario. The project would be constructed over the course of a 10-year period (2022–2031). Heavy-duty construction equipment would continually become more fuel efficient and produce fewer emissions as regulatory mechanisms unfold over the construction period. Table 3.3-7 summarizes the total peak daily construction emissions that would occur over the project's 10-year construction period.

1 Rule 8011 serves to reduce ambient concentrations of PM_{10} by requiring actions to prevent, reduce, or mitigate anthropogenic fugitive dust emissions. This rule applies to specified outdoor fugitive dust sources such as agricultural activity, vehicle trips, and blasting activities.

Table 3.3-7 Maximum Daily Emissions of Criteria Pollutants and Precursors Associated with Construction of the Project (2022–2031)

Year	ROG (lb/day)[1]	NO_X (lb/day)	CO (lb/day)	SO_X (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
2022	9	83	83	<1	20	8
2023	13	114	122	<1	24	10
2024	72	56	73	<1	5	3
2025	10	86	107	<1	21	8
2026	127	54	72	<1	4	3
2027	96	99	131	<1	27	9
2028	3	23	30	<1	3	1
2029	114	99	122	<1	22	9
2030	2	12	26	<1	1	<1
2031	90	21	43	<1	1	1
SJVAPCD Screening Criteria	100	100	100	100	100	100
Exceeds Screening Criteria?	Yes	Yes	Yes	No	No	No

Notes: lb/day = pounds per day, ROG = reactive organic gases, NO_X = oxides of nitrogen, CO = carbon monoxide, SO_X = sulfur oxides, PM_{10} = respirable particulate matter, $PM_{2.5}$ = fine particulate matter, SJVAPCD = San Joaquin Valley Air Pollution Control District.

[1] CalEEMod estimates for construction ROG emissions were adjusted to reflect a more accurate emissions estimate of architectural coatings based on construction phasing.

Source: Modeling performed by BlueScape Environmental in 2021 using CalEEMod v. 2016.3.2.

As shown above, emissions of ROG would exceed SJVAPCD's daily mass screening criteria in 2026 and 2029, NO_X would exceed SJVAPCD's daily mass screening criteria in 2023, and CO would exceed SJVAPCD's daily mass screening criteria in 2025, 2027, and 2029.

To determine whether these emissions would result in a violation of an AAQS, an HIA (used here as a surrogate term for an AAQA) was prepared and is included as Appendix E – Regional Air Quality Modeling and Health Impact Assessment to this Recirculated Draft EIR. The results of the photochemical modeling performed in the HIA using the CAMx program were compared to the SILs summarized above under the heading, "Thresholds of Significance."

Based on the modeling performed for the project's emissions (summarized in greater detail in Appendix E – Regional Air Quality Modeling and Health Impact Assessment), the project's unmitigated construction emissions combined with the project's unmitigated operational emissions (see Impact 3.3-2 below) would increase the regional maximum daily 8-hour average ozone concentration in Fresno County by a maximum of 0.013 parts per billion (ppb) in 2031, which would be less than 1.3 percent of SJVAPCD's SIL for ozone (i.e., 1 ppb over an 8-hour average). Additionally, the project's unmitigated emissions would alter concentrations of $PM_{2.5}$ to a maximum of 0.058 $\mu g/m^3$ in 2031, which would not exceed SJVAPCD's SIL for $PM_{2.5}$ (i.e., 0.2 $\mu g/m^3$ over an annual average). These results generally validate the prediction that adding locally generated emissions could result in incremental increases in nearby ground-level concentrations of ozone and $PM_{2.5}$. However, these increases are very small and would not individually result in an exceedance of an AAQS.

The project's construction emissions would not individually result in an exceedance of an AAQA. Therefore, this impact would be **less than significant**.

Regional Health Effects (Criterion [c] and Mandatory Finding Related to Effects to Human Beings)

The following analysis is provided to disclose the extent to which criteria air pollutant emissions from the project would result in changes in the concentration of criteria air pollutants in the atmosphere and, correlative health effects that may occur as a result of those changes in air pollutant concentrations. As summarized above under the heading, "Violation of an Ambient Air Quality Standard," a HIA was prepared for the project to address SJVAPCD's recommendation to prepare an AAQA for project's that generate emissions of ROG, NO_X, CO, PM_{10}, and $PM_{2.5}$ exceeding 100 lb/day. The HIA additionally includes a second analysis that makes a reasonable effort to quantify the project's emissions to new health incidences using the BenMAP-CE program consistent with the direction from the California Supreme Court in the Friant Ranch Decision. The findings of CAMx (summarized above) comprise the data set used in BenMAP-CE. This HIA is included as Appendix E – Regional Air Quality Modeling and Health Impact Assessment to this Recirculated Draft EIR.

Although a strong correlation exists between elevated concentrations of criteria air pollutants and increased health incidence rates, there exists significant variability in linking health incidence data with very small increases in concentrations. The estimate of health effects presumes that impacts seen at large concentration differences can be scaled down to small concentration differences, with no consideration of potential thresholds below which health effects may not occur. In addition, as discussed below, several additional modeling uncertainties and assumptions are embedded in the analysis. The health effects presented are conservatively estimated and may be zero or produce negative values in some cases.

The conclusion that no health effects, or more surprising, a reduction in adverse health effects would result after the addition of project emissions requires the preparers of this analysis to consider the validity of using this type of modeling in an instance like this. This is explored further in this section.

The results of the BenMAP-CE are summarized below in Tables 3.3-8 and 3.3-9 for exposure to ozone and $PM_{2.5}$. As shown in these tables, the BenMAP-CE program shows that ozone-related health endpoints for the project's unmitigated 2031 emissions, asthma-related emergency room visits were projected to be 0.0338 incidences per year for adults ages 18 to 99 and 0.0427 incidences per year for children ages 0 to 17. With respect to $PM_{2.5}$-related health endpoints, the project's unmitigated 2031 emissions would result in the projected mortality for all ages of 0.35 incidences per year. These values, which will be explained and put into regional context in the discussion below, indicate that the project's emissions would introduce less than one new health incident per year (i.e., an instance where a person may experience any health outcome listed in the column "Health Endpoint Ground" in Table 3.3-8 below) for the Fresno County region.

Table 3.3-8 BenMAP-CE Modeling Results from Exposure to Maximum Daily 8-Hour Average Ozone (2031)

Human Health Endpoints		Aggregated Regional Results			Incremental Incidence/Existing Baseline Incidence (%)
Health Endpoint Ground	Health Endpoint	Project Incremental Incidence (# per year)		Baseline Incidence (# per year)	
		Mean	95% Confidence Interval		
Acute Respiratory Symptoms	Minor Restricted Activity Days	14.5060	5.9875–-23.0121	30,640,682	0.000047%
Asthma Exacerbation	One or More Symptoms	2.4333	-12.4705–-17.3154	13,815,762	0.000018%
Emergency Room Visits–-Respiratory	Emergency Room Visits Asthma [0-17]	0.0427	0.0077–-0.0777	16,541	0.000258%
Emergency Room Visits–-Respiratory	Emergency Room Visits Asthma [18-99]	0.0338	0.0093–-0.0582	22,666	0.000149%
Hospital Admissions Respiratory	Hospital Admissions All Respiratory	0.0047	-0.0011–-0.0104	34,277	0.000014%

Human Health Endpoints		Aggregated Regional Results			Incremental Incidence/Existing Baseline Incidence (%)
Health Endpoint Ground	Health Endpoint	Project Incremental Incidence (# per year)		Baseline Incidence (# per year)	
		Mean	95% Confidence Interval		
Mortality	All Cause	0.0120	0.0057–-0.0182	67,316	0.000018%
	Cardiopulmonary	0.0045	0.0017–-0.0073	23,263	0.000019%
	Non-Accidental	0.0030	-0.0008–-0.0068	51,566	0.000006%
	Respiratory	0.0058	0.002–-0.0097	5,750	0.000101%
School Loss Days	All Cause	13.0657	-1.5185–-27.6286	9,097,769	0.000144%

Source: Modeling performed by BlueScape Environmental in 2021 using BenMAP-CE.

