DRAFT FOCUSED ENVIRONMENTAL IMPACT REPORT

Reorganization 2018-01 (Whitesbridge/Siskiyou) Project

May 2019

PREPARED FOR:

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Draft Focused Environmental Impact Report

Reorganization 2018-01 (Whitesbridge/Siskiyou) Project

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May 2019

State Clearinghouse Number: 2019029077

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INTRODUCTION

INTRODUCTION

This Focused Environmental Impact Report (EIR) has been prepared on behalf of the City of Kerman (City) in accordance with the California Environmental Quality Act (CEQA). This chapter outlines the purpose of and overall approach to the preparation of the EIR for the construction and operation of the Whitebridge/Siskiyou Project (Project). The City of Kerman is the Lead Agency responsible for ensuring that the proposed Project complies with CEQA.

It is the intent of this EIR to provide the City of Kerman, decision makers, and the general public with the relevant environmental information to use in considering the required approval for the proposed Project. The City will use this EIR for the discretionary approvals of entitlements required to develop the proposed Project.

1.1 Purpose of EIR

This document is an Environmental Impact Report (EIR) prepared in accordance with the California Environmental Quality Act CEQA of 1970 and CEQA Guidelines, as amended. This EIR has been prepared by the City of Kerman as the "Lead Agency," in consultation with the appropriate local, regional and state agencies.

The purpose of the EIR is to inform the public generally of the significant environmental effects of the project, identify possible ways to minimize the significant effects, and describe reasonable alternatives that support the objectives of the project. As defined by the CEQA Guidelines, Section 15382, a "significant effect on the environment" is as follows:

> *"… a substantial, or potentially substantial adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance."*

An Initial Study was prepared by the City of Kerman (City) for the Whitebridge/Siskiyou Project (Project). The Initial Study determined the Project could have potentially significant impacts in the area of greenhouse gas emissions. The City, therefore, determined that an EIR would be required for the project. This EIR is a "Focused EIR" that concentrates on the potentially significant impacts of the project on one environmental issue area: greenhouse gas impacts. All other impact areas were determined to either have no impact or have a less than significant impact (with or without mitigation). This Focused EIR references the Initial Study prepared for the project for all other areas of impact analysis not provided in this Focused EIR (see Appendix A).

1.2 Environmental Process

A Notice of Preparation of the EIR was circulated to the public and public agencies from February 14, 2019 to March 15, 2019 (State Clearinghouse #2019029077) (refer to Appendix A). This Draft EIR will be circulated for agency and public review during a 45-day public review period prior to certification of the document by the lead agency. Comments received by the City on the Draft EIR will be formally addressed by the City in the Final EIR.

The decision making body must certify that it has reviewed and considered the information in the Final EIR and that the EIR has been completed in conformity with the requirements of CEQA. Although the EIR does not control the lead agency's ultimate decision on the project, the City must consider the information in the EIR and respond to each significant effect identified in the EIR. If significant adverse environmental effects are identified in the EIR, approval of the project must be accompanied by written findings.

State law requires that a public agency adopt a monitoring program for mitigation measures that have been incorporated into the approved project to reduce or avoid significant effects on the environment. The purpose of the monitoring program is to ensure compliance with environmental mitigation during project implementation and operation. Since there are potentially significant impacts requiring mitigation associated with the project, a Mitigation Monitoring Program will be included in the project's Final EIR.

1.3 EIR Summary

Project Description Summary

The Project includes: 1) A general plan amendment; 2) a zone change; 3) a reorganization to annex the site to the City of Kerman and detach it from several agencies; 4) a tentative subdivision map to create 144 single family residential lots, a 4.4 acre lot for multi-family residential, a 3.1 acre lot for commercial development and a 1.3 acre lot for a neighborhood park; and 5) a development agreement.

Environmental Impacts and Mitigation Summary

Based on the analysis in this EIR and accompanying Initial Study, the proposed Project would result in significant and unavoidable impacts to greenhouse gas emissions. Mitigation measures are included in the MMRP.

Alternatives Evaluated

The EIR analyzed the No Project Alternative and a Reduced Project Alternative. The Reduced Project Alternative consists of decreasing the size of the proposed project. The EIR determined that the Reduced Project Alternative would be the environmentally superior alternative, although it would not fully meet the project's objectives.

Areas of Controversy

During the environmental review process, the City of Kerman identified that greenhouse gas emissions would be an area of concern. In addition, the Department of Conservation submitted a comment during the public review process with concerns regarding potential farmland conversion.

Chapter 2

PROJECT DESCRIPTION

Project Description

2.1 City Overview

The City of Kerman is located on the west side of Fresno County in the southern portion of the San Joaquin Valley. It is bisected by State Route 145 (Madera Avenue), which runs north/south, and State Route 180 (Whitesbridge Road), which runs east/west. State Highway 99, the major highway through the San Joaquin Valley, is 15 miles east of Kerman. Since incorporation in 1946, the City of Kerman has grown to an estimated population of 15,083 in 2018.[1] The Kerman planning area encompasses land within Kerman's Sphere of Influence (SOI). The SOI contains 8,96 square miles of which 2.75 square miles is contained within the city limits.[2]

2.2 Objectives

The following are the primary goals of the City of Kerman's Whitesbridge/Siskiyou Project (Project):

- To provide economically feasible housing to the City of Kerman meeting the objectives of the Housing Element.
- To create an economically sustainable commercial complex that will provide business and job opportunities within the City of Kerman.
- To ensure the provision of services and facilities needed to accommodate planned population densities in the project area.

2.3 Location

The City of Kerman is located along State Highways 180 and 145 in central Fresno County. It is approximately 15 miles west of the Fresno-Clovis Metropolitan Area, 18 miles east of the City of Mendota and 15 miles south of the City of Madera. The Project site is located on the northeast

[1] California Department of Finance. Tables of January 2018 City Population Ranked by Size, Numeric, and Percent Change. http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-1/. Accessed March 2019.
[2] 2007 Kerman General Plan Update.

corner of the intersection of Whitesbridge Road (State Route 180) and Siskiyou Avenue. The Assessor Parcel Number of the site is 020-120-031. See Figures 1 and 2.

2.4 Setting and Surrounding Land Use

The 30-acre site includes one parcel situated on the northeast corner of Whitesbridge Road (State Highway 180) and Siskiyou Avenue. The entire parcel is currently planted with field crops (most recently alfalfa).

Land use and zoning surrounding the site are also provided in Table 2-1.

Table 2-1
Existing Land Use and Zoning

Location	Existing Land Use	Current Zoning Classification	General Plan Designation
North	Orchards	Fresno County AE-20	Medium Density Residential
South	Vacant Land (proposed for multi-family residential complex)	CN – Neighborhood Commercial and SD-R-4.5 – Residential (4,500 square foot minimum lot size)	Very Low Density Residential and Medium Density Residential
West	Orchards	Fresno County AE-20	High Density Residential
East	Orchards	Fresno County AE-20	Medium Density Residential

Figure 1
Regional Map

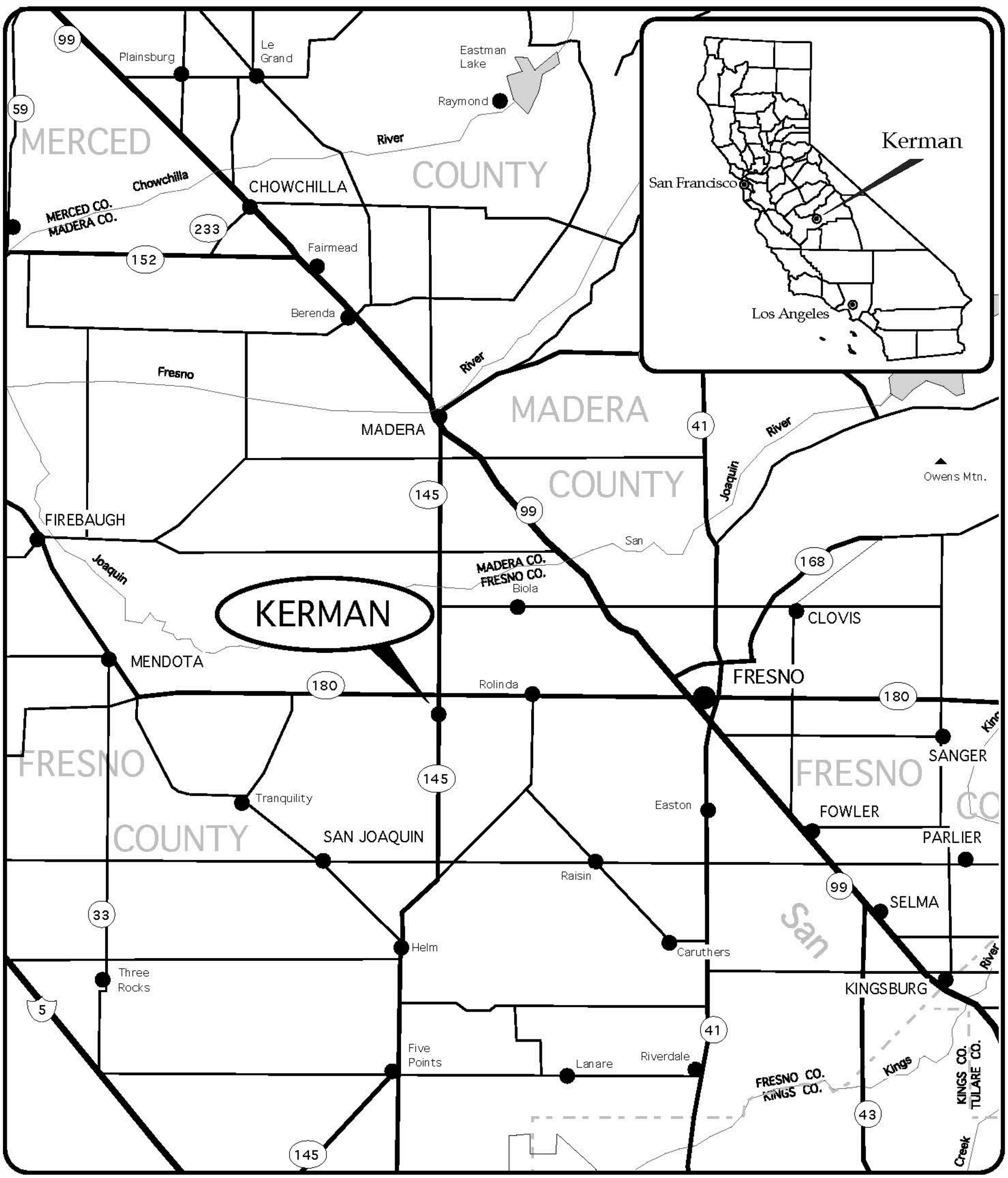


Figure 2
Site Aerial

2.5 Project Description

The proposed Project includes the development of residential, commercial and park land uses. To accommodate the development, the following entitlements must be approved:

- **General Plan Amendment 2019-02.** This action is an amendment of the Land Use Map of the 2027 Kerman General Plan to change the land use designation of the site from "Medium Density Residential" to a combination of "Medium Density Residential", "High Density Residential", "Neighborhood Commercial" and "Open Space".
- **Zone Change 2018-02.** This action is a proposal to change the zoning of the site from Fresno County Agricultural Zoning (AE-20, Exclusive Agriculture) to a combination of City of Kerman zones, including R-1 (Single Family Residential, R-3 (High-Density Residential), CN (Neighborhood Commercial) and O (Open Space). These zones are consistent with the proposed General Plan land use designations listed above.
- **Reorganization 2018-01.** This action is a request to annex the site into the City of Kerman and detach it from the Fresno Irrigation District, Fresno County Fire Protection District and Kings River Conservation District.
- **Tentative Subdivision Map 2018-01.** This action is a proposal to subdivide the site into 144 single family residential lots, a 4.4-acre lot for up to 64 multifamily units of residential development (and temporary storm drainage basin), a 3.1-acre lot for neighborhood commercial development, and a 1.3-acre lot for a neighborhood park. Development of the 3.1-acre commercial land is assumed to include an approximate 26,015 square feet shopping center, an eight-pump fuel station, and a 3,200 square foot restaurant, as allowable by full buildout of the proposed zone district.
- **Development Agreement 2018-01.** This action is for the adoption of a development agreement that will establish conditions of approval for the project, particularly conditions relating to off-site improvements.

Land Use

The site is currently designated "Medium Density Residential" by the land use map of the 2027 Kerman General Plan. As noted previously, the land use designation for the site is proposed to be amended to correspond to uses proposed with the Tentative Subdivision map and include a combination of "Medium Density Residential", "High Density Residential", "Neighborhood Commercial", and "Park".

<u>Circulation</u>

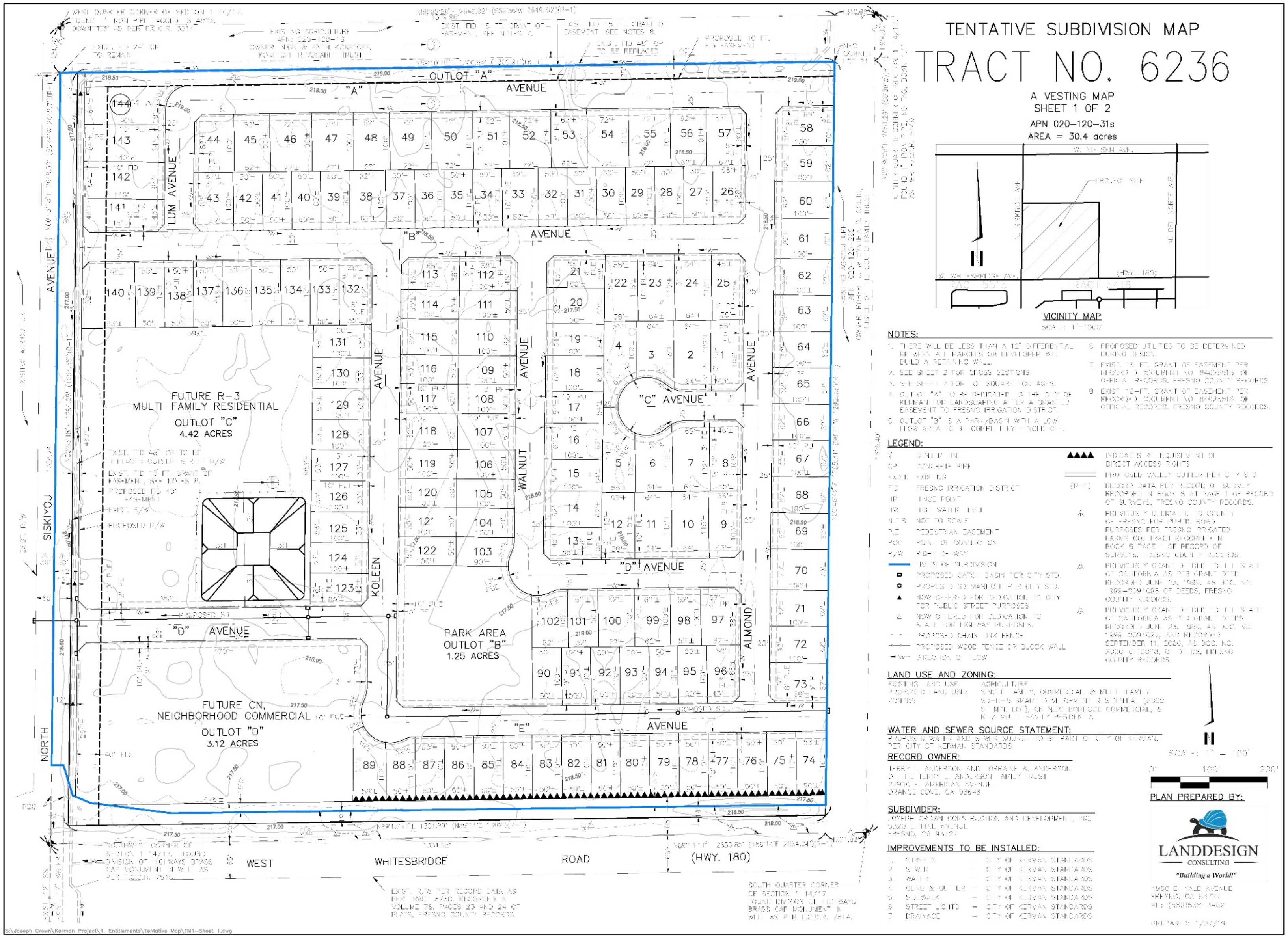
The site will have primary access onto Siskiyou Avenue. In the site vicinity, Siskiyou is improved with one travel lane in each direction along with dirt shoulders. Siskiyou is designated a "Collector" roadway in the Circulation Element of the Kerman General Plan. To the south, Siskiyou intersects Whitesbridge Road, which is improved with a traffic signal. To the north, Siskiyou travels through farm lands.

2.6 Other Required Approvals

The proposed Project would include, but not be limited to, the following regulatory requirements:

- The certification of an Environmental Impact Report by the City of Kerman
- Approval of a General Plan Amendment
- Approval of a Zone Change
- Approval of an annexation from Fresno County into the City of Kerman
- Approval of a Subdivision Map
- Approval of a Development Agreement
- Approval of a Stormwater Pollution Prevention Plan by the Central Valley Regional Water Quality Control Board
- Dust Control Plan Approval letter from the San Joaquin Valley Air Pollution Control District
- Compliance with Rule 9510 of the San Joaquin Valley Air Pollution Control District
- Compliance with other federal, state and local requirements

Figure 3
Site Plan



Chapter 3

ENVIRONMENTAL SETTING, IMPACTS & MITIGATION

Environmental Setting, Impacts & Mitigation

3.1 Agricultural Resources

This section identifies and discusses potential environmental effects the project may have related to agricultural and forestry resources.

Environmental Setting

Regional

Fresno County is the third largest agricultural county in the state with a total gross production value of over $7 billion. Agriculture is Fresno County's largest industry and agricultural jobs represent 17.4 percent of total employment. The county leads the State in tomato processing, accounting for over 30 percent of the State's total production, and chickens, with nearly 50 percent of the State's total production. The county has approximately 1.8 million acres of agricultural land, with pastures taking up almost half of the total acreage. Of the total crop acres cultivated, field crops (including pastures and range) account for over 56 percent, followed by fruit and nut crops at just over 30 percent, vegetable crops at 13 percent, seed crops at 1.2 percent, and nursery crops accounting for less than 0.1 percent.[1]

Kerman

The economy of the Kerman area is very dependent upon agriculture and agriculturally related industries. Almost three-quarters (3,919 acres) of the 5,736 acres in Kerman's Sphere of Influence is currently used for agricultural purposes (permanent crops and irrigated field crops). Most of the agricultural land within the planning area is considered "prime" farmland or farmland of "statewide significance" by California Department of Conservation, as presented in Map 4 of the General Plan.[2]

Prime farmland is defined as land having the best combination of soil quality, growing season, and water supply. Prime farmland is generally characterized as agricultural land having soils with a Capability Class of I or II, and a Storie Index greater than 85. Farmland of statewide

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[1] County of Fresno 2040 General Plan. Public Review Draft. https://www.co.fresno.ca.us/home/showdocument?id=22796. Accessed April 2019.

[2] 2007 Kerman General Plan Update. Chapter 3 – Resources. https://www.codepublishing.com/CA/Kerman/GeneralPlan/. Accessed April 2019.

importance is land other than prime farmland with a good combination of physical and chemical characteristics for the production of crops. Within the Kerman planning area, agricultural land overlying soils of the Hanford and Hesperia series are considered to be prime farmland. Agricultural land overlying soils of the Tujunga and Traver series is considered to be farmland of statewide importance.

Water supply is the other key factor in rating the quality of farmland. Prime farmland and farmland of statewide importance must have a constant, reliable source of water. Most of the agricultural land within the Kerman planning area is within the Fresno Irrigation District (FID) delivery area. The FID delivers approximately 500,000-acre feet of water per year to the 195,000 acres of irrigated land within the district. Approximately 85 percent of this water comes from the Kings River and the remaining 15 percent comes from the Friant Unit of the Central Valley Project.

According to the General Plan, the majority of the proposed project site is considered Prime Farmland with the rest being considered Farmland of Statewide Importance. In addition, the site is not on land protected under a Williamson Act Contract.[3]

Regulatory Setting

State

Farmland Mapping and Monitoring Program

The Department of Conservation's Farmland Mapping and Monitoring Program (FMMP) monitors the conversion of the State's farmland to and from agricultural use. County-level data is collected and a series of maps are prepared that identify eight classifications and uses based on a minimum mapping unit size of 10 acres. The program also produces a biennial report on the amount of land converted from agricultural to non-agricultural use. The program maintains an inventory of state agricultural land and updates the Important Farmland Series Maps every two years. The FMMP is an information service only and does not constitute state regulation of local land use decisions. Agricultural land is rated according to several variables, including soil quality and irrigation availability, with Prime Farmland being considered the best for farming activity. Other FMMP designations include Farmland of Statewide Importance, Farmland of Local Importance, Grazing Land, Urban and Built Up Land and Water.