Table 3.3-9 BenMAP-CE Modeling Results from Exposure to Maximum Annual 24-Hour Average $PM_{2.5}$ (2031)

Human Health Endpoints		Aggregated Regional Results			Incremental Incidence/Existing Baseline Incidence (%)
Health Endpoint Ground	Health Endpoint	Project Incremental Incidence (# per year)		Baseline Incidence (# per year)	
		Mean	95% Confidence Interval		
Acute Myocardial Infarction	Acute Myocardial Infarction Nonfatal [18-24]	0.00002	0.000008–-0.000024	9	0.000174%
	Acute Myocardial Infarction Nonfatal [25-44]	0.00120	0.00058–-0.001817	548	0.000219%
	Acute Myocardial Infarction Nonfatal [45-54]	0.00259	0.001254–-0.003931	1,187	0.000218%
	Acute Myocardial Infarction Nonfatal [55-64]	0.00448	0.002165–-0.006787	2,072	0.000216%
	Acute Myocardial Infarction Nonfatal [65-99]	0.01711	0.008276–-0.025939	7,348	0.000233%
Emergency Room Visits–- Respiratory	Asthma	0.20129	0.05292–-0.34944	39,207	0.000513%

Human Health Endpoints		Aggregated Regional Results			Incremental Incidence/Existing Baseline Incidence (%)
Health Endpoint Ground	Health Endpoint	Project Incremental Incidence (# per year)		Baseline Incidence (# per year)	
		Mean	95% Confidence Interval		
Hospital Admissions	All Cardiovascular (less Myocardial Infarctions)	0.03239	0.023878–-0.040894	39,203	0.000083%
	All Respiratory	0.06536	0.037689–-0.092987	34,277	0.000191%
	Asthma	0.01597	0.006114–-0.025805	4,762	0.000335%
Mortality	All Cause	0.35149	0.237503–-0.465302	65,401	0.000537%

Notes: $PM_{2.5}$ = fine particulate matter.

Source: Modeling performed by BlueScape Environmental in 2021 using BenMAP-CE.

When evaluated in a regional context, the increase in project-generated health incidences per year is very small relative to background health incidences. For instance, the aforementioned statistic of increase incidences per year of asthma-related emergency room visits by children aged 0 to 17 represents 0.00026 percent of the total for all regional emergency room visits due to asthma. Contextualizing this statistic using Fresno County population of nearly 1 million people in 2021, this translates into an increase of 2.6 cases of emergency rooms visits in children between 0 and 17 per year.

The largest project-related $PM_{2.5}$ health incidence for mortality calculated for any scenario represents 0.00054 percent (approximately 5.4 deaths in the context of 1,000,000 deaths) of the total of all regional deaths. For county-specific context, the California Department of Public Health (CDPH) estimates that between 2015 and 2017, Fresno County experienced an average of 6,794 deaths per year from all documented causes (CDPH 2019). Assuming Fresno County continues to experience this level of mortality (i.e., 0.00054 percent of 6,704 deaths equating to 0.04 deaths), the project's emissions would increase from 6,794 to 6,794.04 deaths per year) effectively resulting in no change to the number of deaths that occur in the County on annual basis. As the health incidence values estimated for the project represent a miniscule fraction of the background incidence values, the project would not result in a substantial health impact (it would be virtually zero). However, as stated previously, this analysis does not attempt to apply a numerical standard of significance for evaluating health impacts, but rather relies upon the language of the CEQA Guidelines Section 15065[a][4] to determine if this incremental increase in overall health impacts in the context of existing regional health incidences constitutes a substantial adverse effect on human beings.

As shown in the fourth column titled, "95% Confidence Interval" above in Table 3.3-8, the results of the BenMAP-CE modeling show that for certain health endpoints from ozone exposure, such as asthma exacerbation, respiratory-related hospital admissions, non-accidental mortalities, and school loss days show a 95 percent confidence interval range with negative predictions, indicating that the project's emissions may actually result in a decrease in the occurrence of these health outcomes. These anomalous results demonstrate inherent uncertainty (discussed in greater detail below) of photochemical modeling performed for a project's individual contribution of emissions to regional ambient air quality and resulting health impacts.

Overall, the estimated change in health effects from ozone and $PM_{2.5}$ associated with project emissions is modeled to be minimal in light of background incidences. Specifically, for all the health endpoints quantified, the number of mean estimated incidences is between 0.000006 and 0.000537 percent of the background health incidence. The "background health incidence" is an estimate of the average number of people in a given population who would suffer from some adverse health effect over a given period of time in the absence of additional emissions from the project. The background health incidence is the actual incidence of health effects measured in the local population in the absence of the project's emissions. BenMAP-CE calculates background health incidences using county-specific

2012-2014 baseline mortality data combined with census data obtained by the US Census Bureau to project baseline incidences from 2015 to 2050. When taken into context, the small increase in incidences and the very small percentage of the number of background incidences indicate that these health effects are minimal in a developing semi-rural environment.

The project and its emissions, particularly operational emissions (see discussion under Impact 3.3-2), exceed SJVAPCD's annual mass emissions thresholds by 2-10 times for some pollutants (i.e., ROG, NO_X, CO, and PM_{10}). This contribution of emissions indicates that the project's unmitigated emissions have the potential to degrade the ambient air quality within the SJVAB, which is already in nonattainment for the NAAQS for ozone and $PM_{2.5}$ and nonattainment for the CAAQS for ozone, $PM_{2.5}$, and PM_{10}. The findings of the HIA, which show that the project's emissions would not add substantial new health impacts above existing background incidences, and even negative effects or beneficial impacts to human health, should not be interpreted as a dismissal of the project's actual contribution of pollution to the SJVAB. Nevertheless, when evaluated in terms of the language set forth in Section 15065[a][4] of the State CEQA Guidelines, the project's contribution of new health incidences would not meaningfully add to the number of incidences in Fresno County and would not, thus, be considered a substantial adverse effect on human beings. This impact would be **less than significant**.

Modeling Uncertainties

As many regional-scale HIAs and this project-level analysis demonstrate, performing a quantitative HIA is difficult due to its complexity, but some level of analyses can be performed. Nevertheless, the limits of such analyses should be noted.

The HIA for the project does not link predicted changes in ozone and $PM_{2.5}$ concentrations associated with project operations to any specific *individual* health impact; instead, it uses studies that report *correlations* between health effects and exposure to ozone and $PM_{2.5}$, to estimate potential *population* health effects in the modeling domain. The model outputs provide seemingly precise values. It would be misleading, however, to assume that these values provide a meaningful depiction of the project's actual impacts. The unknowns imbedded in such analyses are inherent and unavoidable, given the many assumptions about meteorology, photochemical reactions, and other air basin characteristics, as described further below. Assumptions are necessary, because best available science cannot account for all the potential combinations of environmental conditions that naturally occur, such as wind speeds, wind directions, atmospheric pressures, temperature fluctuations, precipitation, humidity, and sunlight.

The modeling performed to estimate a project's contribution to ambient concentrations of pollutants requires assumptions for many variables related to the proposed project and the meteorological and other characteristics of the air basin into which the pollutants are emitted. All simulations of physical processes, whether ambient air concentrations or health effects from air pollution, have an associated level of ambiguity because of many simplifying assumptions. Each step in the modeling process, and each assumption incorporated into the model, adds a degree of unreliability into the reported results, resulting from the use of air pollutant emission estimates, ambient air concentration modeling, and health impact calculations using various health impact functions. The combination and compounding of these uncertainties from each step of the modeling analysis, in the context of the very small increments of change that are predicted, could result in questionable results. The modeling results should be viewed in light of these factors that contribute to arguably unreliable outputs.

Additionally, the validity of the results of photochemical modeling is highly dependent on accurately capturing the characteristics of natural systems that influence ambient air quality and the formation of criteria pollutants from the combination of precursor emissions. Models may be informed by data derived from observations and the best available understanding of how natural systems affect the generation of primary pollutant from secondary sources; however, the behavior and influence of natural systems cannot always be accurately predicted or captured by a photochemical model used to predict a future scenario.

Generally, models that correlate concentrations of criteria air pollutants with specific health effects focus on regulatory decision-making that will apply throughout an entire air basin or region, rather than a specific place within the region. These models focus on the region-wide health effects of pollutants so that regulators can assess the costs and benefits of adopting a proposed regulation that applies to an entire category of air pollutant sources, rather than the health effects related to emissions from a specific proposed project or source. Because of the scale of these analyses, any single project is likely to have only very small incremental effects, which may be difficult to differentiate from the effects of air pollutant concentrations in an entire air basin. For regional pollutants, it is difficult to trace a particular project's criteria air pollutant emissions to a specific health effect. Even if the model reports a given health effect, the actual effect may differ from the modeled results; that is, the modeled results suggest precision, when in fact the available models have numerous uncertainties that limit their precision for predicting health effects associated with emission sources that are small in comparison to regional, air basin-wide emissions.

The South Coast Air Quality Management District (SCAQMD) substantiates this statement in its *Amicus Curiae* brief submitted to the California Supreme Court in 2015 during the litigation on this project. SCAQMD notes that:

> It takes a large amount of additional precursor emissions to cause a modeled increase in ambient ozone levels over an entire region. For example, the SCAQMD's 2012 AQMP showed that reducing NO_X by 432 tons per day (157,680 tons/year) and reducing [ROG] by 187 tons per day (68,255 tons/year) would reduce ozone levels at the SCAQMD's monitor site with the highest levels by only 9 parts per billion…SCAQMD staff does not currently know of a way to accurately quantify ozone-related health impacts caused by NO_X or [ROG] emissions from relatively small projects (SCAQMD 2015).

SCAQMD does note that this type of health-risk analysis may be feasible for projects on a regional scale with high emissions; however, a project emitting only 10 TPY of NO_X or ROG would not produce emissions that would have a detectable impact on ambient ozone levels using available regional air quality models (SCAQMD 2015).

A number of assumptions built into the application of concentration-response functions in BenMAP may lead to an overestimation of health effects because BenMAP cannot perfectly characterize other conditions or environmental factors that can contribute to the development of an illness. For example, estimates of all-cause mortality impacts from $PM_{2.5}$ are based on a single epidemiological study that found an association between $PM_{2.5}$ concentrations and mortality. Similar studies suggest that such an association exists, but uncertainty remains regarding a clear causal link. This uncertainty stems from the limitations of epidemiological studies, such as inadequate exposure estimates and the inability to control for many factors that could explain the association between $PM_{2.5}$ and mortality, such as lifestyle factors like smoking or exposures to other air pollutants. For both the $PM_{2.5}$ and ozone health effects calculated, each pollutant may confound the other and both air pollutants could contribute to the health effect outcomes evaluated, so the overall impacts may be overstated.

Because the assumptions and uncertainties summarized above affect the reliability of results, the modeled results should not be interpreted as an exact calculation of something as complex as photochemical grid modeling, or as an exact correlation between a given level of emissions and specific health effects. In this case, the modeled health effects may differ from the actual future health effects associated with the project.

The very small increase in the incidence of health effects as determined from the modeling, relative to the substantially larger number of background health effects incidences, shows that the modeling predicts the project would have a very small impact on community-wide health effects. The estimated increases in those incidences of health effects are quite minor compared to the background health incidence values with the largest $PM_{2.5}$ health effect (all-cause mortality), representing only 0.000537 percent of the total of all deaths (approximately 5.4 deaths in the context of 1,000,000 deaths), and the largest effect for ozone (asthma-related emergency room visits by adults), representing 0.000258 percent of all emergency room visits (approximately 2.6 emergency room visits in the context of 1,000,000 emergency room visits). For regional context, CDPH estimates that between 2015 and 2017, Fresno County experienced an average of 6,794 deaths per year (CDPH 2019). Assuming Fresno County continues to experience this level of mortality, the project's emissions would represent a small fraction of one new death (0.04) to Fresno County's total mortality (i.e., from 6,794 average annual deaths to 6,794.04). However, in the context of Fresno County's total population (as opposed to mortality only), the number is smaller. With a population of just under 1,000,000, Fresno County's annual mortality represents 0.6 percent of its total population; therefore, the addition of 0.04 deaths represents an increased risk of death of 0.00000004 per resident of Fresno County. This equates to an increase of 0.04 deaths per million residents (the County's 2019 population is nearly 1 million) (US Census Bureau 2019).

The calculated health effects for the project are conservatively estimated, seeking to avoid a risk of underestimating an impact. In this case, even with conservative estimation, the results within the models' confidence limits may be zero. However, while the quantitative HIA uses the best available tools and guidance currently available, many compounding uncertainties may affect the reported results such that the modeled health effects may differ slightly or differ greatly from the actual future health effects associated with the proposed project for the reasons disclosed above. Nevertheless, in the Friant Ranch Decision, the court affirmed that it did "not require technical perfection or scientific certainty" in disclosing potential health effects from project implementation (*Sierra Club v. County of Fresno*, 6 Cal.5th 402, 416). The Court also noted that "scientific certainty is not the standard" (*Sierra Club v. County of Fresno*, 6 Cal.5th 402, 424). Therefore, these uncertainties notwithstanding, in response to direction provided by the Court, the results of the HIA are disclosed to the public and decision makers to provide the best available estimation of a connection between the project's emissions of criteria air pollutants and ozone precursors and potential adverse health impacts. As stated previously, the quantified health impacts summarized in Tables 3.3-8 and 3.3-9 are not compared to any threshold for evaluating health impacts from exposure to concentrations of criteria air pollutants in exceedance of an AAQS. This analysis does not attempt to establish a quantifiable standard for evaluating this impact nor does it endorse any such standard. (For purpose of context, it should be noted that the project is calculated to result in an increase of 0.04 deaths per million people, and, as described above under "Thresholds of Significance," the WHO and HSE guidelines identify an acceptable mortality risk of 1 in 1 million; therefore, the project's effect on mortality would be less than 1/20th the level identified as acceptable risk by the WHO and HSE guidelines. However, for the reasons described above under "Thresholds of Significance," it would not be appropriate to apply the HSE/WHO threshold of 1 death per 1 million people in Fresno County or to this specific circumstance, and, while these guidelines may provide useful context for the public and decision makers, they are not used in this analysis as a threshold of significance.) Additionally, the information provided above addressing the compounding uncertainties that may affect the reliability of the modeling results presented here does not seek to negate the likelihood that any one project could result in an adverse health outcome. Whereas the quantifiable annual mass emission thresholds and daily screening criteria used to determine the project's significance used above under the headings, "Regional Air Quality Planning," and "Violation of an Ambient Air Quality Standard" are supported by substantial evidence using regional emissions inventorying and planning to attain an AAQS (which are concentration-based standards also informed by substantial epidemiological evidence by EPA and CARB), no such empirical, scientific evidence is available to determine the significance of a health impact. It could be argued that any increase may be considered significant; however, this analysis does not attempt to make such a determination.

Therefore, the conclusions presented under the headings, "Regional Air Quality Planning," and "Violation of an Ambient Air Quality Standard" satisfy this analysis's requirements under CEQA to determine the significance of the project's contribution of emissions to the SJVAB.