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[3] 2007 Kerman General Plan Update. Map 1 – Agricultural Preserves.
https://www.codepublishing.com/CA/Kerman/GeneralPlan/Map%201_Ag%20Preserves.pdf. Accessed April 2019.

Williamson Act (Government Code Sections 51200-51297.4)

Formally known as the California Land Conservation Act of 1965, this voluntary program combines compensation and regulation. In return for reduced property taxes, based on the value of agricultural use rather than open land market prices, farmland owners agree to maintain their land in agricultural production for a minimum period of time. Landowners contract with a county or city for 10-year rolling terms that are automatically renewed every year unless deliberately terminated. A newer version of this arrangement, the Farmland Security Zone program, provides for 20-year renewable contracts and greater tax reductions. Enrollment in either version is voluntary for both parties (landowners and local governments). Contracts are terminated through one of two procedures:

- Contract Nonrenewal. Initiated by either the landowner or county and resulting in a nine-year phase-out of the contract.
- Contract Cancellation. A more demanding process that allows immediate termination but requires that the Board of Supervisors to make certain findings and imposes State fees that represent a portion of the past property tax benefits.

Additional features of the program include (1) the requirement that contracted parcels be located in designated “agricultural preserves” and (2) annual State payments (“subventions”) to participating local governments as partial reimbursement for the loss of local property tax revenue.

Local

Local Agency Formation Commission (LAFCO) Boundary Controls

Under California’s Cortese-Knox-Hertzberg Act, each county has a Local Agency Formation Commission (LAFCO) with the power to review and decide on proposals for the expansion of city or special district boundaries. LAFCOs lack official authority over land use, but their boundary decisions, especially those dealing with city expansions, can influence the local pattern of urbanization and its impact on agricultural land.

The Fresno County LAFCO is a five-member body with two county representatives, two city representatives, and one public member. There are also three alternate members: one county representative, one city representative, and one public member. There are three members of the LAFCO Counsel supported by LAFCO staff. State law requires LAFCOs to consider agricultural land and open space preservation in all decisions related to expansion of urban development.

Fresno County General Plan (2000)

The 2000 Fresno County General Plan contains goals aimed to promote the long-term conservation of productive and potentially-productive agricultural lands, to accommodate agricultural-support services and agriculturally-related activities that support the viability of agriculture and that further the County's economic development goals, and to accommodate agriculture in specific land use designations in the county. The policies focus on the implementation of the County's Right-to-Farm Ordinance, directing urban growth towards cities and away from valuable agricultural lands, maintenance of a minimum parcel size in areas designated agriculture, and agricultural land preservation programs (e.g., agricultural conservation easements, new Williamson Act and Farmland Security Zone contracts, agricultural education programs). Implementation Programs for agriculture include such programs as evaluating minimum parcels sizes for sustained agricultural productivity, programs that would reduce conflicts between agricultural and non-agricultural lands (e.g., requiring buffers for new developments), review agricultural land preservation programs, and pursue grant funding for agricultural conservation easements.

Fresno County Right-To-Farm Ordinance (1987)

Section 17.04.100, Right-to-Farm Notice, requires the approval of a tentative and final subdivision within 300 feet of an AE (Exclusive Agriculture), AL (Limited Agriculture), TPZ (Timberland Preserve) or RC (Resource Conservation) Zone District to be conditioned at the time of recording with the Fresno County recorder, a Fresno County Right-to-Farm Notice.

Thresholds of Significance

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

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

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

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

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

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

Project Impacts

Impact: *Impacts a. – e. as stated above.*

Discussion: The proposed Project site is within both the Sphere of Influence and the Residential Growth Boundary Area Map of the 2007 Kerman General Plan Update, and as such, agricultural conversion as a result of General Plan buildout has been analyzed in the 2007 Kerman General Plan Update EIR.

As discussed in the 2007 Kerman General Plan Update EIR, between 1,666 and 3,111 acres of agricultural land will be converted to urban uses during the General Plan buildout period. These acreages vary because they are based on different 2027 population estimates, low population estimate 26,613, and high population estimate, 40,561. The General Plan acknowledges that most of the agricultural land conversion will result from residential, school/park and industrial development.

Policies and action programs contained in the Land Use Element would mitigate buildout of the General Plan to the fullest extent possible, but not to a less than significant level. These policies and action programs are as follows:

Policy: Kerman will ensure that its primary economic base (agriculture) is protected.

Action: Require the Planning Commission and City Council to make a finding when approving new subdivisions that this development is within 1/8 mile of existing urban development.

Policy: Encourage Fresno County to apply large-lot agricultural zoning (20-acre minimum) to land within Kerman's Sphere of Influence.

Action: The City of Kerman shall oppose any county development within its Sphere of Influence that creates parcels of land smaller than 20 acres.

Policy: Increase overall residential densities in the City of Kerman so as to require less urbanization of surrounding agricultural lands.

Action: The Land Use Element and Zoning Ordinance provide for increased residential densities within the planning area.

Policy: Urban uses, to the best extent possible, should be separated from agricultural uses by streets, railroads, canals or similar man-made or natural barriers.

Action: Adoption of the Land Use Element will implement this policy. Policies and action programs contained in the Conservation, Open Space, Park and Recreation Element also will mitigate the General Plan's impact on agricultural land. These policies are as follows:

Policy: Preserve and protect agricultural lands as a means for providing open space and for the managed production of resources.

Action:

- Areas of non-prime agricultural soils should be designated for residential and commercial development.
- The Planning Department shall conduct an annual review of cancelled Williamson Act contracts and development proposals on agricultural land within the City limits and Sphere of Influence.

Policy: Develop buffers and transition areas between urban uses and agricultural land to reduce incompatibility issues that are associated with cultivation, pest control and harvesting of crops.

Action: Adoption of the Land Use Element will provide the implementation of this policy.

Policy: Encourage owners of agricultural parcels that are not within the 20-year growth pattern of Kerman's Land Use Element to enter the agricultural preserve program.

Action: Adoption of the Land Use Element will provide the implementation of this policy.

Policy: Promote infilling and increase overall residential densities in the City of Kerman so as to require less urbanization of surrounding agricultural lands.

Action: Adoption of the Land Use Element will provide the implementation of this policy.

Policy: Establish and maintain "hard edges" around Kerman that define where urbanization stops and agricultural open space begins.

Action: Where appropriate, the City will discourage zoning requests in the Sphere of Influence and surrounding County areas to permit further parcelization for development of large lot residential purposes i.e.; ranchettes.

The 2007 Kerman General Plan Update EIR concluded that conversion of prime agricultural land to non-agricultural uses within the Sphere of Influence and the Residential Growth Boundary Area must be considered a significant unavoidable impact. A Statement of Overriding Conditions was adopted at the time of EIR certification as the City concluded that without the conversion of agricultural land, Kerman would not experience any long-term population growth.

Since the proposed Project is within the Residential Growth Boundary, impacts resulting from the conversion of agricultural land have been addressed in the 2007 Kerman General Plan. No further impacts will result as a part of Project development. Impacts would be considered ***less than significant***.

Mitigation: None required.

3.2 Greenhouse Gas Emissions

The information presented in this section of the document is largely summarized or directly quoted from the Air Quality & Greenhouse Gas Impact Analysis for Tract Map 6236 prepared for RM Covington Homes by Ambient Air Quality & Noise Consulting and the document in its entirety is provided as a part of Appendix A of this document.

Existing Setting

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

"• **Carbon Dioxide.** Carbon dioxide (CO2) is a colorless, odorless gas. CO2 is emitted in a number of ways, both naturally and through human activities. The largest source of CO2 emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, industrial facilities, and other sources. A number of specialized industrial production processes and product uses such as mineral production, metal production, and the use of petroleum-based products can also lead to CO2 emissions. The atmospheric lifetime of CO2 is variable because it is so readily exchanged in the atmosphere (U.S. EPA 2018).

- **Methane.** Methane (CH4) is a colorless, odorless gas that is not flammable under most circumstances. CH4 is the major component of natural gas, about 87 percent by volume. It is also formed and released to the atmosphere by biological processes occurring in anaerobic environments. Methane is emitted from a variety of both human-related and natural sources. Human-related sources include fossil fuel production, animal husbandry (enteric fermentation in livestock and manure management), rice cultivation, biomass burning, and waste management. These activities release significant quantities of methane to the atmosphere. Natural sources of methane include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and other sources such as wildfires. Methane's atmospheric lifetime is about 12 years (U.S. EPA 2018).

- **Nitrous Oxide**. Nitrous oxide (N2O) is a clear, colorless gas with a slightly sweet odor. N2O is produced by both natural and human-related sources. Primary human-related sources of N2O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, acid production, and nitric acid production. N2O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N2O is approximately 114 years (U.S. EPA 2018).

- **Hydrofluorocarbons.** Hydrofluorocarbons (HFCs) are man-made chemicals, many of which have been developed as alternatives to ozone-depleting substances for industrial, commercial, and consumer products. The only significant emissions of HFCs before

1990 were of the chemical HFC-23, which is generated as a byproduct of the production of HCFC-22 (or Freon 22, used in air conditioning applications). The atmospheric lifetime for HFCs varies from just over a year for HFC-152a to 270 years for HFC-23. Most of the commercially used HFCs have atmospheric lifetimes of less than 15 years (e.g., HFC-134a, which is used in automobile air conditioning and refrigeration, has an atmospheric life of 14 years) (U.S. EPA 2018).

- **Perfluorocarbons**. Perfluorocarbons (PFCs) are colorless, highly dense, chemically inert, and nontoxic. There are seven PFC gases: perfluoromethane (CF4), perfluoroethane (C2F6), perfluoropropane (C3F8), perfluorobutane (C4F10), perfluorocyclobutane (C4F8), perfluoropentane (C5F12), and perfluorohexane (C6F14). Natural geological emissions have been responsible for the PFCs that have accumulated in the atmosphere in the past; however, the largest current source is aluminum production, which releases CF4 and C2F6 as byproducts. The estimated atmospheric lifetimes for PFCs ranges from 2,600 to 50,000 years (U.S. EPA 2018).

- **Nitrogen Trifluoride.** Nitrogen trifluoride (NF3) is an inorganic, colorless, odorless, toxic, nonflammable gas used as an etchant in microelectronics. Nitrogen trifluoride is predominantly employed in the cleaning of the plasma-enhanced chemical vapor deposition chambers in the production of liquid crystal displays and silicon-based thin film solar cells. It has a global warming potential of 16,100 carbon dioxide equivalents (CO2e). While NF3 may have a lower global warming potential than other chemical etchants, it is still a potent GHG. In 2009, NF3 was listed by California as a high global warming potential GHG to be listed and regulated under Assembly Bill (AB) 32 (Section 38505 Health and Safety Code).

- **Sulfur Hexafluoride.** Sulfur hexafluoride (SF6) is an inorganic compound that is colorless, odorless, nontoxic, and generally nonflammable. SF6 is primarily used as an electrical insulator in high voltage equipment. The electric power industry uses roughly 80 percent of all SF6 produced worldwide. Leaks of SF6 occur from aging equipment and during equipment maintenance and servicing. SF6 has an atmospheric life of 3,200 years (U.S. EPA 2018).

- **Black Carbon.** Black carbon is the strongest light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. Black carbon contributes to climate change both directly by absorbing sunlight and indirectly by depositing on snow and by interacting with clouds and affecting cloud formation. Black carbon is considered a short-lived species, which can vary spatially and, consequently,

> it is very difficult to quantify associated global-warming potentials. The main sources of black carbon in California are wildfires, off-road vehicles (locomotives, marine vessels, tractors, excavators, dozers, etc.), on-road vehicles (cars, trucks, and buses), fireplaces, agricultural waste burning, and prescribed burning (planned burns of forest or wildlands) (CCAC 2018, U.S. EPA 2018)."[4]

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. Often, estimates of GHG emissions are presented in CO2e, which weight each gas by its global warming potential (GWP). Expressing GHG emissions in CO2e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO2 were being emitted. Table 1 provides a summary of the GWP for GHG emissions of typical concern with regard to community development projects, based on a 100-year time horizon. As indicated, Methane traps over 25 times more heat per molecule than CO2, and N2O absorbs roughly 298 times more heat per molecule than CO2. Additional GHG with high GWP include Nitrogen trifluoride, Sulfur hexafluoride, Perfluorocarbons, and black carbon.

Table 3-1
Global Warming Potential for Greenhouse Gases*[5]

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

<u>Sources of GHG Emissions</u>

On a global scale, GHG emissions are predominantly associated with activites related to energy production; changes in land use, such as deforestation and land clearing; industrial sources; agricultural activities; transportation; waste and wastewater generation; and commercial and residential land uses. World-wide, energy production including the buring of coal, natural gas, and oil for electricity and heat is the largest single source of global GHG emissions.[6]

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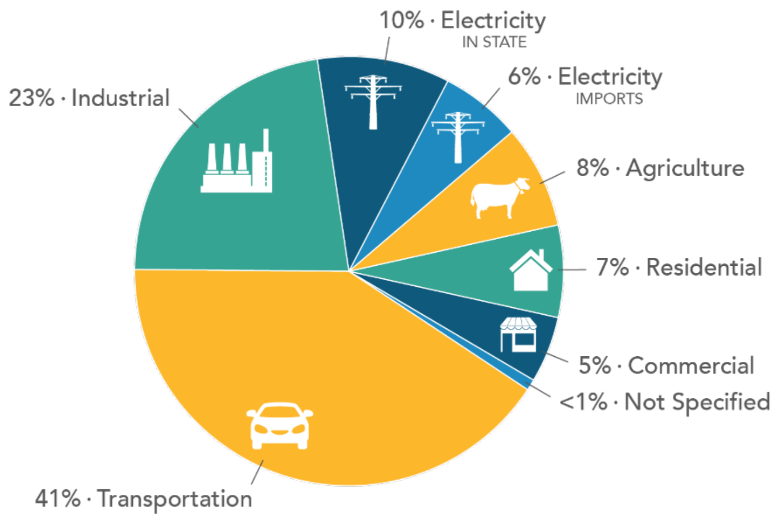
[4] Ambient Air Quality & Noise Consulting. Air Quality & Greenhouse Gas Impact Analysis for Tract Map 6236. November 2018. See Appendix B of this EIR.

[5] International Panel of Climate Change (IPCC). 2007. Fourth Assessment Report: Climate Change 2007.

[6] Ambient Air Quality & Noise Consulting. Air Quality & Greenhouse Gas Impact Analysis for Tract Map 6236. November 2018. See Appendix B of this EIR.

In 2016, GHG emissions within California totaled 429.4 million metric tons (MMT) of CO2e. GHG emissions, by economic sector are summarized in Figure 4. Within California, the transportation sector is the largest contributor, accounting for approximately 41 percent of the total state-wide GHG emissions. Emissions associated with industrial uses are the second largest contributor, totaling roughly 23 percent. Electricity generation totaled roughly 10 percent.[7]

Figure 4
California 2016 GHG Emissions Inventory by Economic Sector[8]



Short-Lived Climate Pollutants

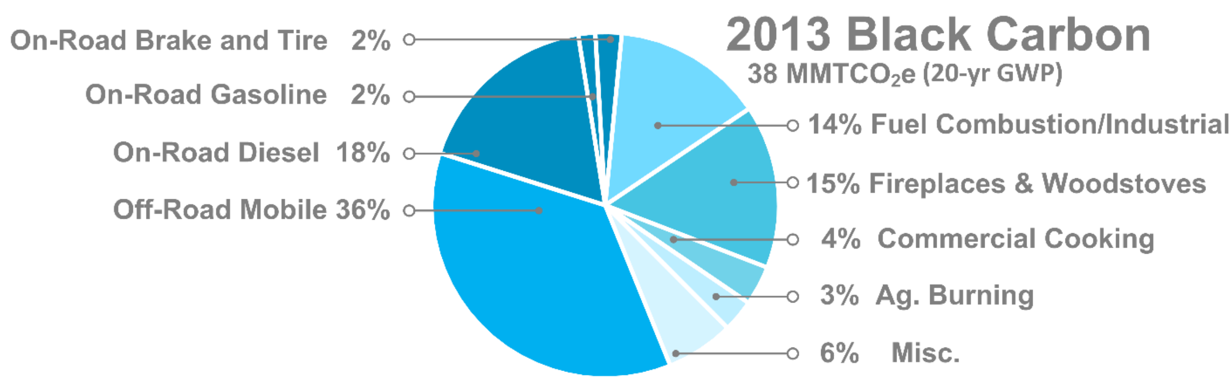
Short-lived climate pollutants (SLCPs), such as black carbon, fluorinated gases, and methane also have a dramatic effect on climate change. Though short lived, these pollutants create a warming influence on the climate that is many times more potent than that of carbon dioxide.

As part of the ARB's efforts to address SLCPs, the ARB has developed a statewide emission inventory for black carbon. The black carbon inventory will help support implementation of the SLCP Strategy, but it is not part of the State's GHG Inventory that tracks progress towards the State's climate targets. The most recent inventory for year 2013 conditions is depicted in Figure 5. As depicted, off-road mobile sources account for a majority of black carbon emissions totaling

[7] Ambient Air Quality & Noise Consulting. Air Quality & Greenhouse Gas Impact Analysis for Tract Map 6236. November 2018. See Appendix B of this EIR.
[8] California Air Resources Board. California Greenhouse Gas Emission Inventory – 2018 Edition. Released July 11, 2018. https://www.arb.ca.gov/cc/inventory/data/data.htm. Accessed April 2019.

roughly 36 percent of the inventory. Other major anthropogenic sources of black carbon include on-road transportation, residential wood burning, fuel combustion, and industrial processes.[9]

Figure 5[10]
California Black Carbon Emissions Inventory (Year 2013)



Effects of Global Climate Change

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

Within California, climate changes would likely alter the ecological characteristics of many ecosystems throughout the state. Such alterations would likely include increases in surface temperatures and changes in the form, timing, and intensity of precipitation. For instance, historical records are depicting an increasing trend toward earlier snowmelt in the Sierra Nevada. This snow pack is a principal supply of water for the state, providing roughly 50 percent of state's annual runoff. If this trend continues, some areas of the state may experience an increased danger of floods during the winter months and possible exhaustion of the snowpack during spring and summer months. An earlier snowmelt would also impact the State's energy resources. Currently,

[9] Ambient Air Quality & Noise Consulting. Air Quality & Greenhouse Gas Impact Analysis for Tract Map 6236. November 2018. See Appendix B of this EIR.
[10] California Air Resources Board. Short-Lived Climate Pollutant Inventory. Black Carbon Inventory, last reviewed June 22, 2018. https://www.arb.ca.gov/cc/inventory/slcp/slcp.htm. Accessed April 2019.

approximately 20 percent of California's electricity comes from hydropower. An early exhaustion of the Sierra snowpack, may force electricity producers to switch to more costly or nonrenewable forms of electricity generation during spring and summer months. A changing climate may also impact agricultural crop yields, coastal structures, and biodiversity. As a result, resultant changes in climate will likely have detrimental effects on some of California's largest industries, including agriculture, wine, tourism, skiing, recreational and commercial fishing, and forestry.[11]

Regulatory Setting

Federal

Executive Order 13514

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

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

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

- Endangerment Finding: The Administrator found that the current and projected concentrations of the six key well-mixed GHGs (CO2, CH4, N2O, HFCs, PFCs, and SF6) in the atmosphere threaten the public health and welfare of current and future generations.

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[11] Ambient Air Quality & Noise Consulting. Air Quality & Greenhouse Gas Impact Analysis for Tract Map 6236. November 2018. See Appendix B of this EIR.

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

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

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

The final combined U.S. EPA and NHTSA standards that make up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards require these vehicles to meet an estimated combined average emissions level of 250 grams of CO2 per mile (the equivalent to 35.5 miles per gallon if the automobile industry were to meet this CO2 level solely through fuel economy improvements). Together, these standards will cut GHG emissions by an estimated 960 MMT and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016). On August 28, 2012, U.S. EPA and NHTSA issued their joint rule to extend this national program of coordinated GHG and fuel economy standards to model years 2017 through 2025 passenger vehicles.[12]

State

Assembly Bill 1493

AB 1493 (Pavley) of 2002 (Health and Safety Code Sections 42823 and 43018.5) requires the ARB to develop and adopt the nation's first GHG emission standards for automobiles. These standards

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[12] Ambient Air Quality & Noise Consulting. Air Quality & Greenhouse Gas Impact Analysis for Tract Map 6236. November 2018. See Appendix B of this EIR.

are also known as Pavley I. The California Legislature declared in AB 1493 that global warming is a matter of increasing concern for public health and the environment. It cites several risks that California faces from climate change, including a reduction in the state's water supply; an increase in air pollution caused by higher temperatures; harm to agriculture; an increase in wildfires; damage to the coastline; and economic losses caused by higher food, water, energy, and insurance prices. The bill also states that technological solutions to reduce GHG emissions would stimulate California's economy and provide jobs. In 2004, the State of California submitted a request for a waiver from federal clean air regulations, as the State is authorized to do under the FCAA, to allow the State to require reduced tailpipe emissions of CO2. In late 2007, the U.S. EPA denied California's waiver request and declined to promulgate adequate federal regulations limiting GHG emissions. In early 2008, the State brought suit against the U.S. EPA related to this denial.

In January 2009, President Obama instructed the U.S. EPA to reconsider the Bush Administration's denial of California's and 13 other states' requests to implement global warming pollution standards for cars and trucks. In June 2009, the U.S. EPA granted California's waiver request, enabling the State to enforce its GHG emissions standards for new motor vehicles beginning with the current model year.

In 2009, President Obama announced a national policy aimed at both increasing fuel economy and reducing GHG pollution for all new cars and trucks sold in the US. The new standards would cover model years 2012 to 2016 and would raise passenger vehicle fuel economy to a fleet average of 35.5 miles per gallon by 2016. When the national program takes effect, California has committed to allowing automakers who show compliance with the national program to also be deemed in compliance with state requirements. California is committed to further strengthening these standards beginning in 2017 to obtain a 45 percent GHG reduction from the 2020 model year vehicles.[13]

Executive Order No. S-3-05

Executive Order S-3-05 (State of California) proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total GHG emission targets. Specifically,

[13] Ambient Air Quality & Noise Consulting. Air Quality & Greenhouse Gas Impact Analysis for Tract Map 6236. November 2018. See Appendix B of this EIR.

emissions are to be reduced to the 2000 level by 2010, to the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

The Executive Order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The secretary will also submit biannual reports to the governor and state legislature describing (1) progress made toward reaching the emission targets, (2) impacts of global warming on California's resources, and (3) mitigation and adaptation plans to combat these impacts. To comply with the Executive Order, the secretary of CalEPA created a Climate Action Team made up of members from various state agencies and commissions. The Climate Action Team released its first report in March 2006 and continues to release periodic reports on progress. The report proposed to achieve the targets by building on voluntary actions of California businesses, local government and community actions, as well as through state incentive and regulatory programs.[14]

<u>Assembly Bill 32 – California Global Warming Solutions Act of 2006</u>

AB 32 (Health and Safety Code Sections 38500, 38501, 28510, 38530, 38550, 38560, 38561–38565, 38570, 38571, 38574, 38580, 38590, 38592–38599) requires that statewide GHG emissions be reduced to 1990 levels by the year 2020. The gases that are regulated by AB 32 include CO2, CH4, N2O, HFCs, PFCs, NF3, and SF6. The reduction to 1990 levels will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then ARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires that ARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap, institute a schedule to meet the emissions cap, and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute

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[14] Ambient Air Quality & Noise Consulting. Air Quality & Greenhouse Gas Impact Analysis for Tract Map 6236. November 2018. See Appendix B of this EIR.

emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.[15]

Climate Change Scoping Plan

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

The Scoping Plan states that land use planning and urban growth decisions will play important roles in the state's GHG reductions because local governments have primary authority to plan, zone, approve, and permit how land is developed to accommodate population growth and the changing needs of their jurisdictions. ARB further acknowledges that decisions on how land is used will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emissions sectors. With regard to land use planning, the Scoping Plan expects approximately 5.0 MMT CO2e will be achieved associated with implementation of Senate Bill 375, which is discussed further below.

The initial Scoping Plan was first approved by ARB on December 11, 2008 and is updated every five years. The first update of the Scoping Plan was approved by the ARB on May 22, 2014, which looked past 2020 to set mid-term goals (2030-2035) on the road to reaching the 2050 goals., The most recent update released by ARB is the 2017 Climate Change Scoping Plan, which was released In November 2017. The 2017 Climate Change Scoping Plan incorporates strategies for achieving the 2030 GHG-reduction target established in SB 32 and EO B-30-15.[16]

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

Senate Bill 1078 (Public Utilities Code Sections 387, 390.1, 399.25 and Article 16) addresses electricity supply and requires that retail sellers of electricity, including investor-owned utilities

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15 Ambient Air Quality & Noise Consulting. Air Quality & Greenhouse Gas Impact Analysis for Tract Map 6236. November 2018. See Appendix B of this EIR.

16 Ibid.

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

ARB is required by current law, AB 32 of 2006, to regulate sources of GHGs to meet a state goal of reducing GHG emissions to 1990 levels by 2020 and an 80 percent reduction of 1990 levels by 2050. The California Energy Commissions and California Public Utilities Commission serve in advisory roles to help ARB develop the regulations to administer the 33 percent by 2020 requirement. ARB is also authorized to increase the target and accelerate and expand the time frame.

Mandatory Reporting of GHG Emissions

The California Global Warming Solutions Act (AB 32, 2006) requires the reporting of GHGs by major sources to the ARB. Major sources required to report GHG emissions include industrial facilities, suppliers of transportation fuels, natural gas, natural gas liquids, liquefied petroleum gas, and carbon dioxide, operators of petroleum and natural gas systems, and electricity retail providers and marketers.[17]

Cap-and-Trade Regulation

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

[17] Ambient Air Quality & Noise Consulting. Air Quality & Greenhouse Gas Impact Analysis for Tract Map 6236. November 2018. See Appendix B of this EIR.

will encompass around 360 businesses throughout California and nearly 85 percent of the state's total GHG emissions.

Under the cap-and-trade regulation, companies must hold enough emission allowances to cover their emissions and are free to buy and sell allowances on the open market. California held its first auction of GHG allowances on November 14, 2012. California's GHG cap-and-trade system is projected to reduce GHG emissions to 1990 levels by the year 2020 and would achieve an approximate 80 percent reduction from 1990 levels by 2050.[18]

Senate Bill 32

SB 32 was signed by Governor Brown on September 8, 2016. SB 32 effectively extends California's GHG emission-reduction goals from year 2020 to year 2030. This new emission-reduction target of 40 percent below 1990 levels by 2030 is intended to promote further GHG-reductions in support of the State's ultimate goal of reducing GHG emissions by 80 percent below 1990 levels by 2050. SB 32 also directs the ARB to update the Climate Change Scoping Plan to address this interim 2030 emission-reduction target.[19]

Senate Bill 375

SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS) that will address land use allocation in that MPOs regional transportation plan. ARB, in consultation with MPOs, establishes regional reduction targets for GHGs emitted by passenger cars and light trucks for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. ARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, funding for transportation projects may be withheld.[20]

California Building Code

The California Building Code (CBC) contains standards that regulate the method of use, properties, performance, or types of materials used in the construction, alteration, improvement, repair, or rehabilitation of a building or other improvement to real property. The California

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[18] Ambient Air Quality & Noise Consulting. Air Quality & Greenhouse Gas Impact Analysis for Tract Map 6236. November 2018. See Appendix B of this EIR.

[19] Ibid.

[20] Ibid.

Building Code is adopted every three years by the Building Standards Commission (BSC). In the interim, the BSC also adopts annual updates to make necessary mid-term corrections. The CBC standards apply statewide; however, a local jurisdiction may amend a CBC standard if it makes a finding that the amendment is reasonably necessary due to local climatic, geological, or topographical conditions.[21]

Green Building Standards

Green buildings standards are indistinguishable from any other building standards. Both standards are contained in the California Building Code and regulate the construction of new buildings and improvements. The only practical distinction between the two is that whereas the focus of traditional building standards has been protecting public health and safety, the focus of green building standards is to improve environmental performance.

AB 32, which mandates the reduction of GHG emissions in California to 1990 levels by 2020, increased the urgency around the adoption of green building standards. In its scoping plan for the implementation of AB 32, ARB identified energy use as the second largest contributor to California's GHG emissions, constituting roughly 25 percent of all such emissions. In recommending a green building strategy as one element of the scoping plan, ARB estimated that green building standards would reduce GHG emissions by approximately 26 MMT of CO2e by 2020. The green buildings standards were most recently updated in 2016.[22]

Senate Bill 97

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

- Lead agencies must analyze the GHG emissions of proposed projects and must reach a conclusion regarding the significance of those emissions.
- When a project's GHG emissions may be significant, lead agencies must consider a range of potential mitigation measures to reduce those emissions.

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[21] Ambient Air Quality & Noise Consulting. Air Quality & Greenhouse Gas Impact Analysis for Tract Map 6236. November 2018. See Appendix B of this EIR.

[22] Ibid.

- Lead agencies must analyze potentially significant impacts associated with placing projects in hazardous locations, including locations potentially affected by climate change.

- Lead agencies may significantly streamline the analysis of GHGs on a project level by using a programmatic GHG emissions reduction plan meeting certain criteria.

- CEQA mandates analysis of a proposed project's potential energy use (including transportation related energy), sources of energy supply and ways to reduce energy demand, including through the use of efficient transportation alternatives.

As part of the administrative rulemaking process, the California Natural Resources Agency developed a Final Statement of Reasons explaining the legal and factual bases, intent, and purpose of the CEQA Guidelines amendments. The amendments to the CEQA Guidelines implementing SB 97 became effective on March 18, 2010.

Short-Lived Climate Pollutant Reduction Strategy

In March 2017, the ARB adopted the Short-Lived Climate Pollutant Reduction Strategy (SLCP Strategy) establishing a path to decrease GHG emissions and displace fossil-based natural gas use. Strategies include avoiding landfill methane emissions by reducing the disposal of organics through edible food recovery, composting, in-vessel digestion, and other processes; and recovering methane from wastewater treatment facilities, and manure methane at dairies, and using the methane as a renewable source of natural gas to fuel vehicles or generate electricity. The SLCP Strategy also identifies steps to reduce natural gas leaks from oil and gas wells, pipelines, valves, and pumps to improve safety, avoid energy losses, and reduce methane emissions associated with natural gas use. Lastly, the SLCP Strategy also identifies measures that can reduce hydrofluorocarbon (HFC) emissions at national and international levels, in addition to State-level action that includes an incentive program to encourage the use of low-Global Warming Potential (GWP) refrigerants, and limitations on the use of high-GWP refrigerants in new refrigeration and air-conditioning equipment.[23]

San Joaquin Valley Air Pollution Control District

SJVAPCD Climate Change Action Plan

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[23] Ambient Air Quality & Noise Consulting. Air Quality & Greenhouse Gas Impact Analysis for Tract Map 6236. November 2018. See Appendix B of this EIR.

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

Goals:

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

Actions:

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

Methodology

Project Construction

Construction-generated GHG emissions associated with the proposed project were calculated using the CalEEMod computer program. Emissions were quantified for site preparation, grading, asphalt paving, building construction, and the application of architectural coatings. Construction-generated emissions for the proposed 141-lot single-family residential development were based, in part, on anticipated construction schedules and information provided by the project applicant. Other information, such as off-road equipment usage requirements, architectural coating VOC contents, and construction-related vehicle trips were based on model defaults. The anticipated construction schedules for future development of the proposed future commercial uses and the up to 64-units of multi-family residential development are not known at this time. As a result, construction emissions for these land uses were based on model defaults. To be conservative, construction of the commercial and multi-family land uses was assumed to begin upon completion of the proposed 141-lot single-family residential development and were assumed to occur simultaneously over a one-year period. Modeling assumptions and output files are included in Appendix B of this document.

Project Operations

Long-term operational GHG emissions associated with the proposed project were calculated using the CalEEMod computer program. Modeling was conducted based on traffic data derived, in part, from the traffic analysis prepared for the proposed project.[24] Mobile source emissions for the proposed residential uses were based on SJVAPCD-recommended vehicle fleet distribution for residential uses. Vehicle fleet distribution for the proposed future commercial land uses were based on model defaults. All other modeling assumptions were based on the default parameters contained in the CalEEMod computer model. It is important to note that the specific future commercial uses to be developed are based on preliminary assumptions. Development of the future commercial land uses was assumed to include an approximate 26,015 sf shopping center, an eight-pump fuel station, and a 3,200-sf restaurant. Modeling assumptions and output files are included in Appendix B of this document.

[24] JBL Traffic Engineering, Inc. 2018. Draft Traffic Impact Analysis: Tract Map 6236. See Appendix A of Appendix A.

Thresholds of Significance

State

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

a) Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or,
b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

San Joaquin Valley Air Pollution Control District

In accordance with the SJVAPCD's Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects Under CEQA[25], a project would be considered to have a less than significant impact on climate change if it would comply with at least one of the following criteria:

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

The SJVAPCD has not yet adopted best performance standards for development projects. The quantification of project-generated GHG emissions in comparison to BAU conditions to determine consistency with AB 32's reduction goals is considered appropriate in some instances. However, based on a recent California Supreme Court's decision in Center for

[25] San Joaquin Valley Air Pollution Control District. Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA. December 17, 2009. https://www.valleyair.org/Programs/CCAP/12-17-09/3%20CCAP%20-%20FINAL%20LU%20Guidance%20-%20Dec%2017%202009.pdf. Accessed April 2019.

Biological Diversity v. California Department of Fish and Wildlife and Newhall Land and Farming (2015) 224 Cal.App.4th 1105 (CBD vs. CDFW; also known as the "Newhall Ranch case"), substantial evidence would need to be provided to document that project level reductions in comparison to a BAU approach would be consistent with achieving AB 32's overall statewide reduction goal. Given that AB 32's statewide goal includes reductions that are not necessarily related to an individual development project, the use of this approach may be difficult to support given the lack of substantial evidence to adequately demonstrate a link between the data contained in the AB 32 Scoping Plan and individual development projects. Alternatively, the Court identified potential options for evaluating GHG impacts for individual development projects, which included the use of GHG efficiency metrics. In general, GHG efficiency metrics can be used to assess the GHG efficiency of an individual project based on a per capita basis or on a service population basis.

A GHG efficiency threshold based on service population can be calculated by dividing the GHG emissions inventory goal (allowable emissions), by the estimated service population of the individual project. For most development projects, service population is traditionally defined as the sum of the number of jobs and the number of residents provided by a project. The calculated GHG efficiency of the proposed project included an estimated 403 residents for the proposed single-family development, 183 residents for the proposed future multi-family development, and 299 employees for the proposed future commercial development. Residential population estimates were derived from the CalEEMod modeling conducted for this project. Commercial employee estimates were calculated based on rates derived from the United States Green Building Council. GHG efficiency for the proposed 141-residential development project was calculated assuming an initial buildout year of 2021. Buildout of the total project, including the future multifamily and commercial use were conservatively estimated for year 2022. To be conservative, construction generated GHG emissions were amortized based on an estimated 30-year project life and included in annual operational GHG emissions estimates. GHG efficiencies were also calculated for year 2030 to be consistent with the statewide GHG-reduction target year. The methodology used for quantification of the target efficiency threshold applied to the proposed project is summarized in Table 2. Project-generated GHG emissions that would exceed the efficiency thresholds identified would be considered to have a potentially significant impact on the environment that could conflict with GHG-reduction planning efforts.

Table 3-2
Project-Level GHG Efficiency Threshold Calculation

	2021	2022	2030
Land Use Sectors GHG Emissions Target[1]	259,000,000	246,000,000	163,000,000
Population[2]	40,639,392	40,980,939	43,939,250
Employment[3]	18,839,373	19,031,622	20,852,595
Service Population	60,012,561	60,547,398	64,791,845
GHG Efficiency Threshold ($MTCO_2e$/SP/yr)	4.3	4.1	2.5

Based on AB 32 Scoping Plan's land use inventory sectors for years 2020 and 2030; Includes transportation sources.

1. *California Air Resources Board. California 1990 Greenhouse Gas Emissions Level and 2020 Limit — by Sector and Activity (Land Use-driven sectors only) MMT CO2e - (based upon IPCC Fourth Assessment Report Global Warming Potentials)*
2. *California Department of Finance Demographic Research Unit. September 2018. Report P-1 "State Population Projections (2010 - 2060), Total Population by County". http://www.dof.ca.gov/Forecasting/Demographics/Projections/.*
3. *California Employment Development Department. Employment Projections Labor Market Information Resources and Data, "CA Long-Term. 2016-2026 Statewide Employment Projections". https://www.labormarketinfo.edd.ca.gov/data/employment-projections.html.*
4. *Employment data for interim years is estimated based on proportionality with population trends based on historical data.*

Project Impacts

Impact: *Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? And would the project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?*

Discussion: Implementation of the proposed project would contribute to increases of GHG emissions that are associated with global climate change. Short-term and long-term GHG emissions associated with the development of the proposed project are discussed in greater detail below.

<u>Short-term Construction GHG Emissions</u>

Short-term annual GHG emissions are summarized in Table 12. Based on the modeling conducted, annual emissions of GHGs associated with construction of the proposed 141-lot single-family residential development would total approximately 521.4 MTCO2e. The future construction of the proposed 64-unit multi-family residential and commercial uses would generate approximately 418.3 and 398.2 MTCO2e. In total, buildout of the project would generate a total of 1,337.9 MTCO2e. There would also be a small amount of GHG emissions from waste generated during construction; however, this amount is speculative. Actual emissions would vary, depending on various factors including construction schedules, equipment required, and activities conducted. Assuming an average project life of 30 years, amortized construction generated GHG emissions for the proposed project would total approximately 44.6 MTCO2e/yr.

Amortized construction-generated GHG emissions were included in the operational GHG emissions inventory for the evaluation of project-generated GHG emissions (refer to Table 3-3).

Table 3-3
Short-Term Construction GHG Emissions[26]

Land Use	Total GHG Emissions ($MTCO_2e$)	Amortized GHG Emissions ($MTCO_2e$/Year)
141-Lot Single-Family Residential	521.4	17.4
Future 64-Unit Multi-Family Residential	418.3	13.9
Future Commercial	398.2	13.3
Total:	1,337.9	44.6
Based on CalEEMod computer modeling. Amortized emissions assumes a 30-year project life. Refer to Appendix A for modeling results and assumptions.		

Long-term Operational GHG Emissions

Estimated operational GHG emissions associated with the proposed 141-lot single-family residential development, as well as, future buildout of the proposed project, including the proposed future 64-unit multi-family residential development and commercial land uses, are discussed in greater detail, as follows:

Proposed 141-Lot Single-Family Residential Development

Estimated operational GHG emissions associated with the proposed 141-Lot single-family residential development are summarized in Table 3-4. As depicted, operational GHG emissions would total approximately 2,180.8 MTCO2e/year in 2021 and approximately 1,763.1 MTCO2e/year in 2030. With the inclusion of amortized construction emissions, operational GHG emissions would total approximately 2198.2 MTCO2e/year in 2021 and approximately 1,780.5 MTCO2e/year in 2030. Based on this estimate and assuming a population of 403 residents, the calculated GHG efficiency for the proposed project would be 5.5 MTCO2e/SP/yr in 2021 and 4.4 MTCO2e/SP/yr in 2030. The GHG efficiency for the proposed project would exceed the thresholds of 4.3 MTCO2e/SP/yr in 2021 and 2.5 MTCO2e/SP/yr in 2030.

[26] Ambient Air Quality & Noise Consulting. Air Quality & Greenhouse Gas Impact Analysis for Tract Map 6236. November 2018. See Appendix B of this EIR.

Table 3-4
Long-Term Operational GHG Emissions
(Unmitigated)

Emissions Source	GHG Emissions ($MTCO_2e$ per year) [1]	
	Year 2021	Year 2030
Hearth	268.2	268.2
Landscaping	1.8	1.8
Energy Use	416.1	348.7
Mobile Sources[2]	1443.1	1096.1
Waste Generation[3]	28.5	28.5
Water Use[4]	23.1	19.8
Total Project Operational Emissions:	2,180.8	1,763.1
Amortized Construction Emissions:	17.4	17.4
Net Increase:	2,198.2	1,780.5
Project GHG Efficiency ($MTCO_2e$/SP/yr)[5]:	5.5	4.4
GHG Efficiency Threshold ($MTCO_2e$/SP/yr):	4.3	2.5
Exceeds Threshold/Significant Impact?	Yes	Yes

5. Project-generated emissions were quantified using the CalEEMod computer program.
6. Based on SJVAPCD fleet distribution estimates for residential land uses. Trip-generation rates were derived from the traffic analysis prepared for this project.
7. Based on current state-wide waste diversion rate of 61 percent.
8. Includes installation of low-flow water fixtures and water-efficient irrigation systems, per California's 2015 water-efficiency standards.
9. Based on a resident population of 403 individuals.
Refer to Appendix A for modeling results and assumptions.

Proposed Project Buildout

Estimated operational GHG emissions associated with the buildout of the proposed project, including proposed residential and commercial land uses, are summarized in Table 3-5. As depicted, operational GHG emissions would total approximately 6,692.4 MTCO2e/year in 2022 and approximately 5,630.1 MTCO2e/year in 2030. Operational GHG emissions are also depicted in Figure 6. As shown in Figure 6, a majority of the project generated GHG emissions, roughly 84 percent, are associated with the operation of motor vehicles. Energy use and area sources (e.g., landscaping, hearth devices) would account for roughly 15 percent of the total GHG emissions. The remaining approximately one percent of project generated GHG emissions would be associated with water use and waste generation.

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[27] Ambient Air Quality & Noise Consulting. Air Quality & Greenhouse Gas Impact Analysis for Tract Map 6236. November 2018. See Appendix B of this EIR.