Overall Conclusion: Construction-generated emissions of criteria air pollutants would be less than SJVAPCD's mass emissions thresholds of significance. Compliance with SJVAPCD Rules 9510 and 8021 above would reduce emissions of NO_X to below SJVAPCD's daily mass emissions screening criteria; however, these requirements would not be sufficient to reduce ROG and CO to below SJVAPCD's daily mass emissions screening criteria. Nevertheless, based on the air dispersion modeling performed for the project, these emissions levels would not individually result in an exceedance of the NAAQS or CAAQS for these pollutants. This indicates that the project's individual emissions would not cause a violation of an ambient air quality standard. In addition, although there are serious uncertainties surrounding the applicability of the BenMAP model as it is applied at the sub-regional level, especially for individual projects, the results of this modeling would suggest that no meaningful change would occur (i.e., the change is near-zero) with respect to health effects incidences in the area, including mortality (1/20th the level considered acceptable by the WHO and HSE) and that, ultimately, the project would not result in a substantial adverse effect on human beings. Because the project's annual emissions would be below SJVAPCD's annual mass emissions threshold, would not increase concentrations of air pollution such that an ambient air quality standard would be violated, and would not result in a substantial adverse effect on human beings, construction-related air quality impacts would be **less than significant.**

Mitigation Measures

The Friant Ranch EIR recommended several mitigation measures for reducing construction-related air pollution. However, this Recirculated Draft EIR analysis determined that the project's emissions during construction would not exceed SJVAPCD's thresholds of significance. Therefore, the requirements of Mitigation Measures 3.3.1a, 3.3.1b, 3.3.1c, 3.3.1d, and 3.3.1e are no longer recommended. No mitigation measures are required.

Impact 3.3-2: Long-Term Operation-Generated Emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ [Impact Evaluation Criteria (a), (b), and (c)]

The 2009 EIR evaluated the generation of long-term regional emissions of criteria air pollutants and ozone precursors and determined that emissions of ROG, NO_X, CO, and PM_{10} would exceed SJVAPCD's thresholds of significance that were in effected in 2009. Since 2009, SJVAPCD has issued new guidance and threshold of significance for determining long-term operational emissions of criteria air pollutants and ozone precursors. Notably, SJVAPCD now recommends that operational emissions be estimated and compared to a 100 lb/day screening criterion. The project would generate emissions of ROG, NO_X, CO, and PM_{10} in exceedance of both SJVAPCD's annual mass emissions thresholds of significance and daily mass screening criteria, thus necessitating the preparation of an AAQA (HIA). The results of the AAQA indicate that the project's individual emissions would not result in an exceedance of an ambient air quality standard. However, because emissions of ROG, NO_X, CO, and PM_{10} would exceed SJVAPCD's annual mass emissions thresholds, this impact would be **significant.**

Regional Air Quality Planning (Criteria [a] and [b])

Adoption of the proposed project will result in additional development and urbanization in the Friant Community, which would in turn increase criteria air pollutants in an area that is currently designated as a severe nonattainment area.

Operational emissions estimates for the proposed project were calculated using CalEEMod (and incorporated into their EIR as Appendix D – Air Emissions Report [BlueScape Environmental 2021a]). Table 3.3-10 summarizes the total modeled operational emissions associated with the project for the assumed first full year of operation (i.e., 2031). Emissions are presented for the entire project including emissions from the proposed project.

Table 3.3-10 Maximum Daily and Annual Emissions of Criteria Pollutants and Precursors Associated with Operation of the Project (2031)[1]

Year	ROG (TPY)	ROG (lb/day)	NO_X (TPY)	NO_X (lb/day)	CO (TPY)	CO (lb/day)	SO_X (TPY)	SO_X (lb/day)	PM_{10} (TPY)	PM_{10} (lb/day)	$PM_{2.5}$ (TPY)	$PM_{2.5}$ (lb/day)
2031	34.2	237	49.7	342	128.0	1,057	0.7	2	22.7	163	7.4	65
SJVAPCD Significance/ Screening Criteria[a]	10	100	10	100	10	100	27	100	15	100	27	100
Exceeds Threshold/ Screening Criteria?	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No

Notes: TPY = tons per year, lb/day = pounds per day, ROG = reactive organic gases, NO_X = oxides of nitrogen, CO = carbon monoxide, SO_X = sulfur oxides, PM_{10} = respirable particulate matter, $PM_{2.5}$ = fine particulate matter, SJVAPCD = San Joaquin Valley Air Pollution Control District

1 Emissions are presented as project total (i.e., the emissions of the Friant Ranch Specific Plan and the Friant Community Plan).

Source: Modeling conducted by BlueScape Environmental in 2021 using CalEEMod v. 2020.4.0.

As shown in Table 3.3-10, the project would generate ROG, NO_X, CO, and PM_{10} in exceedance of SJVAPCD's annual mass emissions thresholds prior to compliance with regulatory mechanisms in place to reduce air pollution.

Regulatory Requirements

As summarized in Section 3.3.1, "Regulatory Setting," of this chapter, the project would be subject to SJVAPCD Rule 9510, Indirect Source Review, which requires that operational emissions of NO_X and PM_{10} are reduced by 33.3 and 50 percent, respectively. To quantify these reductions, traffic measures developed by CAPCOA were incorporated into the CalEEMod mitigation module and correlate well with ISR mitigation measures. These measures are itemized on pages 14 through 15 of Appendix D – Air Emissions Report. Notably, these measures are not proposed as mitigation measures to reduce operational emissions, but are used to illustrate the magnitude of reductions that would be achieved through compliance with SJVAPCD's Rule 9510, Indirect Source Review. Additionally, SJVAPCD Rule 4601 establishes a ROG limit of 50 grams per liter (g/L) for flat and non-flat coatings commencing in 1/1/2022. Default architectural values were amended to reflect the requirements on this rule in CalEEMod. Table 3.3-11 summarizes the project's emissions after compliance with these rules.

Table 3.3-11 Maximum Daily and Annual Emissions of Criteria Pollutants and Precursors Associated with Operation of the Project (2031)[1]

Year	ROG (TPY)	ROG (lb/day)	NO_X (TPY)	NO_X (lb/day)	CO (TPY)	CO (lb/day)	SO_X (TPY)	SO_X (lb/day)	PM_{10} (TPY)	PM_{10} (lb/day)	$PM_{2.5}$ (TPY)	$PM_{2.5}$ (lb/day)
2031	32.5	217	47.2	325	117	888	0.25	2	18.8	122	5.6	38
SJVAPCD Significance/ Screening Criteria	10	100	10	100	10	100	27	100	15	100	27	100
Exceeds Threshold/ Screening Criteria?	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No

Notes: TPY = tons per year, lb/day = pounds per day, ROG = reactive organic gases, NO_X = oxides of nitrogen, CO = carbon monoxide, SO_X = sulfur oxides, PM_{10} = respirable particulate matter, $PM_{2.5}$ = fine particulate matter, SJVAPCD = San Joaquin Valley Air Pollution Control District.

[1] Emissions are presented as project total (i.e., the emissions of the Friant Ranch Specific Plan and the Friant Community Plan).

Source: Modeling conducted by BlueScape Environmental in 2021 using CalEEMod v. 2016.3.2.

As shown in Table 3.3-11, compliance with SJVAPCD's Rule 9510 would reduce emissions of criteria air pollutants, but not below SJVAPCD's annual mass emissions thresholds of significance.

Notably, the project would be consistent with several of Fresno County's General Plan policies that pertain to air quality. The project has not been sited near industrial or manufacturing land uses (General Plan Policy OS-G.13) and the new development under the project would not include wood-fired hearths (General Plan Policy OS-G.16).

That notwithstanding, as shown in Table 3.3-11, the project's operational emissions would exceed SJVAPCD's annual mass emissions thresholds of significance. As stated under the heading "Thresholds of Significance," SJVAPCD's states that projects that emit pollution in exceedance of these annual mass emissions thresholds would be inconsistent with long-term regional planning and the relevant air quality plans that detail such planning. Using these annual thresholds, the project's operational emissions would conflict with long-term regional air quality planning. Thus, this impact would be **significant**.

Violation of an Ambient Air Quality Standard (Criteria [a] and [b])

Additionally, as shown in Table 3.3-10, peak daily emissions of ROG, NO_X, CO, and PM_{10} would exceed SJVAPCD's daily mass screening criteria warranting the preparation of an AAQA. As discussed under the analysis presented under Impact 3.3-1, an HIA (which functions as an AAQA for this analysis) was prepared for the project and included as Appendix E – Regional Air Quality Modeling and Health Impact Assessment to this Recirculated EIR.

Based on the modeling performed for the project's emissions (summarized in greater detail in Appendix E – Regional Air Quality Modeling and Health Impact Assessment), the project's unmitigated construction emissions combined with the project's unmitigated operational emissions (see Impact 3.3-1 above) would increase the regional maximum daily 8-hour average ozone concentration in Fresno County by a maximum of 0.013 ppb in 2031, which would be less than 1.3 percent of the SIL for ozone (i.e., 1 ppb over an 8-hour average). Additionally, the project's unmitigated emissions would alter concentrations of $PM_{2.5}$ to a maximum of 0.058 $\mu g/m^3$ in 2031, which constitutes less than 29 percent of the SIL of $PM_{2.5}$ (i.e., 0.2 $\mu g/m^3$ over an annual average). These contributions would not result in an exceedance of an SIL, which is based on concentrations derived from the NAAQS. Thus, the project's individual contribution would not cause or contribute to the exceedance of an ambient air quality standard.

Thus, the project's operational emissions would not individually result in an exceedance of an AAQS. Therefore, this particular impact would be **less than significant**.

Regional Health Effects (Criterion [c] and Mandatory Finding Related to Effects to Humans)

As discussed under Impact 3.3-1, the supplemental analysis performed in the HIA also attempts to link the project's emissions to potential human health impacts. This modeling provides additional information that may be useful to Fresno County and the public and is intended to satisfy the Court in its decision in the Friant Ranch Decision.

The results of the BenMAP-CE health incidence calculations show that for ozone-related health endpoints for the 2031 project unmitigated scenario, asthma-related emergency room visits were projected to be 0.0338 incidences per year for adults ages 18 to 99 (i.e., 1.5 incidences in 1 million) and 0.0427 incidences per year for children ages 0 to 17 (i.e., 2.6 incidences in 1 million). With respect to $PM_{2.5}$-related health endpoints, under the 2031 project unmitigated scenario, the health effect on mortality for all agencies is 0.35 incidences per year. Tables 3.3-8 and 3.3-9 under Impact 3.3-1 summarize the resulting health incidences from project-level emissions in 2031.

When evaluated in a regional context, the increase in project-generated health incidences per year is small relative to background health incidences. For instance, the aforementioned statistic of increase incidences per year of asthma-related emergency room visits by children aged 0 to 17 represents 0.00026 percent of the total for all regional emergency room visits due to asthma. The largest project-related $PM_{2.5}$ health incidence for mortality calculated for any scenario represents 0.00054 percent of the total of all regional deaths (approximately 5.4 deaths in the context of 1,000,000 deaths). As the health incidence values estimated for the project's emissions are less than one, and a negligible fraction of the background incidence values, the project would not result in a substantial health impact (it would be virtually zero). For regional context, CDPH estimates that between 2015 and 2017, Fresno County experienced an average of 6,794 deaths per year (CDPH 2019). Assuming Fresno County continues to experience this level of mortality, the project's emissions would represent less than one new death (0.04) to total Fresno County's total mortality.

The calculated health effects for the project are conservatively estimated, seeking to avoid a risk of underestimating an impact. In this case the results within the models' confidence limits may be zero. While the quantitative HIA uses the best available tools and guidance currently available, many compounding uncertainties may affect the reported results such that the modeled health effects may differ from the actual future health effects associated with the proposed project.

As discussed under Impact 3.3-1 and reiterated here, the estimated change in health effects from ozone and $PM_{2.5}$ associated with project emissions is minimal in light of background incidences. Specifically, for all the health endpoints quantified, the number of mean estimated incidences is between 0.000006 and 0.000537 percent of the background health incidence. The "background health incidence" is an estimate of the average number of people in a given population who would suffer from some adverse health effect over a given period of time in the absence of additional emissions from the project. The background health incidence is the actual incidence of health effects measured in the local population in the absence of the project's emissions. BenMAP-CE calculates background health incidences using county-specific 2012-2014 baseline mortality data combined with census data obtained by the US Census Bureau to project baseline incidences from 2015 to 2050. When taken into context, the small increase in incidences and the very small percentage of the number of background incidences indicate that these health effects are minimal in a developing semi-rural environment.

As discussed under the heading, "Modeling Uncertainties," under Impact 3.3-1, there are many compounding uncertainties may affect the reported results such that the modeled health effects may differ slightly or differ greatly from the actual future health effects associated with the proposed project for the reasons disclosed above. Nevertheless, in the Friant Ranch Decision, the court affirmed that it did "not require technical perfection or scientific certainty" in disclosing potential health effects from project implementation (*Sierra Club v. County of Fresno,* 6 Cal.5th 402, 416). The Court also noted that "scientific certainty is not the standard" (*Sierra Club v. County of Fresno,* 6 Cal.5th

402, 424). Therefore, these uncertainties notwithstanding, in response to direction provided by the Court, the results of the HIA are disclosed to the public and decision makers to provide the best available estimation of correlation between the project's emissions of criteria air pollutants and ozone precursors and potential adverse health impacts. As stated previously, the quantified health impacts summarized in Tables 3.3-8 and 3.3-9 are not compared to any threshold for evaluating health impacts from exposure to concentrations of criteria air pollutants in exceedance of an AAQS. (As described above in Impact 3.3-1, for context, the WHO and HSE guidelines identify an acceptable mortality risk of 1 in 1 million, and the project is calculated to result in an increase of 0.00000004, which is 1/20th the level identified as acceptable risk by the WHO and HSE guidelines. As described above, while these guidelines may provide useful context for the public and decision makers, it is unclear if those thresholds are able to be appropriately applied in Fresno County or to this specific circumstance, and, consequently, they are not used in this analysis as a threshold of significance.) This analysis does not attempt to establish a quantifiable standard for evaluating this impact nor does it endorse any such standard. Additionally, the information provided above addressing the compounding uncertainties that may affect the reliability of the modeling results presented here does not seek to negate the likelihood that any one project could result in an adverse health outcome. Whereas the quantifiable annual mass emission thresholds and daily screening criteria used to determine the project's significance used above under the headings, "Regional Air Quality Planning," and "Violation of an Ambient Air Quality Standard" are supported by substantial evidence using regional emissions inventorying and planning to attain an AAQS (which are concentration-based standards also informed by substantial epidemiological evidence by EPA and CARB), no such empirical, scientific evidence is available to develop a quantitative threshold for determining the significance of a health impact caused by the construction and operation of one project solely and is beyond the scope of CEQA. Nevertheless, when evaluated in terms of the language set forth in Section 15065[a][4] of the State CEQA Guidelines, the project's contribution of new health incidences would be miniscule when considered in the context of existing background incidences in Fresno County and would not, thus, be considered a substantial adverse effect on human beings. This impact would be **less than significant.**

Overall Conclusion: Operational emissions of ROG, NO_X, CO, and PM_{10} would exceed SJVAPCD's mass emissions threshold of significance. While emissions of ROG, NO_X, and CO would exceed SJVAPCD's daily mass screening criteria of 100 lb/day in 2031, the results of the HIA demonstrate that the project's contribution of emissions would not exceed an SIL for ozone and $PM_{2.5}$. This indicates that the project's individual emissions would not cause a violation of an ambient air quality standard. In addition, although there are serious uncertainties surrounding the applicability of the BenMAP model as it is applied at the sub-regional level, especially for individual projects, the results of this modeling would suggest that no meaningful change would occur (i.e., the change is near-zero) with respect to health effects incidences in the area, including mortality (1/20th the level considered acceptable by the WHO and HSE) and that, ultimately, the project would not result in a substantial adverse effect on human beings. Nevertheless, because the project's annual emissions would be above SJVAPCD's annual mass emissions threshold, even after demonstrating compliance with SJVAPCD Rules 9510 and 4601, the project's emissions would conflict with long-term regional air quality planning in the SJVAB. Using the more conservative annual mass emissions thresholds, which are inherently tied to the protection of public health from excessive exposure to air pollution, operation-related air quality impacts would be **significant** without mitigation.