Table 3-5
Long-Term Operational GHG Emissions
(Unmitigated) Project Buildout[28]

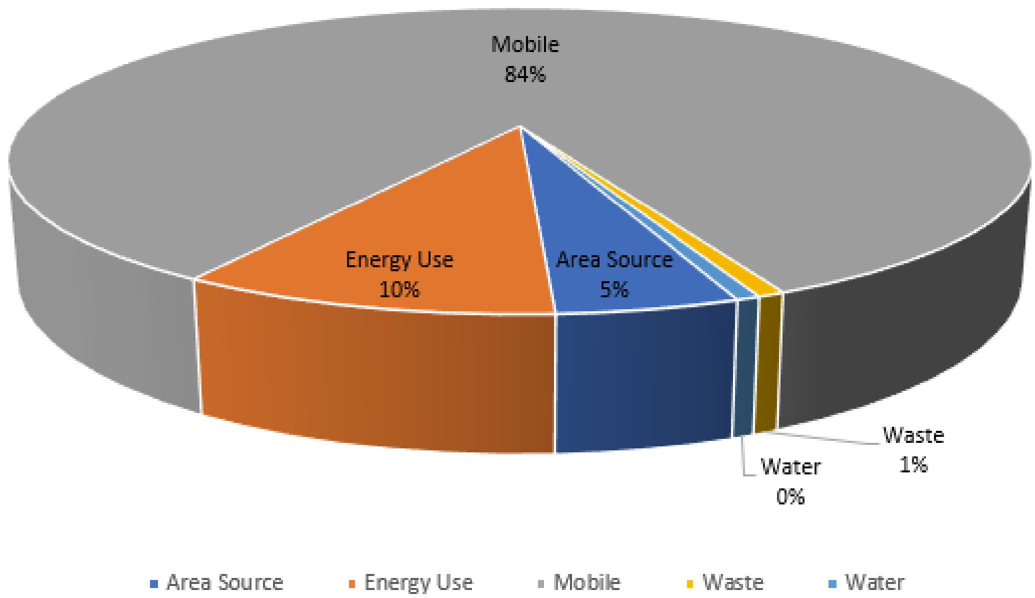
Emissions Source	GHG Emissions ($MTCO_2e$ per year) [1]	
	Year 2022	Year 2030
Hearth	310.5	310.5
Landscaping	2.6	2.6
Energy Use	649.4	545.5
Mobile Sources[2]	5,642.3	4,689.7
Waste Generation[3]	46.9	46.9
Water Use[4]	40.7	34.9
Total Project Operational Emissions:	6,692.4	5,630.1
Amortized Construction Emissions:	44.6	44.6
Net Increase:	6,737.0	5,674.7
Project GHG Efficiency ($MTCO_2e$/SP/yr)[5]:	7.6	6.4
GHG Efficiency Threshold ($MTCO_2e$/SP/yr):	4.1	2.5
Exceeds Threshold/Significant Impact?	Yes	Yes

10. Project-generated emissions were quantified using the CalEEMod computer program.
11. Based on SJVAPCD fleet distribution estimates for residential land uses. Fleet distribution for future commercial uses are based on model defaults. Trip-generation rates were derived from the traffic analysis prepared for thisproject.
12. Based on current state-wide waste diversion rate of 61 percent.
13.Includes installation of low-flow water fixtures and water-efficient irrigation systems, per California's 2015 water-efficiency standards.
14. Based on a combined resident and employee population of 885 individuals. Refer to Appendix A for modeling results and assumptions.

With the inclusion of amortized construction emissions, operational GHG emissions would total approximately 6,737.0 MTCO2e/year in 2022 and approximately 5,674.7 MTCO2e/year in 2030 (refer to Table 5). Based on this estimate and assuming a total buildout population of 885 residents and employees, the calculated GHG efficiency for the proposed project would be 7.6 MTCO2e/SP/yr in 2022 and 6.4 MTCO2e/SP/yr in 2030. The GHG efficiency for the proposed project would exceed the thresholds of 4.1 MTCO2e/SP/yr in 2022 and 2.5 MTCO2e/SP/yr in 2030.

[28] Ambient Air Quality & Noise Consulting. Air Quality & Greenhouse Gas Impact Analysis for Tract Map 6236. November 2018. See Appendix B of this EIR.

Figure 6
Operational GHG Emissions at Project Buildout[29]



GHG Emissions Summary

Increases in operational GHG emissions associated with the proposed 141-lot single-family residential development, as well as, future buildout of the proposed project, including the proposed future up to 64 units of multi-family residential development and commercial land uses, would exceed applicable significance thresholds. As a result, the proposed project would result in a significant increase in GHG emissions that could conflict with the State's GHG-reduction targets.

The proposed project would be designed to meet current building energy-efficiency standards, which includes measures to reduce overall energy use, water use, and waste generation. The project would also be designed to promote the use of alternative means of transportation, such as bicycle use, and to provide improved pedestrian access that would link the project site to nearby land uses. Additional measures would also be included, such as the prohibited use of wood-burning fireplaces. These improvements would help to further reduce the project's GHG emissions and would also help to reduce community-wide GHG emissions. However, even with

[29] Ambient Air Quality & Noise Consulting. Air Quality & Greenhouse Gas Impact Analysis for Tract Map 6236. November 2018. See Appendix B of this EIR.

implementation of these measures, project generated GHG emissions would could still exceed applicable significance thresholds and conflict with GHG-reduction planning efforts. This impact would be considered potentially ***significant.***

Mitigation Measures: Implement Mitigation Measures AQ-1, AQ-2, and AQ-3, included below, and in the Air Quality analysis contained in the Initial Study for this Project (See Appendix A).

AQ -1

Comply with SJVAPCD's Indirect Source Review Rule (Rule 9510). Operation of the proposed project shall comply with SJVAPCD's ISR rule (Rule 9510). Prior to final discretionary project approval of the project, the Project applicant shall submit an Air Impact Assessment (AIA) application to the SJVAPCD. The AIA shall be submitted to and approved by the SJVAPCD prior to issuance of construction/grading permits by the City of Kerman. The AIA shall include: an estimate of operational emissions prior to the implementation of mitigation measures; a list of the mitigation measures to be applied to the project; an estimate of emissions for each applicable pollutant for the project and each phase thereof, following the implementation of mitigation; and a calculation of the applicable off-site fee, if required by Rule 9510. Measures that may be implemented to reduce operational emissions may include, but are not limited to, the following:

a. The installation of wood-burning hearth devices shall be prohibited.
b. Provide bus turnouts and transit improvements (e.g., transit shelters, benches, route signs, street lighting) where requested by the local and/or regional transit agency (e.g., Fresno County Rural Transit Agency).
c. For single-family residential uses, offer buyers optional packages that incorporate photovoltaic solar systems.
d. Install water-efficient appliances, toilets, faucets, and shower heads, where applicable.
e. Utilize green building materials (materials which are resource efficient, recycled, and sustainable) available locally if possible.
f. Provide shade tree planting in parking lots to reduce evaporative emissions from parked vehicles. Design should provide 50% tree coverage within 10 years of construction using low ROG emitting, low maintenance native drought-resistant trees.
g. Plant drought tolerant native shade trees along southern exposures of buildings to reduce energy used to cool buildings in summer.
h. For single-family residential project components, incorporate outdoor electrical outlets to encourage the use of electric landscape maintenance equipment.

i. Install high-efficiency heating and cooling systems.
j. Utilize high-efficiency gas or solar water heaters.
k. Utilize built-in energy-efficient appliances (i.e., Energy Star rated).
l. Utilize double- or triple-paned windows.
m. Utilize low energy street lights (i.e., sodium, light-emitting diode [LED].
n. Utilize energy-efficient interior lighting.
o. Install low water consumption landscape. Use native plants that do not require watering after they are well established or minimal watering during the summer months and are low ROG emitting.
p. For the non-residential project component, provide a minimum of one designated parking space for alternatively fueled vehicles.
q. Use low-VOC content paints during construction and long-term facility maintenance. To the extent possible construction materials that are prefinished or that do not require the application of architectural coatings should be used.
r. Provide a bicycle and pedestrian access network that internally links all uses and connects all existing or planned external streets and bicycle and pedestrian facilities contiguous with the project site.
s. Provide on-site bicycle parking beyond those required by California Green Building Standards Code and related facilities to support long-term use (lockers, or a locked room with standard racks and access limited to bicyclists only).
t. Implement traffic calming improvements as appropriate (e.g., marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, median islands, mini-circles, tight corner radii, etc.)

<u>AQ -2</u>

Implement a Voluntary Emissions Reduction Agreement (VERA) with the SJVAPCD to Reduce Operational Emissions of NOX. If deemed necessary, depending on the emissions reductions achieved via compliance with Rule 9510 (refer to Mitigation Measure AQ-1) a VERA shall be entered into with the SJVAPCD to reduce operational emissions of NOX to less than 10 tons/year. Emission reductions may be achieved by use of newer, low-emission equipment, implementation of on-site or off-site mitigation, and/or the funding of off-site mitigation, through participation in the SJVAPCD's off-site mitigation program. The VERA shall be reviewed and approved by the SJVAPCD prior to issuance of construction/grading permits by the City of Kerman. The project proponent/owner shall submit to the City of Kerman Planning Department documentation confirming compliance with the VERA, prior to issuance of final discretionary approval (e.g., approval of the grading permit). Development and implementation of the VERA shall be fully funded by the project proponent/owner. With approval by SJVAPCD, the VERA may also be used to demonstrate compliance with emission reductions required by SJVAPCD's ISR Rule (Rule 9510).

AQ -3

The following measures shall be implemented to reduce potential expose of sensitive receptors to localized concentrations of PM emissions at nearby land uses during project construction:

a. On-road diesel vehicles shall comply with Section 2485 of Title 13 of the California Code of Regulations. This regulation limits idling from diesel-fueled commercial motor vehicles with gross vehicular weight ratings of more than 10,000 pounds and licensed for operation on highways. It applies to California and non-California based vehicles. In general, the regulation specifies that drivers of said vehicles:

    1) Shall not idle the vehicle's primary diesel engine for greater than 5 minutes at any location, except as noted in Subsection (d) of the regulation; and,

    2) Shall not operate a diesel-fueled auxiliary power system to power a heater, air conditioner, or any ancillary equipment on that vehicle during sleeping or resting in a sleeper berth for greater than 5.0 minutes at any location when within 1,000 feet of a restricted area, except as noted in Subsection (d) of the regulation.

b. Off-road diesel equipment shall comply with the 5 minute idling restriction identified in Section 2449(d)(2) of the California Air Resources Board's In-Use off-Road Diesel regulation. The specific requirements and exceptions in the regulations can be reviewed at the following web sites: www.arb.ca.gov/msprog/truck-idling/2485.pdf and www.arb.ca.gov/regact/2007/ordiesl07/frooal.pdf.

c. Signs shall be posted at the project site construction entrance to remind drivers and operators of the state's 5-minute idling limit.

d. To the extent available, replace fossil-fueled equipment with alternatively-fueled (e.g., natural gas) or electrically-driven equivalents.

e. Construction truck trips shall be scheduled, to the extent feasible, to occur during non-peak hours.

f. The burning of vegetative material shall be prohibited.

g. The proposed project shall prepare a Dust Control Plan (DCP) in accordance with SJVAPCD Regulation VIII for the control of fugitive dust emissions. Regulation VIII can be obtained on the SJVAPCD's website at website URL: https://www.valleyair.org/rules/1ruleslist.htm. At a minimum, the following measures shall be incorporated as part of the DCP:

    1) All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover.

    2) All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.

Level of Significance after Mitigation

The proposed project would be designed to meet current building energy-efficiency standards, which includes measures to reduce overall energy use, water use, and waste generation. The project would also be designed to promote the use of alternative means of transportation, such as bicycle use, and to provide improved pedestrian access that would link the project site to nearby land uses. Additional measures would also be included, such as the prohibited use of wood-burning fireplaces. Implementation of Mitigation Measure AQ-1 would also require compliance with SJVAPCD Rule 9510, which would include the incorporation of mitigation measures to reduce operational emissions from motor vehicles, energy use, and area sources. These measures would also help to reduce operational emissions of GHGs. Furthermore, it is important to note that Mitigation Measure AQ-2, would require the project proponent to enter into a Voluntary Emissions Reduction Agreement (VERA) with the SJVAPCD. The VERA would result in additional reductions of operational emissions through various means, including implementation of additional on-site or off-site mitigation and/or the funding of off-site mitigation. These additional measures have not yet been identified but would likely have the added benefit of reducing project-generated GHG emissions. Implementation of Mitigation Measure AQ-3 would reduce construction related emissions from diesel fueled off-road and on-road vehicles, which would help to reduce short-term emissions of black carbon. Because the GHG emission reductions to be achieved through implementation of the Mitigation Measures AQ-1 and AQ-2 cannot be quantified at this time, increased GHG emissions associated with the proposed project would be considered to have a ***significant and unavoidable impact*** on the environment that could also conflict with GHG-reduction planning efforts, even with implementation of proposed mitigation measures.

Chapter 4

CUMULATIVE IMPACTS

Cumulative Impacts

4.1 Introduction

Section 15130 of the CEQA Guidelines requires an EIR to discuss cumulative impacts of a proposed project when the project's incremental effect is cumulatively considerable. Cumulative impacts refer to two or more individual effects that, when combined, are considerable or that compound or increase other environmental impacts. The purpose of the cumulative impact analysis is to identify and summarize the environmental impacts of the proposed project in conjunction with existing, approved, and anticipated development in the project area. Since agricultural resources and greenhouse gas emissions are the only potentially significant issues of concern for this project, only the cumulative effects related to agricultural resources and greenhouse gas emissions are evaluated in this analysis.

The CEQA Guidelines allow for the use of two alternative methods to determine the scope of projects for the cumulative impact analysis:

- List Method – a list of past, present and probable future projects producing related or cumulative impacts, including, if necessary those projects outside the control of the agency.
- General Plan Projection Method – A summary of projections contained in an adopted General Plan, or related planning document, which described or evaluated regional or area wide conditions contributing to the cumulative impact.

The cumulative impacts analyses in this document are based on the General Plan Projection Method from the 2007 Kerman General Plan (and its EIR) (CEQA Guidelines Section 15130(1)(B)).

4.2 Agricultural Resources

The 2007 Kerman General Plan Update EIR (SCH #2006091148) identified the loss of agricultural land resulting from General Plan implementation as a significant and unavoidable impact. Since the cumulative effect of the project site development was taken into account in the General Plan EIR, the analysis and conclusions of the General Plan EIR would not change as a result of the project. Based on the above, the impact of the project on agricultural resources would ***not be cumulatively considerable.***

4.3 Greenhouse Gas Emissions

The discussion of greenhouse gas (GHG) emissions generated by the proposed project is inherently a cumulative impact analysis. The GHG emissions from a single project cannot result in changes in climactic conditions; therefore, the emissions from one project must be considered in a cumulative context.

The State of California has recognized the importance of controlling GHG emissions to lessen the effects of climate change. The state's legislative and regulatory efforts indicate that ongoing climate change effects represent a significant cumulative impact.

As discussed in Section 3.2, the calculated GHG efficiency for the proposed project would be 7.6 MTCO2e/SP/yr in 2022 and 6.4 MTCO2e/SP/yr in 2030. The GHG efficiency for the proposed project would exceed the thresholds of 4.1 MTCO2e/SP/yr in 2022 and 2.5 MTCO2e/SP/yr in 2030. As such, the proposed project would result in a cumulatively considerable contribution to greenhouse gas emission and the project's impacts would be ***significant***.

Chapter 5

PROJECT ALTERNATIVES

Proejct Alternatives

5.1 Introduction

CEQA Guidelines Section 15126.6 requires the consideration of a range of reasonable alternatives to the proposed project that could feasibly attain most of the objectives of the proposed project. The Guidelines further require that the discussion focus on alternatives capable of eliminating significant adverse impacts of the project or reducing them to a less-than-significant level, even if the alternative would not fully attain the project objectives or would be more costly. According to CEQA Guidelines, the range of alternatives required in an EIR is governed by the "rule of reason" that requires an EIR to evaluate only those alternatives necessary to permit a reasoned choice. An EIR need not consider alternatives that have effects that cannot be reasonably ascertained and/or are remote and speculative.

5.2 Project Objectives and Significant Impacts

The proposed Project includes the establishment of a 3.1-acre commercial development center, 144 single-family residential units, up to 64 multi-family residential units, and 1.3 acres of neighborhood park. The project objectives are to:

- To provide economically feasible housing to the City of Kerman meeting the objectives of the Housing Element.
- To create an economically sustainable commercial complex that will provide business and job opportunities within the City of Kerman.
- To ensure the provision of services and facilities needed to accommodate planned population densities in the project area.

Based on the rule of reason as set forth in the CEQA Guidelines (Section 15126.6), the only alternatives that should be analyzed in the EIR are those that are capable of eliminating or substantially reducing significant adverse environmental impacts. As such, the No Project and Reduced Project Alternatives are discussed herein.

CEQA Guidelines Section 15126.6(f)(2) sets forth considerations to be used in evaluating an alternative location; however, those guidelines establish that only those locations that can avoid or substantially lessen the Project's significant impacts should be considered. As the proposed project's only significant impact is a result of greenhouse gas emissions, no alternative locations were analyzed as greenhouse gas emissions are not necessarily a localized problem and simply moving the project to another location would not reduce the Project's contribution to greenhouse gas emissions.

5.3 No Project

CEQA Section 15126.6(e) requires the discussion of the No Project Alternative "to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project." The No Project scenario in this case consists of retaining the property in its original configuration, with no construction or operation of the proposed project. Under this alternative, no new development would occur on the site.

This alternative would avoid both the adverse and beneficial effects of the project. This alternative would avoid site-disturbance and construction-related impacts associated with construction of the proposed development. The No Project Alternative would avoid the generation of any environmental impacts; however, the alternative would not meet the project's objectives to provide economically feasible housing or an economically sustainable commercial complex.

5.4 Reduced Project Alternative

Description of the Reduced Project Alternative

Reduced Project alternatives are usually considered as one means to potentially reduce the adverse effects of a project on the environment. A Reduced Project alternative considers components of the proposed Project that could potentially be eliminated or reduced in size from the full proposed Project scope. Without redesigning the Project, the exact nature of what a reduced Project Alternative remains unclear but it could be a reduction in residential units or a reduction or possibly elimination of the commercial project component. This alternative would consider an alternative similar to that of the proposed Project but reduced to a size that would still meet the needs of the development, yet reduce greenhouse gas emissions relative to the proposed Project.

Impacts and Relationship to Project Objectives

A Reduced Project alternative generally would not meet the objectives of the proposed Project by such reason as, not developing enough residential units or enough commercial space to be economically feasible. A Reduced Project alternative would tend to have many, if not all impacts, at similar levels of significance to the proposed Project, although it is conceivable that greenhouse gas emissions would tend to be reduced from those of the proposed Project.

5.5 Environmentally Superior Alternative

CEQA Guidelines section 15126.6(e)(2) requires an EIR to identify an environmentally superior alternative. The purpose of identifying such an alternative is to examine ways to eliminate or substantially reduce significant adverse impacts to lower levels of significance. As presented in the Initial Study presented in Appendix A, and Chapter 3 of this EIR, all identified impacts of the proposed Project, with exception of impacts relating to Greenhouse Gas emissions, are either less than significant or can be reduced to less than significant with the application of proposed mitigation measures. The analysis of the projects contribution to greenhouse gas emissions resulted in significant and unavoidable impacts.

As discussed in Section 5.4, Reduced Project Alternative, a reduction in size of proposed Project components, such as the reduction of residential units or reduction or possible elimination of the commercial component of the proposed Project, would generally fail to meet some of the proposed Project objectives, although it would reduce greenhouse gas emissions, potentially to less than significant levels. While the Reduced Project Alternative would not meet all of the proposed Project's objectives, based on the CEQA Guidelines section 15126.6(e)(2) criterion, the Reduced Project Alternative would be superior to the proposed Project because identified environmental impacts would be less than those that would occur with the proposed Project. As such, the Reduced Project alternative would be considered the Environmentally Superior Alternative.

Chapter 6

CEQA Considerations

CEQA Considerations

6.1 Growth-Inducing Impacts

CEQA Section 15126(d) requires that any growth-inducing aspect of a project be addressed in an EIR. This discussion includes consideration of ways in which the proposed Project could directly or indirectly foster economic or population growth with the construction and operation of a commercial development project in the surrounding area. Projects which could remove obstacles to population growth (such as a major public service expansion) are also considered in this discussion. The proposed Project is the establishment of a 3.1-acre commercial development center, 144 single-family residential units, up to 64 multi-family residential units, and 1.3 acres of neighborhood park.

The Fresno Multi-Jurisdictional Housing Element [1] contains quantified objectives for the maintenance, preservation, improvement, and development of housing for the City of Kerman. The quantified objective for new construction in the City of Kerman is a total of 450 residential units, per the 2015-2023 Housing Element Planning period. The proposed project includes up to 208 residential units (144 single family + 64 multi family) which would aid the City in meetings its quantified objective. In addition, the 2007 Kerman General Plan Land Use Element contains growth management policies that balance infill development with outward expansion into the Sphere of Influence. The goal is to promote an urban growth pattern that is conmpact, contiguous, and concentric. The General Plan establishes a 2017 Growth Boundary Line, which the proposed project is within.[2] Therefore, growth on this project site is anticipated within the General Plan.

Project construction would result in a short-term increase in construction related job opportunities in the City, which would likely employ the local construction employment labor force. The proposed commercial component of the project would create a relatively minor amount of long-term employment opportunities; however, those positions would likely to be readily filled by the existing employment base, given the 9.7% unemployment rate in the City of Kerman.[3]

The proposed project would not result in signifncant growth-inducing impacts.

Conclusion

The project would have ***less than significant*** growth-inducing impacts.

6.2 Irreversible Environmental Changes

As mandated by the CEQA Guidelines, the EIR must address any significant irreversible environmental change that would result from implementation of the proposed Project. Specifically, pursuant to the CEQA Guidelines (Section 15126.2(c)), such an impact would occur if:

- The Project would involve a large commitment of nonrenewable resources;
- Irreversible damage can result from environmental accidents associated with the Project; and
- The proposed consumption of resources is not justified (e.g., the Project results in the wasteful use of energy).

The proposed Project is the establishment of a 3.1-acre commercial development center, 144 single-family residential units, up to 64 multi-family residential units, and 1.3 acres of neighborhood park. Construction debris recycling practices would be expected to allow for the recovery and reuse of building materials such as concrete, lumber, and steel and would limit disposal of these materials, some of which are non-renewable.

Day-to-day activities would involve the use of non-renewable resources such as petroleum and natural gas during operations. The new residential development would be required to adhere to the latest adopted edition of the California Building Standards Code, which includes a number of standards that would reduce energy demand, water consumption, wastewater generation, and solid waste generation that would collectively reduce the demand for resources. This would result in the emission and generation of less pollution and effluent and lessen the severity of corresponding environmental effects. Although the Project would result in an irretrievable commitment of non- renewable resources, the commitment of these resources would not be significantly inefficient, unnecessary, or wasteful. Furthermore, the proposed residential uses do

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[1] Fresno Multi-Jurisdictional Housing Element. April 6, 2016. Appendix 2F: City of Kerman. https://www.fresnocog.org/wp-content/uploads/publications/Housing/Final_Adopted_Document/MJHE_06-2F_Appendix_2F_Kerman_ADOPTED_2016-04-06.pdf. Accessed April 2019.

[2] 2007 Kerman General Plan. Map 7 – Growth Boundary Areas. https://www.codepublishing.com/CA/Kerman/GeneralPlan/Map%207_Growth%20Boundary%20Areas.pdf. Accessed April 2019.

[3] Fresno Multi-Jurisdicional Housing Element. April 6, 2016. https://www.fresnocog.org/wp-content/uploads/publications/Housing/Final_Adopted_Document/MJHE_02_Needs_Assessment_ADOPTED_2016-04.pdf. Accessed April 2019.

not have the potential to cause significant environmental accidents through releases into the environment, as they would not involve large quantities of hazardous materials.

Irreversible changes associated with the project include the use of nonrenewable resources during construction, including concrete, plastic, and petroleum products. During the operational phase of the proposed Project, energy would be used for lighting, heating, cooling, fuel dispensers and other requirements. The use of these resources would not be substantial and would not constitute a significant effect.

Conclusion: The project would have ***less than significant*** irreversible environmental changes.

6.3 Significant and Unavoidable Impacts

California Environmental Quality Act (CEQA) Guidelines Section 15126.2(a)(b) requires an EIR to identify and focus on the significant environmental effects of the Project, including effects that cannot be avoided if the Project were implemented. With implementation of the Project, the following significant impacts that cannot be avoided would occur:

Greenhouse Gas Operational Emission Threshold: The Project would exceed the GHG Efficiency threshold by 1.2 MTCO2e per year in year 2021 and by 1.9 MTCO2e per year in year 2030. Mitigation is proposed requiring (1) compliance with SJVAPCD Rule 9510, which would include the incorporation of mitigation measures to reduce operational emissions from motor vehicles, energy use, and area sources (2) requiring the project proponent to enter into a VERA with the SJVAPCD which would result in additional reductions of operational emissions through various means and (3) reducing construction related emissions from diesel fueled off-road and on-road vehicles, which would help to reduce short-term emissions of black carbon; however, these measures would not reduce emissions to less than significant levels. Therefore, the significance after mitigation is significant and unavoidable.

Conclusion: Mitigation measures are proposed; however, they would not fully reduce project impacts to a level of less than significant. Therefore, the residual significance is ***significant and unavoidable.***

Chapter 7

PREPARERS

PREPARERS

7.1 List of Preparers

Crawford & Bowen Planning, Inc. (EIR Consultants)

- Travis Crawford, AICP, Principal Environmental Planner
- Emily Bowen, LEED AP, Principal Environmental Planner

Ambient Air Quality & Noise Consulting (Air Quality & Greenhouse Gas Impact Analysis)
Collins & Schoettler Planning Consultants, City Planner (Initial Study)
JLB Traffic Engineering, Inc. (Traffic Impact Analysis)

7.2 Persons and Agencies Consulted

City of Kerman

- Olivia Pimentel, Assistant Planner

Appendices

Appendix A

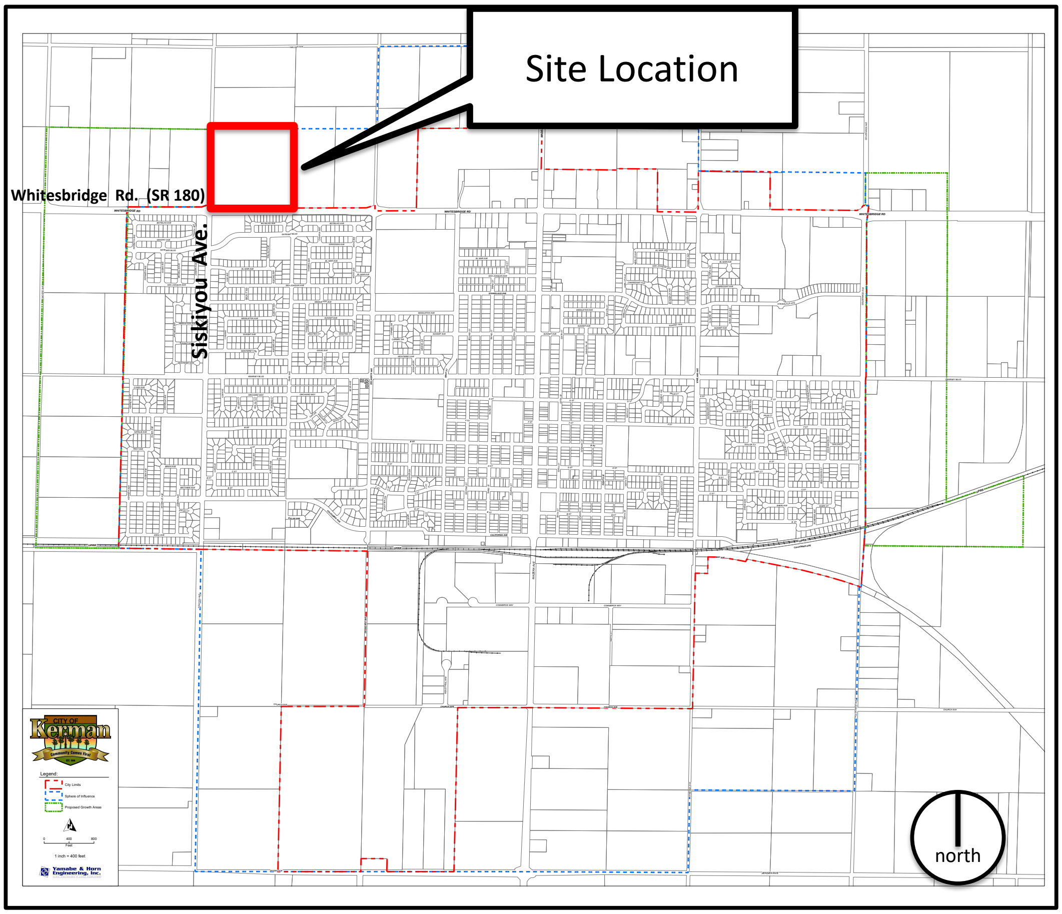
INITIAL STUDY/NOTICE OF PREPARATION

City of Kerman

Initial Environmental Study

for

Reorganization 2018-01 (Whitesbridge/Siskiyou)



Prepared for

CITY OF KERMAN

Prepared by

Collins & Schoettler
PLANNING CONSULTANTS

ENVIRONMENTAL REVIEW

GENERAL INFORMATION

What is being proposed?

The City of Kerman has received an application for the development of a 39±acre site on the northeast corner of Whitesbridge Road (State Highway 180) and Siskiyou Avenue. Proposed actions include annexation, General Plan Amendment, zone change, Tentative Subdivision Map and a Development Agreement. The site is ultimately proposed to be developed with a 144-lot single family residential subdivision, a 4.4 acre multi family residential site, a 3.1-acre neighbourhood commercial site, and a 1.3-acre neighbourhood park.

There is a description of the specific planning actions along with maps and diagrams in the study.

What is this document?

The attached document is a review of potential environmental impacts that may occur if the City approves the project.

Why is this document being prepared?

The California Environmental Quality Act of 1970 requires government agencies to analyze how development projects may impact the environment - before considering and approving or denying the project. Once the document is prepared, it must be made available to the public and circulated for review to potentially affected public agencies for a period of 30 days.

Will this study result in any changes to the project?

An environmental study may recommend measures to reduce or eliminate environmental impacts. These measures (called mitigation measures) may include actions to be taken during project construction (such as watering soils to keep down dust) or may include changes to the design of the project itself.

How do I comment on this study?

Send written comments to Olivia Pimentel, Assistant Planner, Kerman Planning Department, 850 S. Madera Avenue, Kerman, CA 93630.

How is this project reviewed by the City?

Following review by City staff, this particular project will require public hearings before the Kerman Planning Commission and the Kerman City Council. If you are interested in knowing the time and date for these meetings, please contact the Kerman City Clerk at (559) 846-9384.

Who do I contact for more information?

Olivia Pimentel, Assistant Planner
City of Kerman
850 S. Madera Avenue
Kerman, CA 93630
Email: opimentel@cityofkerman.org

TABLE OF CONTENTS

1.0 INTRODUCTION

Executive Summary

This document is an analysis of potential environmental impacts of the project titled the "Whitesbridge/Siskiyou Project" being proposed within the City of Kerman. The project is a proposal to develop a 39±acre site on the northeast corner of Whitesbridge Road (State Highway 180) and Siskiyou Avenue, with a combination of single and multi-family residential, open space and commercial uses.

This environmental study determined the project could have a significant impact related to the issue of greenhouse gasses/climate change and therefore recommends the preparation of a "Focused Environmental Impact Report". Other impacts were determined to be "less than significant" or "less than significant with mitigation measures incorporated into the project".

A more thorough discussion of environmental impacts and mitigation measures is found in Section 4.0 of this document. Mitigation measures are also fully listed in the list of mitigation measures, found in Appendix A.

1.1 What is This Document?

The following document is an analysis of potential environmental impacts of the project titled "Whitesbridge/Siskiyou Project" being proposed in the City of Kerman. The project includes several approvals with the ultimate result being development of the site with a single family residential subdivision, land for multi-family residential development, land for neighborhood commercial development and a site for a neighborhood park. A more detailed project description can be found under Section 1.3 (Project Description), below.

The California Environmental Quality Act (CEQA) requires public agencies to evaluate the potential environmental effects of development projects and actions that may impact the environment. The proposed development, is considered to be a "project" under CEQA and must be evaluated for its environmental impacts.

The first step of environmental review is to determine whether a project is exempt from further review. CEQA contains a list of projects and actions normally considered to be exempt. The proposed development is not exempt from review. The next step is to prepare an Initial Environmental Study (IES) (which is this document). The IES is an initial review of the project and its potential effects. The IES includes:

- A profile of existing conditions on the project site and vicinity.

- A checklist of potential environmental effects of the project. This checklist helps the agency focus its examination of environmental issues.
- A discussion of the environmental effects contained on the checklist.
- A list of measures (mitigation measures) that can be employed to reduce or eliminate environmental effects resulting from the project.

The purpose of the IES is to determine the magnitude of potential environmental impacts of the project. The IES will make one of three determinations regarding the project:

1. **The project will not have a significant impact on the environment.** A "Negative Declaration" is prepared to adopt the findings of the study.

2. **The project could have a significant impact on the environment**, however mitigation measures have been devised that will minimize those potential impacts to a level that is considered "less than significant". A "Mitigated Negative Declaration" is prepared to adopt the findings of the study.

3. **The project will have a significant impact on the environment** and an Environmental Impact Report (EIR) must be prepared (or in some cases a Focused Environmental Impact Report maybe prepared). An EIR is an in-depth discussion of the project and its impacts. Mitigation measures that can reduce the magnitude of the impacts should also be discussed. The EIR must also examine alternatives to the project that may or may not reduce environmental impacts. These alternatives could include an alternative site or a different way to design the project. The EIR must also discuss "cumulative impacts" which are impacts that will occur when the project is considered along with other development in the area or the region that may be occurring in the same time frame.

   Within an EIR, impacts that cannot be reduced to a level that is "less than significant" must be acknowledged. When considering these impacts, the decision-making body (typically the Planning Commission and City Council) must consider and adopt a "Statement of Overriding Considerations" - a statement contained in a resolution that finds that the benefits of the project outweigh its negative environmental effects.

   A Focused Environmental Impact Report may be prepared when only one or several issues fall into the category of having a potentially significant impact.

Environmental analysis must be conducted before the decision-making body can take action on the project itself - in this case, approving the proposed development project.

Public Review

CEQA requires the environmental analysis to be made available for public review. This allows members of the public, individuals, property owners and potentially affected public agencies to review the findings of the study. The review period for this Initial Environmental Study is 30 days. Individuals and agencies may submit comments on the study during the public review period. These comments must be considered by City of Kerman prior to taking action on the project.

The study must also be considered by the Planning Commission and City Council in public hearings. Any person may speak on the environmental study at the public hearing and any comments must be considered by the decision-making bodies. If, after taking testimony from the public, considering written comments submitted during the public review period, and considering the environmental study itself, the decision-making bodies feel that the findings of the study are correct, they may then adopt the findings of the study. If however, the decision-making body feels the study does not adequately analyze and document the project, it may require additional study, or preparation of a full Environmental Impact Report.

What is a "Significant Impact"?

The word "significant" is a subjective term, however, CEQA contains a list of impacts that are normally considered to be "significant". Impacts most commonly found to be significant for development projects in valley communities include:

- Loss of prime farmland
- Impacts to air quality above threshold levels
- Impacts related to greenhouse gasses/climate change
- Loss of endangered plant and animal species or habitat
- Impacts on infrastructure – such as exceeding the capacity of local water or sewer systems
- Groundwater
- Traffic/circulation – exceeding capacity of roadways
- Public services
- Cumulative impacts

This list is not all-inclusive - impacts will vary depending on the nature of a specific project, its site and surroundings. Further, if an impact was acknowledged as significant in a previous EIR (such as an EIR for a General Plan), preparation of a new EIR is not required.

1.2 Location

The City of Kerman is located along State Highways 180 and 145 in central Fresno County. It is approximately 15 miles west of the Fresno-Clovis Metropolitan Area, 18 miles east of the City of Mendota and 15 miles south of the City of Madera.

The project site is located on the northeast corner of the intersection of Whitesbridge Road (State Highway 180) and Siskiyou Avenue (see Map 2). The Assessor Parcel Number of the site is 020-120-031.

1.3 Project Description

The project consists of the following permit requests:

- **General Plan Amendment 2018-02**. This action is an amendment of the Land Use Map of the 2030 Kerman General Plan to change the land use designation of the site from "Medium Density Residential" to a combination of "Medium Density Residential", "High Density Residential", "Neighborhood Commercial" and "Open Space".

- **Zone Change 2018-02**. This action is a proposal to change the zoning of the site from Fresno County Agricultural Zoning (AE-20 (Exclusive Agriculture) to a combination of City of Kerman zones, including R-1 (Single Family Residential), R-3 (High Density Residential), CN (Neighborhood Commercial) and O (Open Space). These zones are consistent with the proposed General Plan land use designations listed above.

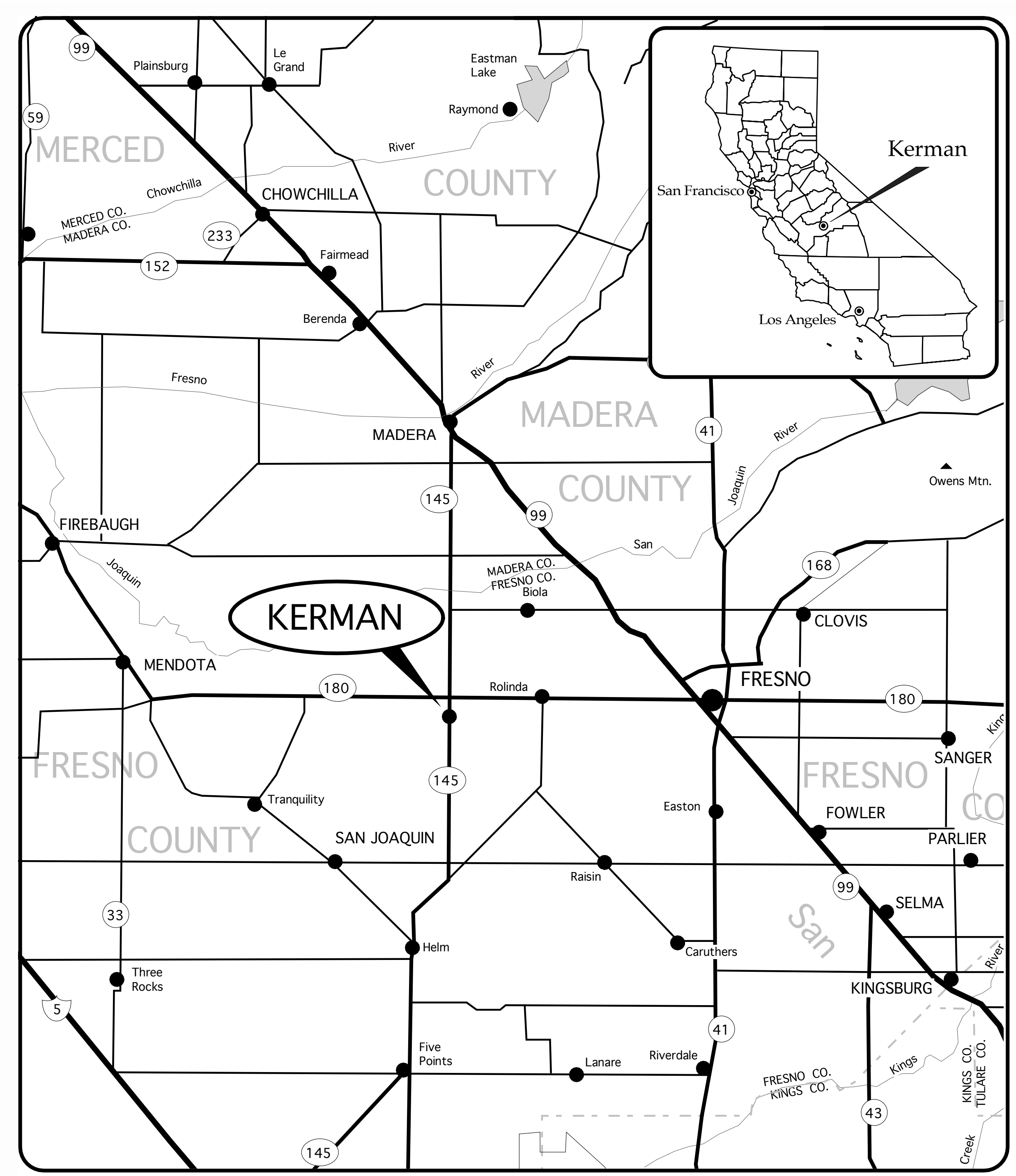
-

- **Reorganization 2018-01**. This action is a request to annex the site into the City of Kerman and detach it from the Fresno Irrigation District, Fresno County Fire Protection District and Kings River Conservation District.