Mitigation Measures

The following mitigation measures shall supersede Mitigation Measure 3.3.2 presented in the Friant Ranch Draft EIR.

Mitigation 3.3-2a: To Reduce ROG, NO_X, CO, and PM_{10}, Implement On-Site Emissions Reduce Project Design Features

SJVAPCD states in its GAMAQI that "[d]esign elements, mitigation measures, and compliance with District rules and regulations may not be sufficient to reduce project-related impacts on air quality to a less than significant level. In such situations, project proponents may enter into a Voluntary Emission Reduction Agreement (VERA) with the District to reduce the project related impact on air quality to a less than significant level" (SJVAPCD 2015a: 116). SJVAPCD directs project applicants to reduce project-level emissions to the best extent, then allows project applicants to engage in regional programs or a VERA to further reduce emissions to a less-than-significant level. Consistent with SJVAPCD direction, the first part of this measure (a) identifies on-site emissions reduction measures; the second part of this measure (b) requires participation in regional emissions reduction programs to further reduce emissions.

Prior to the issuance of grading permits, the project applicant shall incorporate the following measures into the project for review and approval by County staff:

- Incorporate traffic calming measures including marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts, and on-street parking throughout the site plan. Specific calming measures and locations shall be identified by a qualified transportation specialist.
- Provide short-term and long-term bicycle parking facilities at recreational and commercial land uses within the site plan.

Prior to the issuance of any development permits, the project applicant shall identify the following on all construction drawings for review and approval by County staff:

- Electric water heaters in all residences (no gas storage tank heaters).
- Electric heating, ventilation, and air conditioning (HVAC) units in residences (no gas units).
- Low-VOC (100 – 150 grams per liter) paint for external residential applications.
- Require a minimum of one single-port electric vehicle charging station at each new residential unit with a garage that achieves similar or better functionality as a Level 2 charging station (referring to the voltage that the electric vehicle charger uses). The applicant shall also provide Level 2 electric vehicle charging stations at a minimum of 10 percent of parking spaces that serve multi-family residential buildings.

Mitigation 3.3-2b: To Reduce Operational Emissions of ROG, NO_X, CO, and PM_{10}, Engage in Regional Programs that Offset Project Emissions

Based on SJVAPCD's direction, once the on-site reduction measures listed above under Mitigation Measure 3.3-2a have been incorporated and the project applicant has achieved additional emissions reductions through compliance with SJVAPCD Rules 9510 and 4601, prior to the issuance of Certificates of Occupancy, the project applicant shall enter into a VERA through coordination with SJVAPCD to reduce emissions to meet SJVAPCD's annual mass emissions thresholds for any pollutant that exceeds their respective threshold.

If conditions warrant participation in a VERA, the VERA shall demonstrate the needed reduction in emissions that exceed the annual mass emissions threshold of significance through a process that funds and implements emissions reduction projects within the SJVAB. The types of emission reduction projects as overseen and accounted for by SJVAPCD that could be funded include electrification of stationary internal combustion engines (such as well pumps), replacing old heavy-duty trucks with cleaner, more efficient heavy-duty trucks, and replacement of old farm tractors. The project applicant shall engage in a discussion with SJVAPCD prior to the adoption of the VERA to ensure that feasible mitigation has been identified to reduce emissions to a less-than-significant level consistent with the direction given in SJVAPCD's GAMAQI as quoted above under Mitigation Measure 3.3-2a. As allowed by SJVAPCD, the project applicant shall be provided the opportunity, if the applicant so chooses, to perform an additional quantification of the project's operational emissions following the implementation of the proposed measures listed above under Mitigation Measure 3.3-2a to estimate the tons per year (tpy) needed to reduce emissions to meet SJVAPCD's annual thresholds of significance. If the project applicant does not perform additional quantification prior to the issuance of Certificates of Occupancy, the necessary reductions needed to meet SJVAPCD's thresholds of significance, as set forth in Tables 3.3-10 and 3.3-11 above, thus reducing operational impacts to a less-than-significant level, would be 22.5 tpy of ROG, 37.2 tpy of NO_X, 107 tpy of CO, and 3.8 tpy of PM_{10}.

Effectiveness of Mitigation: Mitigation Measures 3.3-2a would reduce emissions of criteria air pollutants through the application of on-site emissions reduction design features. Using the mitigation module of the 2022 Version of the CalEEMod Program, which uses quantification methodologies developed in the *Handbook for Analyzing Greenhouse Gas Emission Reduction, Assessing Climate Vulnerabilities, and Advancing Health and Equity*, the aforementioned mitigation measures would produce an approximate 6 percent reduction in operational ROG, 1 percent reduction in NO_X, 14 percent reduction in CO, and less than a percent reduction in PM_{10} and $PM_{2.5}$ (SMAQMD et al. 2021, CAPCOA 2021). This level of reductions would not be sufficient to meet SJVAPCD's thresholds of significance.

Mitigation Measure 3.3-2b would further reduce emissions through the project applicant's commitments made through a VERA as verified by SJVPACD to meet the applicable annual significance thresholds. The degree (i.e., the tons per year necessary to meet SJVAPCD's thresholds of significance) that the project applicant shall rely on the VERA shall be based on the effectiveness of the measures outlined in Mitigation Measure 3.3-2a, which can be determined through coordination with SJVAPCD during the ISR process. The exact number of reductions necessary to meet SJVAPCD's thresholds of significance is typically dependent upon the conclusion made following ISR compliance. Following verification from SJVAPCD through a contracted agreement to pay into the VERA, emissions would be mitigated to a less-than-significant level. Also, given that SJVAPCD's mass emissions thresholds are tied to long-term regional air quality planning and are designed to be protective of human health, reducing emissions to SJVAPCD's thresholds would also reduce the likelihood of the project individually causing a substantial adverse health outcome. If these conditions are satisfied, mitigated project emissions would be **less than significant**.

Impact 3.3-3: Expose receptors to concentrations of toxic air contaminants adversely affecting a substantial number of people [Evaluation Criterion (c)]

The 2009 EIR did not evaluate exposure of sensitive receptors to toxic air contaminants. Based on the HRA prepared for the project, construction and operation of the project would not produce significant diesel PM such that SJVAPCD's thresholds for TAC cancer risk exposure of 20 in 1 million or an acute or chronic Hazard Index of 1 for the Maximally Exposed individuals for non-carcinogens would be exceeded. Using these numerical thresholds established by SJVAPCD, the project would not generate substantial emissions of TACs causing an adverse health impact from TAC expose. This impact would be **less than significant**.

SJVAPCD has developed quantitative threshold of significance for carcinogenic risk exposure (i.e., 20 in 1 million) and non-carcinogenic risk exposure (i.e., acute or chronic Hazard Index of 1 for the MEI) in consideration of dosage, risk exposure, background risk levels, and guidance established by AB 2588, the Air Toxics "Hot Spots" Information and Assessment Act. SJVAPCD's threshold for carcinogenic risk was updated in 2016 from 10 in 1 million to 20 in 1 million in consideration of improved ambient air quality due to efficacy of various programs such as CARB's Diesel Risk Reduction Plan (SJVAPCD 2016). A 2015 study demonstrated dramatic declines in cancer risk from exposure to air toxics from CARB-implementation regulations and policies (Propper et al. 2015).