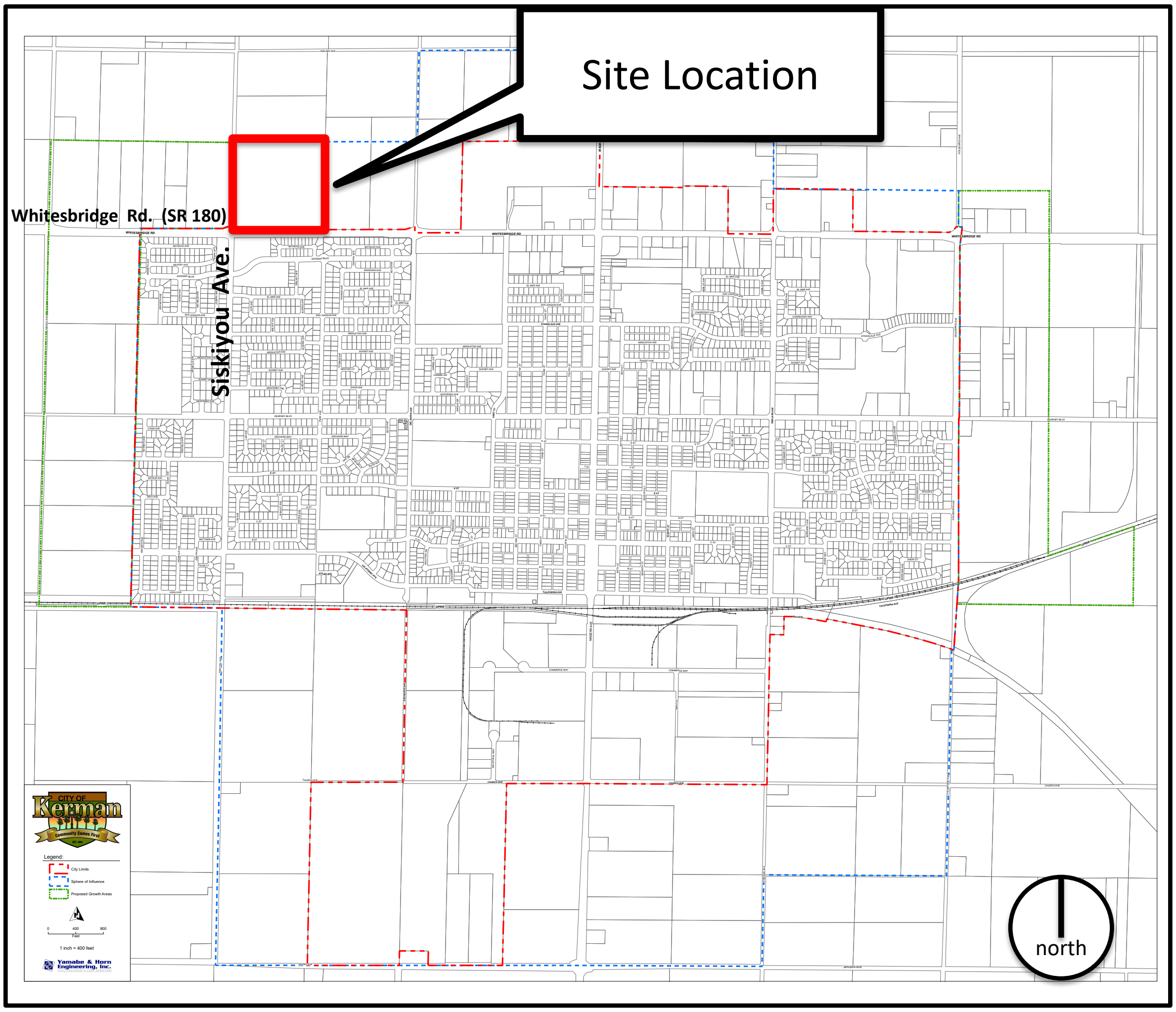
- **Tentative Subdivision Map 2018-01**. This action is a proposal to subdivide the site into 144 single family residential lots, a 4.4-acre lot for multi family residential development (and temporary storm drainage basin), a 3.1-acre lot for neighborhood commercial development, and a 1.3-acre lot for a neighborhood park. Exhibit 1 shows the proposed subdivision design.

- **Development Agreement 2018-01**. This action is for the adoption of a development agreement that will establish conditions of approval for the project, particularly conditions relating to off-site improvements.

Map 1: *Regional Location*

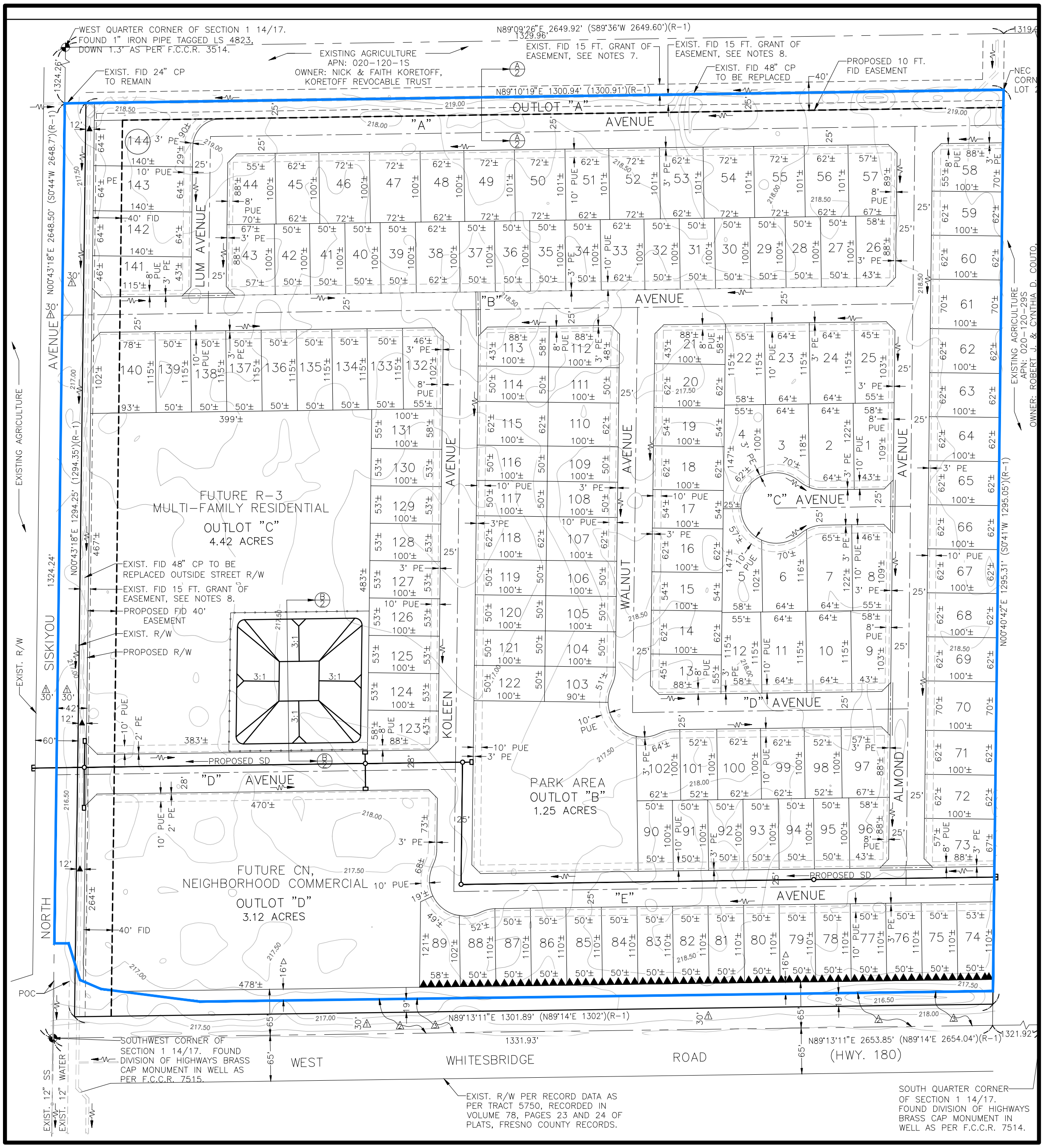


Map 2: ***Project Location***



Map 3: Aerial Photo of Site

Exhibit 1: *Proposed Tentative Subdivision Map*



2.0 CITY OF KERMAN

2.1 Overview

Since incorporation in 1946, the City of Kerman has grown to an estimated population of 15,083 in 2018, according to the California Department of Finance. Since 1970 the City's population has grown by nearly 565% - or an average annual growth rate of 4.2%. However, since 2010 the average growth rate has dropped to about 1.4% per year. By 2027 (the sunset date of the Kerman General Plan), this growth rate projection results in a potential population of about 17,100 persons

The average household size in Kerman in 2018 is 3.67 persons - larger than the average size in Fresno County at 3.15 persons per household. This rate points to a need for the development of more affordable housing.

Agriculture is the cornerstone of Kerman's economy, with the major crops grown in the area being grapes, alfalfa, melons, rice, cotton, vegetables and dairying. The majority of employment within the area is related to agriculture, involving either farm labor or employment in industries processing agricultural products. In recent years Kerman has been seeking to diversify its economy with new retail and office developments, including a new Walmart store.

Other non-agriculture related employers include the Kerman Unified School District and the City of Kerman. Kerman has historically had unemployment rates higher than Fresno County, California, and the nation as a whole. Rates approaching 10% are typical. To a great extent, these high rates are due to the seasonal nature of the agricultural industry.

3.0 PROJECT SETTING

The purpose of this section of the Initial Study is to provide a description of existing environmental conditions in the vicinity of the project site.

3.1 Project Site

Existing Land Use & Surrounding Lands

The site includes one parcel situated on the northeast corner of Whitesbridge Road (State Highway 180) and Siskiyou Avenue. The entire parcel is currently planted with field crops (most recently alfalfa).

Land in the vicinity of the site is characterized by a variety of existing uses, as follows:

North: Agriculture (orchard)
East: Agriculture (orchard)
South: Vacant land (proposed for a multi family residential complex), and single family homes
West: Agriculture (orchard)

3.2 Land Use Controls

The site is currently designated “Medium Density Residential” by the land use map of the 2027 Kerman General Plan.

As noted previously, the land use designation for the site is proposed to be amended to correspond to uses proposed with the Tentative Subdivision map and include a combination of “Medium Density Residential”, “High Density Residential” “Neighborhood Commercial” and “Park”.

In terms of zoning, the site is currently zoned by Fresno County with the AE-20 (Exclusive Agriculture – 20 acre minimum parcel size) zone. The site is proposed to be pre-zoned to correspond with the Tentative Subdivision Map, with a combination of R-1 (Single Family Residential) R-3 (High Density Residential) CN (Neighborhood Commercial) and “O” (Open Space, Recreation and Public Facilities) These zones are consistent with the proposed General Plan land use designations.

Surrounding Lands

According to the 2030 Kerman General Plan's Proposed Land Use Map, surrounding lands are designated as follows:

North: "Medium Density Residential"
East: "Medium Density Residential"
South: "Very Low Density Residential" and "Medium Density Residential"
West: "High Density Residential"

In terms of zoning, surrounding lands are designated as follows:

North: Fresno County AE-20 zone
East: Fresno County AE-20 zone
South: CN (Neighborhood Commercial) and SD-R-4.5 (SD Residential (4,500 square foot minimum lot size)
West: Fresno County AE-20 zone

3.3 Traffic and Circulation

Circulation

The site will have primary access onto Siskiyou Avenue. In the vicinity of the site, Siskiyou is improved with one travel lane in each direction along with dirt shoulders. Siskiyou is designated a "Collector" roadway in the Circulation Element of the Kerman General Plan. This roadway provides north/south access to neighborhoods in the western part of Kerman. To the south, Siskiyou intersects Whitesbridge Road, which is improved with a traffic signal. To the north, Siskiyou travels through farm lands.

Whitesbridge Avenue is a State highway that runs across the south side of the site and is currently improved with one travel lane in westbound direction and two travel lanes eastbound. The north side of the street would be similarly improved upon development. Whitesbridge is designated as an Arterial roadway in Kerman.

Additional information on circulation issues can be found in the Circulation Element of the Kerman General Plan, as well as a Traffic Impact Study in Appendix C.

3.4 Utilities

Sewer

Sewage collection and treatment on parcels within city limits is provided by the City of Kerman. In the vicinity of the project, there is a twelve inch sewer main under Whitesbridge Road at Siskiyou Avenue. It is expected that development on the site would connect to this line, and extend a 12-inch sewer main along the project frontage under Siskiyou Avenue.

Kerman's Wastewater Treatment Plant (WWTP) is designed to accommodate a daily maximum flow of 2.0 million gallons per day (mgd). The average daily dry weather flow in recent months is 946,000 gallons per day. This is a reduction from 1.1 mgd in the mid 2000's and results from water conservation efforts of the City.

Water

The City of Kerman provides water service to developed properties within its city limits. In the vicinity of the site there is an existing twelve inch water main under the right of way of Whitesbridge Road at Siskiyou Avenue. The project would tap this line and extend a water main under Siskiyou Avenue along the site frontage.

The total production capacity of the City's wells is approximately 6,700 gallons per minute (gpm), however booster pumps can increase pressure by an additional 4,000 gpm. The current static water level in the wells is 120 to 130 feet below ground level. According to city staff, the depth to groundwater in Kerman has remained fairly stable over the past 10 to 15 years.

The average daily water demand for 2015 (the most recent year for which data are available) was 897,000 gallons (compared with 1.168 million gallons in 2007 when the General Plan was adopted). This translates into 172 gallons per capita per day (versus 279 gallons per capita per day in 2007). This reduction in demand reflects the City's aggressive efforts at water conservation.

Storm Drainage

Storm drainage to most developed areas within the community is provided by the City of Kerman. The City currently operates a number storm drain lines that discharge to storm drainage basins around the community. There are no existing storm drain facilities on the site or surrounding areas. The Kerman Storm Drain Master Plan identifies future improvements for this area, including a future storm drain basin to the northwest. The City's storm drain facilities not only provide the control of storm waters, they function to recharge the groundwater basin that underlies the City.

Gas and Electricity

Natural gas and electricity service in the Kerman area are provided by Pacific Gas and Electric Company. There are existing utility lines along Whitesbridge Road, and it is expected that development on the site would connect to these lines.

3.5 Geological Hazards

Kerman is not in an area with known active faults that constitute potential hazards to structures. The closest active faults to Kerman include the Ortigalita Fault (approx. 50 miles west), the Paicines, San Andreas, and Calaveras Faults (about 60 miles to the west). Although these fault systems have the capability of significant damage, the distance is great enough to reduce the prospect of significant damage to a minimal level. New development in Kerman is required to adhere to the Zone II seismic standards of the Uniform Building Code.

3.6 Soils

According to the State of California, Department of Conservation (DOC), most soils on the site are classified as “Prime” agricultural soils, indicating they exhibit the best combination of physical and chemical features to sustain long-term agricultural production. Smaller portions of the site are characterized as “Farmland of Statewide Importance” indicating soils that are similar to Prime farmland soils, but exhibiting minor shortcomings such as greater slopes or less ability to store moisture, for example.

The site is not entered into a Williamson Act contract which, would prevent the development of non-agricultural uses.

3.7 Flooding

According to Flood Insurance Rate Map No 06019C2075H, prepared by the Federal Emergency Management Agency (FEMA), the project site is located within Zone “X” – defined as “Areas of Minimal Flooding.” According to this information, the potential for flooding of the site is remote.

4.0 DISCUSSION OF POTENTIAL ENVIRONMENTAL IMPACTS

This section of the Initial Study analyzes potential impacts of the proposed project. For each topic a determination of the magnitude of the impact is made (via checklist) and then the impact is analyzed and discussed. Where appropriate, mitigation measures are identified that will reduce or eliminate an impact.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
I. AESTHETICS -- Except as provided in Public Resources Code Section 21099, would the project:				
1. Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐

Discussion: The site is currently planted with field crops. While this presents an attractive view (as compared to a barren lot or junk yard) there are no recognized scenic vistas on the site or surrounding area. The proposed project will be required to adhere to the City's standards for landscaping, setbacks, building height, etc. These standards are intended to ensure that impacts on aesthetic qualities are minimized, through controls on landscaping, building height, bulk, setbacks, etc.

2. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒

Discussion: There are no significant natural stands of trees, rock outcroppings, historic buildings or other recognized scenic features on the project site. There will be no impact to these resources.

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

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐

Discussion: See I 1. & 2. There are no recognized scenic aspects of the project site or surrounding parcels. As noted previously, all development must meet the City's requirements for landscaping, setbacks and building height, among other standards. Adherance to these requirements will mitigate any impacts to the visual character of the area.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
4. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Discussion: Development of the site will introduce new night-time lighting – street lamps and exterior lighting on buildings, among others. City standards require that any new fixtures must be hooded and adjusted to preclude unnecessarily illuminating adjacent properties and roadways.

II. AGRICULTURE AND FOREST RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and the forest carbon measurement methodology provided in the Forest Protocols adopted by the California Air Resources Board. Would the project:

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

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
	☒	☐	☐	☐

Discussion: According to the Important Farmland Map prepared by the State of California, Department of Conservation, the bulk of the site is classified as "Prime Farmland" with smaller inclusions of "Farmland of Statewide Importance".

The conversion of these lands to urban, non-agricultural use represents a significant impact under the guidelines to the California Environmental Quality Act. However, the site is within Kerman's Sphere of Influence boundary and has been designated for urban development by the Kerman General Plan for many years. Conversion of this land to non-agricultural use was previously acknowledged as a significant impact by the Final Environmental Impact Report that was prepared by the 2027 Kerman General Plan. Accordingly, there is no additional impact as a result of the current project.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
2. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☒	☐	☐	☐

Discussion: As noted previously, the site is zoned for agricultural use by Fresno County. However, the site has long been included within Kerman's Sphere of Influence boundary and has been designated for urban development by the Kerman General Plan, Land Use Element.

A review of Fresno County Assessor Parcel Maps and agricultural preserve maps maintained by the State of California Department of Conservation indicate that the subject site is not entered into an agricultural preserve contract. While the site is zoned for agricultural use, it is within the City's Sphere of Influence and has been designated for urban development by the Kerman General Plan for many years.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
3. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)) or timberland (as defined in Public Resources Code section 4526)?	☐	☐	☐	☒

Discussion: The site is not zoned for forestry and is not forested.

4. Result in the loss of forest land or conversion of

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
forest land to non-forest use?	☐	☐	☐	☒

Discussion: The site is not forested and the project will not impact forest land.

5. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☐

Discussion: No other aspect of the project will result in conversion of farmland to non-farmland or forest land to non-forest use.

III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:

1. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☒	☐	☐

Discussion: Development of the site will result in both short- and long-term air quality emissions and impacts. Short-term air pollution impacts are those which are generated at construction sites and usually consist of particulate matter (PM-10 (10 microns or smaller in diameter) as well as emissions from motor vehicles and equipment operating on (and to and from) the site. Long term impacts result from the "operation" of the project and in this instance will include the use of motor vehicles, fire places and commercial operations, among others.

The City has required the preparation of an Air Quality analysis for the project (see Appendix "B". The study modeled potential air quality impacts for the project for both

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

short- and long-term impacts, utilizing guidelines and methodologies published by the San Joaquin Air Pollution Control District (SJVAPCD).

In accordance with SJVAPCD-recommended methodology for the assessment of air quality impacts, projects that result in significant air quality impacts at the project level are also considered to have a significant cumulative air quality impact. The study has determined that short-term construction emissions would not exceed applicable thresholds. However, build-out of the proposed project would result in operational emissions of NOX (Nitrous oxides) that would exceed the Air District's significance threshold of 10 tons/year. As a result, emissions of NOX could result in a significant cumulative contribution of ozone-precursor pollutants, for which the the San Joaquin Valley Air Basin (SJVAB) is currently designated non-attainment.

For this reason, implementation of the proposed project could conflict with air quality attainment or maintenance planning efforts. This impact would be considered potentially significant, however the study has identified mitigation measures that will reduce this impact to a less-than-significant level, as follows:

Mitigation Measure:

a. Comply with SJVAPCD's Indirect Source Review Rule (Rule 9510). Operation of the proposed project shall comply with SJVAPCD's ISR rule (Rule 9510). Prior to final discretionary project approval of the project, the Project applicant shall submit an Air Impact Assessment (AlA) application to the SJVAPCD. The AIA shall be submitted to and approved by the SJVAPCD prior to issuance of construction/grading permits by the City of Kerman. The AIA shall include: an estimate of operational emissions prior to the implementation of mitigation measures; a list of the mitigation measures to be applied to the project; an estimate of emissions for each applicable pollutant for the project and each phase thereof, following the implementation of mitigation; and a calculation of the applicable off-site fee, if required by Rule 9510. Measures that may be implemented to reduce operational emissions may include, but are not limited to, the following:

    a. The installation of wood-burning hearth devices shall be prohibited.
    b. Provide bus turnouts and transit improvements (e.g., transit shelters, benches, route signs, street lighting) where requested by the local and/or regional transit agency (e.g., Fresno County Rural Transit Agency).
    c. For single-family residential uses, offer buyers optional packages that incorporate photovoltaic solar systems.

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

d. Install water-efficient appliances, toilets, faucets, and shower heads, where applicable.
e. Utilize green building materials (materials which are resource efficient, recycled, and sustainable) available locally if possible.
f. Provide shade tree planting in parking lots to reduce evaporative emissions from parked vehicles. Design should provide 50% tree coverage within 10 years of construction using low ROG emitting, low maintenance native drought-resistant trees.
g. Plant drought tolerant native shade trees along southern exposures of buildings to reduce energy used to cool buildings in summer.
h. For single-family residential project components, incorporate outdoor electrical outlets to encourage the use of electric landscape maintenance equipment.
i. Install high-efficiency heating and cooling systems.
j. Utilize high-efficiency gas or solar water heaters.
k. Utilize built-in energy-efficient appliances (i.e., Energy Star rated).
l. Utilize double- or triple-paned windows.
m. Utilize low energy street lights (i.e., sodium, light-emitting diode [LED].
n. Utilize energy-efficient interior lighting.
o. Install low water consumption landscape. Use native plants that do not require watering after they are well established or minimal watering during the summer months and are low ROG emitting.
p. For the non-residential project component, provide a minimum of one designated parking space for alternatively fueled vehicles.
q. Use low-VOC content paints during construction and long-term facility maintenance. To the extent possible construction materials that are prefinished or that do not require the application of architectural coatings should be used.
r. Provide a bicycle and pedestrian access network that internally links all uses and connects all existing or planned external streets and bicycle and pedestrian facilities contiguous with the project site.
s. Provide on-site bicycle parking beyond those required by California Green Building Standards Code and related facilities to support long-term use (lockers, or a locked room with standard racks and access limited to bicyclists only).
t. Implement traffic calming improvements as appropriate (e.g., marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, median islands, mini-circles, tight corner radii, etc.)

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.	☐	☒	☐	☐

Discussion: The SJVAB is currently designated non-attainment for the state and federal ozone and PM2.5 ambient air quality standards and the state PM10 standard. As discussed previously, short-term construction- generated emissions of ozone-precursor pollutants (e.g., ROG and NOX) and PM would not exceed SJVAPCD's significance thresholds. However, operational emissions of NOX associated with the future buildout of the proposed project would exceed SJVAPCD's significance threshold of 10 tons/year. This impact is considered potentially significant but can be mitigated with implementation of the measures listed below:

Mitigation Measures

a. The mitigation measure for this item is contain in the Mitigation Measure for item III 1.

b. <u>Implement a Voluntary Emissions Reduction Agreement (VERA) with the SJVAPCD to Reduce Operational Emissions of NOX</u>. If deemed necessary, depending on the emissions reductions achieved via compliance with Rule 9510 (refer to the Mitigation Measure in Item III 1.) a VERA shall be entered into with the SJVAPCD to reduce operational emissions of NOX to less than 10 tons/year. Emission reductions may be achieved by use of newer, low-emission equipment, implementation of on-site or off-site mitigation, and/or the funding of off-site mitigation, through participation in the SJVAPCD's off-site mitigation program. The VERA shall be reviewed and approved by the SJVAPCD prior to issuance of construction/grading permits by the City of Kerman. The project proponent/owner shall submit to the City of Kerman Planning Department documentation confirming compliance with the VERA, prior to issuance of final discretionary approval (e.g., approval of the grading permit). Development and implementation of the VERA shall be fully funded by the project proponent/owner. With approval by SJVAPCD, the VERA may also be used to demonstrate compliance with emission reductions required by SJVAPCD's ISR Rule (Rule 9510).

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
3. Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐

Discussion: The Air Quality Analysis modeled potential impacts to sensitive receptors, including those related to CO (Carbon monoxide) Toxic Air Contaminants, naturally-occuring asbestos, diesel exhaust and localized PM (particulate matter) concentrations. The report found impacts related to these emissions to be less than significant, except that emissions related to PM would be potentially significant unless mitigated. The study identified the following mitigation measures for PM impacts:

Mitigation Measures

1. On-road diesel vehicles shall comply with Section 2485 of Title 13 of the California Code of Regulations. This regulation limits idling from diesel-fueled commercial motor vehicles with gross vehicular weight ratings of more than 10,000 pounds and licensed for operation on highways. It applies to California and non-California based vehicles. In general, the regulation specifies that drivers of said vehicles:

   a) Shall not idle the vehicle's primary diesel engine for greater than 5 minutes at any location, except as noted in Subsection (d) of the regulation; and,

   b) Shall not operate a diesel-fueled auxiliary power system to power a heater, air conditioner, or any ancillary equipment on that vehicle during sleeping or resting in a sleeper berth for greater than 5.0 minutes at any location when within 1,000 feet of a restricted area, except as noted in Subsection (d) of the regulation.

2. Off-road diesel equipment shall comply with the 5 minute idling restriction identified in Section 2449(d)(2) of the California Air Resources Board's In-Use off-Road Diesel regulation. The specific requirements and exceptions in the regulations can be reviewed at the following web sites: www.arb.ca.gov/msprog/truck-idling/2485.pdf and ww.arb.ca.gov/regact/2007/ordiesl07/frooal.pdf.

3. Signs shall be posted at the project site construction entrance to remind drivers and operators of the state's 5 minute idling limit.

4. To the extent available, replace fossil-fueled equipment with alternatively-fueled (e.g., natural gas) or electrically-driven equivalents.

5. Construction truck trips shall be scheduled, to the extent feasible, to occur during non-peak hours.

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

6. The burning of vegetative material shall be prohibited.

7. The proposed project shall prepare a Dust Control Plan (DCP) in accordance with SJVAPCD Regulation VIII for the control of fugitive dust emissions. Regulation VIII can be obtained on the SJVAPCD's website at website URL: https://www.valleyair.org/rules/1ruleslist.htm. At a minimum, the following measures shall be incorporated as part of the DCP:

   a) All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover.

   b) All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.

   c) All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.

   d) With the demolition of buildings up to six stories in height, all exterior surfaces of the building shall be wetted during demolition.

   e) When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained.

   f) All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.) (Use of blower devices is expressly forbidden.)

   g) Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.

   h) On-road vehicle speeds on unpaved surfaces of the project site shall be limited to 15 mph.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

i) Sandbags or other erosion control measures shall be installed sufficient to prevent silt runoff to public roadways from sites with a slope greater than one percent.

j) Excavation and grading activities shall be suspended when winds exceed 20 mph (Regardless of wind speed, an owner/operator must comply with Regulation VIII's 20 percent opacity limitation).

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Discussion: The occurrence and severity of odor impacts depends on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the receptors. While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and regulatory agencies.

No major sources of odors have been identified in the project area. However, construction of the proposed project would involve the use of a variety of gasoline or diesel-powered equipment that would emit exhaust fumes. Exhaust fumes, particularly diesel-exhaust, may be considered objectionable by some people.

In addition, pavement coatings and architectural coatings used during project construction would also emit temporary odors. However, construction-generated emissions would occur intermittently throughout the workday and would dissipate rapidly within increasing distance from the source. As a result, short-term construction activities would not expose a substantial number of people to frequent odorous emissions. This impact would be considered less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES -- Would the project:				
1. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐

Discussion: The Draft Environmental Impact Report (DEIR) prepared for the 2027 Kerman General Plan contains information on protected plant and animal species and habitat that are known to occur in the Kerman area. A survey conducted for the DEIR found no protected species and habitat likely to occur within or near the project site. It is likely that decades of intensive agricultural operations have eliminated suitable habitat for rare and endangered plant and animal species on the site.

Accordingly, it is expected that the proposed development will have a less than significant impact on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☐	☒

Discussion: According to maps prepared for the 2027 Kerman General Plan Draft Environmental Impact report, there are no areas of riparian habitat or other sensitive communities located on or nearby the site or surrounding areas (which are fully developed with urban and agricultural uses). Accordingly, the proposed project will have no effects on riparian habitat or other sensitive natural communities.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
3. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒

Discussion: According to maps and research prepared for the Draft Environmental Impact Report for the 2027 Kerman General Plan, there are no federally protected wetlands on the site, nor will the development project affect any protected wetlands. Accordingly, the project will have no impact on this resource.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
4. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐

Discussion: According to information contained in the Draft Environmental Impact for the 2027 Kerman General Plan, the site is not within or adjacent to any known wildlife migration or nursery sites. Therefore, there will be no impact in this category.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒

Discussion: There are no local policies or ordinances in Kerman protecting biological resources.

6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local,

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
regional, or state habitat conservation plan?	☐	☐	☐	☒

Discussion: There are no adopted habitat conservation plans that apply to the project site.

V. CULTURAL RESOURCES --
Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
1. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☒	☐

Discussion: Based on information contained in the Draft Environmental Impact report for the 2027 Kerman General Plan, there are no known historical resources present on or adjacent to the project site. Further, the City has consulted with area Native American tribes as required by California Public Resources Code Section 21084.2 and received no information on the presence of tribal artifacts or areas of concern pertaining to the project site. The site has been been used for growing crops for decades, which has likely resulted in the destruction or removal of any historical resources. Based on these circumstances, the project is expected to have a less than significant impact on historical resources.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
2. Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☒	☐

Discussion: Due to past disturbance of the site's soils (particularly from agricultural activities) it is unlikely that any human remains exist at the site. However, should any human remains be discovered during grading and construction, the law requires that the Fresno County Coroner must be notified immediately (the Coroner has two working days to examine the remains and 24 hours to notify the Native American Heritage Commission [NAHC] if the remains are Native American). The most likely descendants then have 24 hours to recommend proper treatment or disposition of the remains, following the NAHC guidelines).

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
VI. ENERGY. Would the project:				
1. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐

Discussion: Buildings constructed on the site will comply with California Green Building Code requirements as well as Title 24 standards for energy efficiency. In addition, single family homes constructed beginning in 2020 must be fitted with solar panels, further improving energy efficiency. This will reduce the project's impacts on energy resources to a less than significant level.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
2. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

Discussion: See item VI.1. All uses and buildings will be contructed to be compliant with California's current standards for renewable energy and energy efficiency.

VII. GEOLOGY AND SOILS --
Would the project:

Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

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

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
	☐	☐	☒	☐

Discussion: While Kerman is located in an area that is subject to ground shaking from earthquakes, the distance to faults that will be the likely cause of ground motion is sufficient so that potential impacts are reduced. The City requires all new structures in the community to be built consistent with Zone II seismic standards of the Uniform Building Code. Development of the site must comply with this requirement.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
2. Strong seismic ground shaking?	☐	☐	☒	☐

Discussion: See response to VI. 1. above. With incorporation of Zone II seismic standards, the potential for significant impacts to urban development due to seismic ground shaking will be minimal.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
3. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐

Discussion: While the potential for ground failure at the site is low, the project will be required to prepare an engineered soils study that will make recommendations as to preparation of site soils and foundation systems used for structures on the site. Implementation of these recommendations will reduce the potential of impacts related to ground failure to a less than significant level.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
4. Landslides?	☐	☐	☒	☐

Discussion: The project site is level. There is no realistic possibility of landslide activity on the site.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
5. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐

Discussion: Absorption rates, drainage patterns, and the rate and amount of surface runoff will change as a result of the project, due to an increase in the amount of impervious surfaces (streets, buildings, parking lots, etc.). Standard required construction practices and compliance with City ordinances and regulations, *The Uniform Building Code,* and adherence to professional engineering design approved by the City will mitigate potential soil erosion impacts from the project.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
6. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒

Discussion: Soils on the project site are considered to be stable. Further, implementation of the recommendations of an engineered soils study required for the project will reduce the potential for stability issues to a less than significant level.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
7. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐

Discussion: According to the Soil Survey of Western Fresno County, the site is underlain by two soil types: "Hesperia Sandy Loam, Moderately Deep" and a smaller area of "Tujunga Sandy Loam, 0 – 3% slopes".

For Hesperia Sandy Loam, limitations for urban development are moderately slow permeability, moderate to severe foundation support, and moderately slow substratum permeability.

Limitations for urban development on Tujunga Sandy Loam are severe for foundation support and severe for soil pressure.

These limitations can be mitigated in several ways, including importation of more suitable soil, soil stabilization, special foundation design, or a combination of these.

The project will be required to prepare an engineered soils study that will detail soil limitations and recommendations for site soil preparations and appropriate foundation techniques.

8. Have soils incapable of adequately supporting the use of septic tanks or

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

Discussion: The project will be connected to the City of Kerman's sewer system. Accordingly there will be no septic-related impacts to site soils.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
9. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

Discussion: Although there are no known paleontological resources located in the project area (the result of location and past use for intensive agricultural practices), development of the site does have the potential to directly or indirectly destroy a paleontological resource. If any cultural or paleontological materials are uncovered during construction, existing law requires that work in the area shall halt until professional cultural resources evaluation and/or data recovery excavation can be planned and implemented.

VIII. GREENHOUSE GAS EMISSIONS: Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
1. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? 2. Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	☒	☐	☐	☐

Discussion: The City required the preparation of an Air Quality/Greenhouse Gas analysis, attached as Appendix B. Implementation of the proposed project would

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

contribute to increases of greenhouse gas (GHG) emissions that are associated with global climate change. Short-term and long-term GHG emissions associated with the development of the proposed project are discussed in greater detail, as follows:

Short-term Construction GHG Emissions

Based on the modeling conducted in the Study, annual emissions of GHGs associated with construction of the proposed 144-lot single-family residential development would total approximately 521.4 MTCO2*e* (Metric Tons of Carbon Dioxide equivalent). The future construction of the multi-family residential and commercial uses would generate approximately 418.3 and 398.2 MTCO2*e*.

In total, buildout of the project would generate a total of 1,337.9 MTCO2e. There would also be a small amount of GHG emissions from waste generated during construction; however, this amount is speculative. Actual emissions would vary, depending on various factors including construction schedules, equipment required, and activities conducted. Assuming an average project life of 30 years, amortized construction-generated GHG emissions for the proposed project would total approximately 44.6 MTCO2*e*/yr. Amortized construction-generated GHG emissions were included in the operational GHG emissions inventory for the evaluation of project-generated GHG emissions.

Long-term Operational GHG Emissions

Estimated operational GHG emissions associated with the proposed 144-lot single-family residential development, as well as, future buildout of the proposed project, including the proposed future multi-family residential development and commercial land uses, are discussed in greater detail, as follows:

<u>Proposed 144-Lot Single-Family Residential Development</u>

Estimated operational GHG emissions would total approximately 2,180.8 MTCO2*e*/year in 2021 and approximately 1,763.1 MTCO2*e*/year in 2030. With the inclusion of amortized construction emissions, operational GHG emissions would total approximately 2,198.2 MTCO2*e*/year in 2021 and approximately 1,780.5 MTCO2*e*/year in 2030. Based on this estimate the calculated GHG efficiency for the proposed project would be 5.5 MTCO2e/SP/yr in 2021 and 4.4 MTCO2e/SP/yr in 2030. The GHG efficiency for the proposed project would exceed the thresholds of 4.3 MTCO2e/SP/yr in 2021 and 2.5 MTCO2e/SP/yr in 2030.

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

Proposed Project Buildout

Estimated operational GHG emissions associated with the buildout of the proposed project, (including proposed residential and commercial land uses) would total approximately 6,692.4 MTCO2*e*/year in 2022 and approximately 5,630.1 MTCO2*e*/year in 2030. The Study demonstrated that roughly 84 percent of emissions are associated with the operation of motor vehicles. Energy use and area sources (e.g., landscaping, hearth devices) would account for roughly 15 percent of the total GHG emissions. The remaining approximately one percent of project-generated GHG emissions would be associated with water use and waste generation.

With the inclusion of amortized construction emissions, operational GHG emissions would total approximately 6,737.0 MTCO2*e*/year in 2022 and approximately 5,674.7 MTCO2*e*/year in 2030.

Based on this estimate and assuming a total buildout population of 885 residents and employees, the calculated GHG efficiency for the proposed project would be 7.6 MTCO2e/SP/yr in 2022 and 6.4 MTCO2e/SP/yr in 2030. The GHG efficiency for the proposed project would exceed the thresholds of 4.1 MTCO2e/SP/yr in 2022 and 2.5 MTCO2e/SP/yr in 2030.

GHG Emissions Summary

Increases in operational GHG emissions associated with the proposed 144-lot single-family residential development, as well as, future buildout of the proposed project, including the future multi-family residential development and commercial land uses, would exceed applicable significance thresholds. As a result, the proposed project would result in a significant increase in GHG emissions that could conflict with the State's GHG-reduction targets.

The proposed project would be designed to meet current building energy-efficiency standards, which includes measures to reduce overall energy use, water use, and waste generation. The project would also be designed to promote the use of alternative means of transportation, such as bicycle use, and to provide improved pedestrian access that would link the project site to nearby land uses.

Additional measures would also be included, such as the prohibited use of wood-burning fireplaces. These improvements would help to further reduce the project's GHG emissions and would also help to reduce community-wide GHG emissions. However, even with implementation of these measures, project- generated GHG emissions could

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

still exceed applicable significance thresholds and conflict with GHG-reduction planning efforts. This impact would be considered potentially significant.

Level of Significance after Mitigation

The proposed project would be designed to meet current building energy-efficiency standards, which includes measures to reduce overall energy use, water use, and waste generation. The project would also be designed to promote the use of alternative means of transportation, such as bicycle use, and to provide improved pedestrian access that would link the project site to nearby land uses. Additional measures would also be included, such as the prohibited use of wood-burning fireplaces.

Implementation of Mitigation Measure III-1 would also require compliance with SJVAPCD Rule 9510, which would include the incorporation of mitigation measures to reduce operational emissions from motor vehicles, energy use, and area sources. These measures would also help to reduce operational emissions of GHGs.

Furthermore, it is important to note that Mitigation Measure III-2.1, would require the project proponent to enter into a Voluntary Emissions Reduction Agreement (VERA) with the Valley Air District. The VERA would result in additional reductions of operational emissions through various means, including implementation of additional on-site or off-site mitigation and/or the funding of off-site mitigation. These additional measures have not yet been identified, but would likely have the added benefit of reducing project-generated GHG emissions.

Implementation of Mitigation Measure III-3.1 would reduce construction related emissions from diesel- fueled off-road and on-road vehicles, which would help to reduce short-term emissions of black carbon. Because the GHG emission reductions to be achieved through implementation of the Mitigation Measures III-1 and III-2.1 cannot be quantified at this time, increased GHG emissions associated with the proposed project would be considered to have a significant impact on the environment that could also conflict with GHG-reduction planning efforts, even with implementation of proposed mitigation measures.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
IX. HAZARDS AND HAZARDOUS MATERIALS: Would the project:				
1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒

Discussion: The project consists of the development of residential and neighborhood-commercial uses. None of these uses typically involve the routine transport or disposal of hazardous materials. Therefore, there will be no impact.

2. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐

Discussion: See response in VII. a. There are no aspects of the proposed project that would create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒

Discussion: There are no existing or proposed schools within one quarter mile of the site.

4. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
significant hazard to the public or the environment?	☐	☐	☐	☒

Discussion: See response to VIII 2, above. The project site is not included on any list of known hazardous materials sites compiled pursuant to Government Code Section 65962.5.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
5. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

Discussion: There are no airports within two miles of the site.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
6. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐

Discussion: Development of the site would not impair implementation with any adopted emergency evacuation plans. The project will widen Siskiyou Avenue north of Whitesbridge Road, to ensure proper access to the development.

Further, Kerman police and fire department officials have been involved in the review of the project, to ensure the site is accessible to emergency vehicles.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
7. Expose people or structures either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.	☐	☐	☐	☒

Discussion: There are no wildlands on or adjacent to the subject site that might be the source of a fire.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
X. HYDROLOGY AND WATER QUALITY -- Would the project:				
1. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐

Discussion: The project will comply with all City ordinances and standards to assure proper grading and drainage. Compliance with all local, state, and federal regulations will prevent violation of water quality standards or waste discharge requirements. The project will be required to prepare a grading and drainage plan for review and approval by the City Engineer, prior to issuance of building permits. Storm drain planning for Kerman is provided by the Kerman Storm Drainage Master Plan. The Plan divides Kerman into a number of storm drain planning areas and indicates the project site is within Area "M". Currently there are no storm drain facilities developed in this area. Accordingly, the project will be required to install a temporary storm drain basin on site until permanent facilities are developed.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
2. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.	☐	☐	☒	☐

Discussion: Development of the site will result in an increased demand for water. However, this demand will be offset with a reduction in water demand with the elimination of crops being grown on the site. Kerman relies on groundwater underlying the planning area for domestic water supplies.

Based on information in the Kerman Water Master Plan, potential water demand in the project is estimated as follows:

Single family dwelling 750 gallons per day (gpd) per unit
Multi family dwelling 750 gallons per day (gpd) per unit
Neighborhood commercial 2,200 gallons per day per acre
Park 1,000 gallons per day per acre

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

Table 1 provides estimated water demand for the project.

Table 1: Estimated Project Water Demand

Land Use	Water Demand Formula	# of units or acres	Water Demand
Single family residential	750 gallons per day (gpd) per unit	144 dwellings	108,000 gpd
Multi family residential	750 gallons per day (gpd) per unit	Estimated maximum 88 units (4.4 acres x 20 units per acre)	66,000 gpd
Neighborhood commercial	2,200 gallons per day per acre	3.1 acres	6,820 gpd
Park	1,000 gallons per day per acre	1.3 acre	1,300 gpd
TOTAL			182,120 gpd

The City's Engineering and Public Works Departments indicate there is adequate capacity in the City's water system and groundwater supply to accommodate the project.