Also, AB 2588 directs each air district to establish a prioritization score threshold for stationary sources of TACs. In order to assist the districts with this requirement, the California Air Pollution Control Officers Association (CAPCOA) Toxics Committee, in cooperation with the Office of Environmental Health Hazard Assessment (OEHHA) and CARB, developed the Air Toxics "Hot Spots" Program, Facility Prioritization Guidelines in July 1990. The purpose of the guideline is to provide districts with suggested procedures for prioritizing facilities. However, districts may develop and use prioritization methods which differ from the CAPCOA guidelines. In 2016, CAPCOA updated these guidelines to incorporate the changes made to the OEHHA risk assessment methodology.

Construction

Construction-related activities would result in temporary, short-term project-generated emissions of diesel PM from the exhaust of off-road, heavy-duty diesel equipment for site preparation (e.g., demolition, clearing, grading); paving; application of architectural coatings; and other miscellaneous activities. Particulate exhaust emissions from diesel PM was identified as a TAC by CARB in 1998. The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for any exposed receptor. Thus, the risks estimated for an exposed individual are higher if a fixed exposure occurs over a longer period of time. According to guidance from the California Office of Environmental Health and Assessment *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, a 30-year exposure duration is used for estimating cancer risk at residential land uses (OEHHA 2015). Construction activity is anticipated to take place over a 10-year timeframe for the project and would not result in intensive construction activities for any one extended period of time during project construction.

The TAC that is the focus of this analysis is diesel PM because it is known that diesel PM would be emitted during project construction. Construction-related activities that would result in temporary, intermittent emissions of diesel PM would be from the exhaust of off-road equipment used during site preparation and construction and on-road heavy-duty trucks. On-road diesel-powered haul trucks traveling to and from the construction area to deliver materials and equipment are less of a concern because they do not operate at any one location for extended periods of time such that they would expose a single receptor to excessive diesel PM emissions.

Based on the construction-related emissions modeling conducted (see Appendix F – Health Risk Assessment), maximum daily emissions of exhaust PM_{10} would be less than 5 lb/day during construction. A portion of these emissions would be due to haul trucks traveling to and from the site and would not occur on the project site. This is below the SJVAPCD-recommended daily mass emission screening criteria of 100 lb/day. In addition, all construction activities would occur during daytime hours, which is when many residents who are employed typically would not be at home, thus limiting exposure from construction-related emissions to these receptors.

In addition, studies show that diesel PM is highly dispersive and that concentrations of diesel PM decline with distance from the source (e.g., 500 feet from a freeway, the concentration of diesel PM decreases by 70 percent) (CARB 2005: 9). The nearest off-site sensitive receptor, a single-family home located 450 feet to the east of the project site.

Construction-related TAC emissions would not expose sensitive receptors to an incremental increase in cancer risk greater than 20 in 1 million or a hazard index greater than 1.0. The low exposure level reflects the (i) relatively low mass of diesel PM emissions that would be generated by construction activity on the project site; (ii) the relatively short duration of diesel PM-emitting construction activity at the project site; and (iii) the highly dispersive properties of diesel PM. Construction related TAC emissions would be less than significant.

<u>Operation</u>

The project would generate TACs from new vehicle trips and operation of two stationary standby emergency generators located at the proposed wastewater treatment plant. Cancer risks and non-cancer chronic and acute hazards from the consumption of gasoline and diesel fuel for the first full build-out year (i.e., 2031) were evaluated in the HRA. Operation of the wastewater treatment facility is expected to rely on one 500 kW backup generator until demand necessitates the use of another 300-kW backup generator. The HRA conservatively assumed that both generators could operate concurrently in 2031.

Based on the findings of the HRA, the lifetime cancer risk for the on-site Maximally Exposed Individual (MEI) was estimated to be 10.5 in one million, which is below SJVAPCD’s significance threshold of 20 in one million. Additionally, the lifetime cancer risk for the off-site MEI was calculated to be 17.5 in one million, also below 20 in one million.

The chronic and acute noncancer hazard indexes from project operation for on-site receptors were estimated to be 0.002 and 0.006, respectively. Chronic and acute noncancer hazard indexes for off-site receptors were calculated to be 0.004 and 0.010, respectively. These values are below SJVAPCD’s significance threshold of 1.0.

Conclusion: Construction of the project would generate emissions of diesel PM. These emissions would be short-term and would not be substantial such that receptors would be adversely affected by the magnitude or duration of pollutant exposure. Operation of the project would not result in a cancer risk exceeding 20 in one million for both on and off-site receptors. Additionally, operation of the project would not expose on- and off-site receptors to a noncancer chronic and acute hazard index greater than 1.0. For these reasons, TAC emissions would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

4 REPORT PREPARERS

Fresno County (Lead Agency)

David Randall....................Senior Planner

Ascent Environmental, Inc. (CEQA Compliance)

Honey Walters....................Principal
Mike Parker, AICP....................Project Manager
Sarah Henningsen....................Assistant Project Manager
Julia Wilson....................Air Quality Specialist
Shaurya Johari....................Air Quality Specialist
Poonam Boparai....................Senior Air Quality Specialist
Curtis Alling, AICP....................Senior CEQA Review
Gary Jakobs, AICP....................Senior CEQA Review
Brian Perry....................Graphic Specialist
Gayiety Lane....................Publishing Specialist
Michele Mattei....................Publishing Specialist

BlueScape Environmental (Air Quality Modeling)

James A. Westbrook, CCM....................Principal Air Quality Scientist
Francisco Matamala....................Principal Photochemical Modeler
James G. Wilkinson, PhD....................Principal Photochemical Modeler

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5 REFERENCES

Chapter 1 Introduction

None

Chapter 3 Environmental Impacts and Mitigation Measures

Section 3.3 Additional Analysis Addressing Air Pollutant Emissions and Human Health Consequences

Behera, Sailesh N. and Mukesh Sharma. 2010. Reconstructing Primary and Secondary Components of $PM_{2.5}$ Composition for an Urban Atmosphere. Available: https://www.tandfonline.com/doi/pdf/10.1080/02786826.2010.504245#:~:text=Typical%20PM2.,road%20dust%20(Hildemann%20et%20al. Accessed November 10, 2021.

BlueScape Environmental. 2021a (March 4). *Air Emissions Report for the Friant Ranch Community Development Project*. Prepared for Friant Ranch LP, Fresno, California.

———. 2021b (August 4). *Regional Air Quality Modeling and Health Impact Analysis for the Friant Ranch Community Development Project*. Prepared for Friant Ranch LP, Fresno, California.

———. 2021c (March 4). *Health Risk Assessment for the Friant Ranch Community Development Project*. Prepared for Friant Ranch LP, Fresno, California.

California Air Pollution Control Officers Association. 2017. California Air Pollution Control Officer's Association, CalEEMod User Guide Appendix D: Default Data Tables. Available: http://www.aqmd.gov/docs/default-source/caleemod/05_appendix-d2016-3-2.pdf?sfvrsn=4. Accessed July 13, 2022.

———. 2021. California Emissions Estimator Model Users Guide. Available: http://www.aqmd.gov/docs/default-source/caleemod/user-guide-2021/01_user-39-s-guide2020-4-0.pdf?sfvrsn=6. Accessed February 7, 2023.

California Air Resources Board. 2000 (October). *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. Available: https://ww2.arb.ca.gov/sites/default/files/classic/diesel/documents/rrpfinal.pdf. Accessed February 7, 2023.

———. 2005. Air Quality and Land Use Handbook: A Community Health Perspective. Available: https://sfmohcd.org/sites/default/files/20%20-%20CARB%2C%20Air%20Quality%20and%20Land%20Use%20Handbook%202005.pdf. Accessed February 6, 2023.

———. 2013. *California Almanac of Emissions and Air Quality—2013 Edition*. Available: http://www.arb.ca.gov/aqd/almanac/almanac13/almanac13.htm. Accessed January 4, 2017.

———. 2016 (May 4). Ambient Air Quality Standards. Available: https://www.arb.ca.gov/research/aaqs/aaqs2.pdf. Accessed January 4, 2017.

———. 2020. Attainment Designations. Available: https://ww2.arb.ca.gov/resources/documents/maps-state-and-federal-area-designations. Accessed March 9, 2022.

———. 2023. California Ambient Air Quality Standards. Available: https://ww2.arb.ca.gov/resources/california-ambient-air-quality-standards. Accessed February 6, 2023.

California Department of Public Health. 2019. Fresno County's Health Status Profile for 2019. Available: https://www.cdph.ca.gov/Programs/CHSI/CDPH%20Document%20Library/ICS_FRESNO2019.pdf. Accessed November 19, 2021.

CAPCOA. *See* California Air Pollution Control Officers Association.

CARB. *See* California Air Resources Board.

CDPR. *See* California Department of Public Health.

EPA. *See* US Environmental Protection Agency.

Fresno County. 2009 (October). *Draft Environmental Impact Report, Friant Community Plan Update & Friant Ranch Specific Plan*. State Clearinghouse No. 2007101016. Prepared by Quad Knopf, Visalia, CA.

———. 2010 (August). *Final Environmental Impact Report, Friant Community Plan Update & Friant Ranch Specific Plan*. State Clearinghouse No. 2007101016. Prepared by Quad Knopf, Visalia, CA.

Health and Safety Executive. 2001. *Reducing risks, protecting people. HSE's decision-making process.* Available: HSE Risk Decision Making Process.pdf. Accessed December 2, 2021.

HSE. *See* Health and Safety Executive.

OEHHA. *See* Office of Environmental Health Hazard Assessment.

Office of Environmental Health Hazard Assessment. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments. Available: https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf. Accessed February 6, 2023.

Propper, Ralph, Patrick Wong, Son Bui, Jeff Austin, William Vance, Alaro Alvarado, Bart Croes, and Dongmin Luo. 2015. Ambient and Emission Trends of Toxic Air Contaminants in California. Available: https://pubs.acs.org/doi/pdf/10.1021/acs.est.5b02766. Accessed November 10, 2021.

Sacramento Metropolitan Air Quality Management District, California Transportation Agency, California Air Pollution Control Officers Association, ICF, Fehr & Peers, and Sonoma Technology. 2021 (August). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.* Available: https://www.airquality.org/ClimateChange/Documents/Handbook%20Public%20Draft_2021-Aug.pdf. Accessed July 20, 2022.

San Joaquin Valley Air Pollution Control District. 2004. Rule 8021 Construction. Demolition, Excavation, Extraction and Other Earthmoving Activities. Available: http://www.valleyair.org/rules/currntrules/CLEAN%20VERSION%20OF%20RULE%208021.pdf. Accessed February 6, 2023.

———. 2015a. *Guidance for Assessing and Mitigating Air Quality Impacts*. Available: http://www.valleyair.org/transportation/GAMAQI.pdf. Accessed February 6, 2023.

———. 2015b. Application for Leave to File Amicus Curiae Brief of San Joaquin Valley Unified Pollution Control District in Support of Defendant and Respondent, County of Fresno and Real Party in Interest an Respondent, Friant Ranch L.P. Available: https://www.courts.ca.gov/documents/7-s219783-ac-san-joaquin-valley-unified-air-pollution-control-dist-041315.pdf. Accessed February 6, 2023.

———. 2015c. *Update to District's Risk Management Policy to Address OEHHA's Revised Risk Assessment Guidance Document*. Available: https://www.valleyair.org/notices/Docs/2015/3-18-15_risk/final-draft-risk-policy-sr.pdf. Accessed February 6, 2023.

———. 2016. 2016 Plan for the 2008 8-Hour Ozone Standard. Available: http://valleyair.org/Air_Quality_Plans/Ozone-Plan-2016/m.pdf. Accessed February 6, 2023.

———. 2018a. *2018 Plan for the 1997, 2006, and 2012 PM2.5 Standards*. Available: https://www.valleyair.org/pmplans/documents/2018/pm-plan-adopted/2018-Plan-for-the-1997-2006-and-2012-PM2.5-Standards.pdf. Accessed February 6, 2023.

———. 2018b. *APR 1906 Framework for Performing Health Risk Assessments*. Available: http://www.valleyair.org/policies_per/Policies/APR-1906-7-1-18.pdf. Accessed February 6, 2023.

———. 2019. APR 1925 Policy for District Rule 2201 AAQA Modeling. Available: http://www.valleyair.org/policies_per/policies/apr-1925.pdf. Accessed February 6, 2023.

SCAQMD. *See* South Coast Air Quality Management District.

Seinfeld, J. H., and S. N. Pandis. 1996. *Atmospheric Chemistry and Physics: From Air Pollution to Climate Change*. John Wiley & Sons, Inc. Hoboken, NJ.

SMAQMD et al. *See* Sacramento Metropolitan Air Quality Management District, California Transportation Agency, California Air Pollution Control Officers Association, ICF, Fehr & Peers, and Sonoma Technology.

South Coast Air Quality Management District. 2015. Application of the South Coast Air Quality Management District for Leave to File Brief of Amicus Curiae in Support of Neither Party and Proposed Brief of Amicus Curiae. Available: https://www.courts.ca.gov/documents/9-s219783-ac-south-coast-air-quality-mgt-dist-041315.pdf. Accessed February 6, 2023.

SJVAPCD. *See* San Joaquin Valley Air Pollution Control District.

US Census Bureau. 2019. Quick Facts: Fresno County. Available: https://www.census.gov/quickfacts/fresnocountycalifornia. Accessed December 2, 2021.

US Environmental Protection Agency. 2011. *Review of Valuing Mortality Risk Reductions for Environmental Policy: A White Paper (December 10, 2010)*. Available: https://www.epa.gov/system/files/documents/2022-03/86189901_0.pdf. Accessed July 2022.

———. 2021a. *Executive Order on Protecting Public Health and the Environmental and Restoring Science to Tackle the Climate Crisis*. Available: https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/20/executive-order-protecting-public-health-and-environment-and-restoring-science-to-tackle-climate-crisis/. Accessed January 26, 2022.

———. 2021b. NHTSA Finalizes Repeal of Trump-Era Rule Blocking State Fuel Economy Standards. Available: https://climate.law.columbia.edu/content/nhtsa-finalizes-repeal-trump-era-rule-blocking-state-fuel-economy-standards#:~:text=On%20December%2021%2C%202021%2C%20the,had%20codified%20the%20preemption%20of. Accessed July 20, 2022.

———. 2021c. Mortality Risk Valuation Page. Available: https://www.epa.gov/environmental-economics/mortality-risk-valuation. Accessed December 2, 2021.

———. 2022. Criteria Air Pollutants Homepage. Available: https://www.epa.gov/criteria-air-pollutants. Accessed February 6, 2023.

———. 2023. *Greenbook: 8-Hour Ozone (2015) Designated Area State/Area/County Report*. Data is current as of January 21, 2023. Available: https://www3.epa.gov/airquality/greenbook/jbcs.html#CA. Accessed February 6, 2023.

Western Regional Climate Center. 2002. Average Wind Direction. Available: https://wrcc.dri.edu/Climate/comp_table_show.php?stype=wind_dir_avg. Accessed October 8, 2021.

———. 2016. Period of Record Monthly Climate Summary. Available: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca3261. Accessed October 8, 2021.

WHO. *See* World Health Organization.

World Health Organization. 2001. *Water Quality: Guidelines, Standards and Health.* Authors: Paul R. Hunter and Lorna Fewtrell. Available: https://www.who.int/water_sanitation_health/dwq/iwachap10.pdf. Accessed December 2, 2021.

WRCC. *See* Western Regional Climate Center.

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