In order to reduce demands on the groundwater system, the project will be required to comply with several existing standards, including:

- Compliance with the State's Model Water Efficient Landscape Ordinance. Under this ordinance, landscaping (which typically demands the greatest amount of water for urban development) must demonstrate a 45 – 55% reduced water demand over "business as usual".
- Low flow toilets
- Low flow shower heads
- Dwellings will be fitted with water meters
- During construction, hoses must be fitted with automatic shutoff devices (spray gun)

The project will also include installation of a storm drain basin. Waters entering this basin will function to recharge ground water resources under the site. It is expected that implementation of these requirements will reduce the impact of development to a less than significant level.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i. result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐

Discussion: The project will change drainage patterns of the site through the installation of impervious surfaces and structures (streets, buildings, driveways, parking lots, etc.) and will be required by the City to be graded to facilitate proper stormwater drainage. Standard construction practices and compliance with state and federal regulations, City ordinances and regulations, *The Uniform Building Code,* and adherence to professional engineering design approved by the City of Kerman will reduce or eliminate drainage impacts from the project. The project will be required to prepare an engineered grading and drainage plan that must be reviewed and approved by the Kerman City Engineer, prior to construction. There are no streams or rivers on or nearby the site that will be affected by the project.

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite.	☐	☐	☐	☒

Discussion: See response to IX. 3. above. The project would increase the amount of impervious surface area but will not significantly affect drainage or flooding. A grading and drainage plan must be prepared by the applicant and submitted for review and approval by the City Engineer, prior to construction. There are no streams or rivers on or near the site.

iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

Discussion: See discussion under IX. 3 and 4, above. The project will generate stormwater runoff, with the creation of impervious surfaces (streets, buildings, driveways, walkways, etc.). The project will be required to install a temporary on-site basin until a permanent stormwater basin is developed, consistent with the Kerman Stormwater Master Plan. The applicant will be required to submit an engineered grading and drainage plan for review and approval by the City Engineer, prior to issuance of building permits, to ensure proper drainage.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
iv. Impede or redirect flood flows?	☐	☐	☒	☐

Discussion: According to Flood Map No. 06019C2075H, the project site and surrounding area is located within Flood Zone "X" – defined as "Other Areas: Areas determined to be outside the 0.2% annual chance floodplain". Accordingly, the chance of flooding at the site is remote.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
4. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒

Discussion: According to Flood Map No. 06019C2075H, the project site and surrounding area is located within Flood Zone "X" – defined as "Other Areas: Areas determined to be outside the 0.2% annual chance floodplain". Accordingly, the chance of flooding (and therefore release of pollutants due to flooding) at the site is remote.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
5. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Discussion: The project will be required to prepare and submit a water quality control plan to be implemented during construction, as required by the National Pollutant Discharge Elimination System. This plan must be reviewed and approved by the City Engineer prior to start of construction. In compliance with the Sustainable Groundwater Management Act of 2014, the City of Kerman is participating in preparation of the Sustainable Groundwater Management Plan for the North Kings sub basin. Upon adoption, future development in the City must be compliant with the policies and standards of this plan.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
IX. LAND USE AND PLANNING - Would the project:				
1. Physically divide an established community?	☐	☐	☐	☒

Discussion: The site is located on the north edge of Kerman and is currently in agricultural use (field crops) while adjoining lands to the west, north and east are primarily agricultural as well. The site is within Kerman's Sphere of Influence and has been designated for urban development by the General Plan since 2007. Development of the site would not physically divide an established community. There will be no impact.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
2. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

Discussion: There are no land use plans, policies or regulations applicable to the site for the purposes of avoiding or mitigating an environmental effect. The site is within Kerman's Sphere of Influence and has been designated for urban development by the General Plan for many years.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XII. MINERAL RESOURCES -- Would the project:				
1. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒

Discussion: A review of maps maintained by the State of California Department of Conservation indicates that site is not known to harbor mineral resources that would be valuable to the region.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
2. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Discussion: See response to XI. 1.

XIII. NOISE -- Would the project result in:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
1. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐

Discussion: Development on the site can be expected to increase ambient noise levels in the project vicinity. In the short term, noise levels would be raised during construction of the project by the operation of heavy equipment and other associated activities. Because construction noise would generally occur intermittently on Monday through Saturdays during daylight hours, the impact of noise on surrounding land uses is not expected to be significant.

In the long term, any development would add traffic and other sources of noise that will somewhat increase the ambient noise levels in the vicinity. However, these noise levels should be relatively consistent with those experienced in the area and other existing developed areas of Kerman. Further, the project will be required to install a masonry wall and landscaping along Highway 180, mitigating impacts of noise generated by traffic on the highway. Any impact will be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
2. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

Discussion: See response to XII. 1. above.

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

Discussion: The site is not located within an airport land use plan, or within two miles of an airport. There will be no impact.

XIV. POPULATION AND HOUSING
-- Would the project:

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

Discussion: Amendment of the site's land use and zoning designations will not affect Kerman's population growth to a significant degree. The project is not considered to be growth-inducing - rather it will provide needed new housing that will serve the existing and projected population of the community. Based on the per-unit average of 3.74 persons (California Department of Finance, 2018), were the site to be developed with 232 units (144 single family and up to 88 multi family units) a population of approximately 870 persons would be anticipated.

2. Displace substantial numbers of existing people or housing,

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion: The site is currently in agricultural use and there would be no housing or persons removed as a result of development.

XV. PUBLIC SERVICES

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

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
i. Fire protection?	☐	☐	☒	☐

Discussion: Kerman contracts with the North Central Fire District for fire prevention and protection services. The district headquarters and main station are located on the west side of Kerman along the north side of Kearney Boulevard, west of Del Norte Avenue. The District owns and operates four other stations in various locations, closer to the City of Fresno.

The project will add to the number of "customers" served by the District and will connect to the City's water system and be required to install fire hydrants situated around the site – at locations specified by the Fire District. In addition, new dwellings are now required by the Uniform Building Code to have fire sprinklers. The Fire District will also be involved in review of the project to ensure it meets standards for safety and access. Finally, the project be required to pay the District's impact fees. With the provisions for the foregoing requirements, development of the site would have a less than significant impact on fire protection services.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
ii. Police protection?	☐	☐	☒	☐

Discussion: Upon annexation, the project site will receive police protection services by the Kerman Police Department. The Department is headquartered at City Hall at 850 S. Madera Avenue. At the present time, the Kerman Police Department has 21 full time officers, 3 full time civilians and one full time animal control officer.

The project will add to the work load for the Police Department, however this is not expected to have a significant impact on the Department's ability to respond to emergencies with its current personnel and equipment.

The project will pay public safety impact fees to the City that will be used to improve police services in the community. Further, the Department will be involved in the review of the design of the project to ensure it meets safety standards.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
iii. Schools?	☐	☐	☒	☐

Discussion: The project is within the Kerman Unified School District (K.U.S.D.) The District operates a high school, a middle school, an alternative education school, three elementary schools and a preschool, serving Kerman and the surrounding area.

Based on a per-unit enrollment rate of 0.963 students per dwelling (KUSD) development of the site with up to 232 units could be expected to generate nearly 225 children. Elementary school-age students generated within the project would attend Sun Empire Elementary School. According to information provided by the school district, were the project developed within the next few years (prior to 2023) this could have an impact on that particular campus, though not one that is insurmountable, according to District officials. Beyond that time frame the District is planning to construct an additional elementary school on the west side of Highway 145, north of Highway 180 (east of the project site).

To offset the impacts of new development the school district charges school impact fees against new residential, commercial and industrial development. The District's current fees are $3.48 per square foot for dwellings. With the generation of impact fees the project is expected to have a less than significant impact on schools. Further, the City will involve the District in its review of any development projects to ensure all impacts are properly mitigated.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
iv. Parks?	☐	☐	☒	☐

Discussion: Development of the site will increase demands on Kerman's parks and recreation system. The nearest public park to the site is Katey's Kids Park (southeast corner of Gateway Blvd. and Park Avenue) covering approximately 2.9 acres. This neighborhood park features a playground, hill climbing wall & slide, natural paths, interpretive trail, picnic areas with log picnic shelters, lots of trees, open grass area, restroom and lighting.

The project will include a 1.3-acre neighborhood park within walkable distance of most dwellings. The project will also be required to pay the City's parks impact fee. Funds generated by this assessment are used by the City to purchase sites for new parks and to make improvements to existing park facilities. Payment of these fees and inclusion of the neighborhood park will reduce the project's impact on park and recreation facilities to a less than significant level.

v. Other public facilities?	☐	☐	☐	☒

Discussion: No other public facilities that are not otherwise discussed elsewhere in this study are expected to be impacted by the project.

XVI. RECREATION --

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

Discussion: See response to XIV. 1. (Parks) above. The project provides a 1.3-acre neighborhood park and will be required to pay the City's parks impact fees, which are used to acquire additional parks and recreation facilities. These circumstances will combine to reduce impacts of the project to a less than significant level.

2. Does the project include recreational facilities or require the construction

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

Discussion: See response to XIV. 1. (Parks) above. The project includes a 1.3-acre neighborhood park that is centrally located within the site. The presence of this facility will not have an adverse effect on the environment.

XVII. TRANSPORTATION/TRAFFIC --
Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
1. Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐

Discussion: The project will comply with Kerman's policies and ordinances concerning the City's circulation system, including transit, roadway, bicycle and pedestrian facilities. In addition to the installation of roadways and payment of impact fees, the project will install sidewalks throughout the subdivision (to facilitate walking) and bicycle lanes along the project's Siskiyou Avenue frontage (designated as a Collector Roadway within the Kerman General Plan's Circulation Element). Finally, residents and visitors to the site will have access to the Kerman Transit bus (known as Dial-A-Ride). In addition, Fresno County Rural Transit Agency (FCRTA) operates the Westside Transit with services to all of the west side cities. Additional analysis concerning the project's circulation impacts is found below in Section XVII 2.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
2. Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)	☐	☐	☒	☐

Discussion: See response to XV. 1. Compliance with Section 15064.3 is not required until September, 2019. This section requires cities to assess potential circulation impacts using the Vehicles Miles Traveled method of measuring traffic impacts. For the time

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

being, the City is utilizing the "Level of Service" method prescribed by the Kerman Circulation Element

The project will add traffic to local roadways, including Whitesbridge Road (State Highway 180) and Siskiyou Avenue. The City required a Traffic Impact Study (TIS) be prepared to predict potential traffic impacts that would result from the project. A copy of the traffic study (prepared by JLB Traffic Engineering) is attached as Appendix C. The study documented traffic conditions at several phases:

- Existing (present day) traffic conditions
- Traffic conditions with the project
- Near term plus project traffic conditions
- Cumulative year 2038 (without project)
- Cumulative year (2038 plus project)

The site abuts Whitesbridge Road (State Highway 180) along the south, and Siskiyou Avenue along the west. Whitesbridge Road is designated an "Arterial" roadway by the Circulation Element of the 2027 Kerman General Plan, while Siskiyou Avenue is designated a Collector Roadway.

The TIS modeled conditions at the following intersections and roadway segments:

1. Siskiyou Avenue / Whitesbridge Avenue (State Route 180)
2. Project Driveway / Whitesbridge Avenue (State Route 180)
3. Del Norte Avenue / Whitesbridge Avenue (State Route 180)
4. Madera Avenue (State Route 145) / Whitesbridge Avenue (State Route 180)
5. Siskiyou Avenue / Kearney Boulevard

Intersection functions were evaluated based on levels of service standards within the Kerman Circulation Element, which prescribes a system to rank how well intersections and roadway segments function. The Level of Service "C" is the minimum desirable level of function for intersections. The study assigned trip distributions based on the Fresno COG Project Select zone, the existing roadway network, engineering judgment, residential and commercial densities and the Kerman Circulation Element.

The study estimates that buildout of the site (including single and multi family residential along with the neighborhood commercial component will generate 6,868 daily vehicle trips and a maximum of 564 peak hour trips during the PM (afternoon) peak hour.

The study found that all study intersections were functioning at a Level of Service "C" or above at the present time.

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

Existing Conditions Plus Project

The study found that when traffic generated by the project is added to the study intersections, the intersection of Whitesbridge and Siskiyou would exceed Level of Service thresholds during both morning and afternoon peak travel times. To improve operations at this intersection the study proposes the following measures:

- Modify the westbound through-right lane to a through lane
- Add a westbound right turn lane
- Modify the traffic signal to accommodate the added lane

Near-Term plus Project

This phase analyzed traffic conditions when other approved projects or projects determined to be in the development pipeline in the area are factored into the study.

The study found that the intersections of Whitesbridge and Siskiyou and Whitesbridge and Del Norte would exceed Level of Service thresholds during one or both peak travel times. To improve operations at this intersection the study proposes the following measures:

• Siskiyou Avenue / Whitesbridge Avenue:

- Modify the eastbound right-turn lane to a through right lane with a receiving lane east of Siskiyou Avenue;
- Modify the westbound through-right lane to a through lane;
- Add a second westbound through lane with a receiving lane west of Siskiyou Avenue;
- Add a westbound right-turn lane;
- Modify the northbound through-right lane to a through lane;
- Add a northbound right-turn lane;
- Modify the traffic signal to implement overlap phasing of the northbound right-turn with the westbound left-turn; and
- Modify the traffic signal to accommodate the added lanes.

• Del Norte Avenue / Whitesbridge Avenue:

- Add a second eastbound through lane with a receiving lane east of Del Norte Avenue;
- Add a second westbound through lane with a receiving lane west of Del Norte Avenue;
- Modify the northbound through-right lane to a through lane;

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

- Add a northbound right-turn lane ; and
- Modify the traffic signal to accommodate the added lanes.

The study also found the intersection of Kearney Blvd. and Siskiyou Avenue will exceed LOS for the AM peak hour. Recommended measures include:

- Modify the northbound through-right lane to a through lane
- Add a northbound right-turn lane

Cumulative Year 2038 (No Project)

This analysis modeled conditions in the year 2038 (twenty years into the future) without traffic that would be added by the project. The analysis found that the intersections of Whitesbridge/Siskiyou and Whitesbridge/Del Norte would exceed Level of Service standards. Measures to mitigate these conditions are listed as:

• Siskiyou Avenue / Whitesbridge Avenue:

- Add a second eastbound through lane with a receiving lane east of Siskiyou Avenue;
- Modify the westbound through-right lane to a through lane;
- Add a second westbound through lane with a receiving lane west of Siskiyou Avenue;
- Add a westbound right-turn lane;
- Modify the northbound through-right lane to a through lane;
- Add a northbound right-turn lane;
- Modify the traffic signal to implement overlap phasing of the northbound right-turn with the westbound left-turn; and
- Modify the traffic signal to accommodate the added lanes.

• Del Norte Avenue / Whitesbridge Avenue:

- Modify the eastbound through-right lane to a through lane;
- Add a second eastbound through lane with a receiving lane east of Del Norte Avenue;
- Add an eastbound right-turn lane;
- Modify the westbound through-right lane to a through lane;
- Add a second westbound through lane with a receiving lane west of Del Norte Avenue;
- Add a westbound right-turn lane;
- Modify the northbound through-right lane to a through lane;
- Add a northbound right-turn lane;

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

- Modify the traffic signal to implement overlap phasing of the northbound right-turn with the westbound left-turn; and
- Modify the traffic signal to accommodate the added lanes.

Cumulative Year 2038 Plus Project Conditions

This analysis modeled conditions in the year 2038 (twenty years into the future) with traffic that would be added by the project. The analysis found that the intersections of Whitesbridge/Siskiyou and Whitesbridge/Del Norte would exceed Level of Service standards. Measures to mitigate these conditions are listed as:

Siskiyou Avenue / Whitesbridge Avenue:

- Add a second eastbound through lane with a receiving lane east of Siskiyou Avenue;
- Modify the westbound through-right lane to a through lane;
- Add a second westbound through lane with a receiving lane west of Siskiyou Avenue;
- Add a westbound right-turn lane;
- Modify the northbound through-right lane to a through lane;
- Add a northbound right-turn lane;
- Modify the traffic signal to implement overlap phasing of the northbound right-turn with the westbound left-turn; and
- Modify the traffic signal to accommodate the added lanes.

• Del Norte Avenue / Whitesbridge Avenue:

- Modify the eastbound through-right lane to a through lane;
- Add a second eastbound through lane with a receiving lane east of Del Norte Avenue;
- Add an eastbound right-turn lane;
- Modify the westbound through-right lane to a through lane;
- Add a second westbound through lane with a receiving lane west of Del Norte Avenue;
- Add a westbound right-turn lane;
- Modify the northbound through-right lane to a through lane;
- Add a northbound right-turn lane;
- Modify the traffic signal to implement overlap phasing of the northbound right-turn with the westbound left-turn; and
- Modify the traffic signal to accommodate the added lanes.

Fair Share Contribution

The traffic study has estimated the project's fair share contribution toward the cost of the foregoing mitigation measures as follows:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

Whitesbridge/Siskiyou: 24.18%
Whitesbridge/Del Norte: 24.01%
Whitesbridge/Madera: 12.34%
Kearney/Siskiyou: 14.13%

The applicant will be required to enter into an agreement with Caltrans for the fair share mitigation of traffic impacts resulting from the project. The applicant will be required by the City of Kerman to install street, bicycle and pedestrian improvements within and adjacent to the project, including, but not limited to, streets, road widening along Siskiyou Avenue, curbs, gutters, sidewalks, bike lanes along Siskiyou, street lamps and other improvements. With these requirements the project's impacts on circulation will be reduced to a Less Than Significant Level.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
3. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒

Discussion: There are no aspects of the project design that would increase hazards due to a design feature or incompatible uses.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
4. Result in inadequate emergency access?	☐	☐	☒	☐

Discussion: The project has been designed and reviewed by Kerman police and fire departments to ensure there is adequate emergency access into and from the site.

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

Discussion:

The site is not listed in the California Register of Historical Resources, or in any local register of historical resources. The site is flat and has been used for growing crops for decades. There are no waterways or other features on or adjacent the site that are typically known to have attracted settlement or other activities by Native Americans.

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

	Potentially Significant Impact	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
significance of the resource to a California Native American tribe.	☐	☐	☒	☐

Discussion:

As discussed above, there are no aspects of the site that indicate it has archaeological resources important to Native American tribes. The City conducted consultation with a list of tribes prepared by the Native American Heritage Commission, in compliance with the standards established by California Assembly Bill 52. No contact or request for consultations from tribes was received by the City.

XIX. UTILITIES AND SERVICE SYSTEMS: Would the project:

1. Require or result in the relocation or the construction of new or expanded water or wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐

Discussion: The project will not require or result in the relocation or the construction of new or expanded water or wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities that will result in environmental impacts that are not analyzed elsewhere in this document.

2. Are sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

Discussion:

See Section X.2. The project will increase demands on Kerman's water production and distribution system. The system consists of a series of wells, pump stations, treatment facilities and distribution lines. The system draws from the groundwater system underlying Kerman and the Central Valley.

The total existing production capacity of these wells is approximately 6,700 gallons per minute (gpm), however booster pumps can increase pressure by an additional 4,000 gpm. The current static water level in the wells is 120 to 130 feet. According to city staff, the depth to groundwater in Kerman has remained fairly stable over the past 10 to 15 years.

The annual water demand for 2015 (the most recent year for which data are available) was 897,000 gallons (compared with 1,168 million gallons in 2007 when the General Plan was adopted). This translates into 172 gallons per capita per day (versus 279 gallons per capita per day in 2007). This reduction in demand reflects the City's aggressive efforts at water conservation.

According to Kerman's Urban Water Management Plan (adopted in 2015), Kerman's water supply is sufficient to meet both "Single Dry Year" and "Multiple Dry Year" scenarios. However the Management Plan emphasizes that it is essential that the City continue its current efforts towards conservation, groundwater recharge and groundwater management. More information is available within the *Kerman Urban Water Management Plan*.

There is currently no municipal water service to the site. However, there is an existing 12-inch main line that runs under Siskiyou Avenue and terminates at Whitesbridge Avenue. The applicant will be required to extend this line to serve the project. The Public Works and Engineering Departments report there is adequate capacity in the water system to accommodate development of the site.

In order to conserve water resources, the project will be required to implement water conservation measures, including low flow toilets, low flow shower heads and low water-demand landscaping, as well as the installation of water meters with each dwelling and commercial use.

The project will also be required to pay the City of Kerman's water system impact fees. Funds accrued under this fee are used to make capital improvements to the City's water system, including conservation improvements.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
3. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐

Discussion: See response to XVIII. 1. above. Wastewater generated by the project can be accommodated by Kerman's existing wastewater treatment plant and its existing capacity. Based on information provided by the City Engineer, the proposed land uses within the project would be expected to generate the following amounts of effluent:

Table 2: Wastewater Generation

Land Use	Daily Effluent Generation	# of units	Effluent generated	Maximum Day
Single family dwelling	1,400 gallons per day per acre (gpdac)	22.5 acres	31,500 gpd (gallons per day)	63,000 gpd
Multi family dwelling	3,600 gpdac	4.4 units	15,840 gpd	31,680
Neighborhood commercial	1,000 gpdac	3.1 acres	3,100 gpd	6,200
			50,440 gpd	100,880

Kerman operates a Wastewater Treatment Plant that provides a secondary level of treatment, located south of Church Avenue on the Del Norte Avenue alignment, about one mile southwest of the downtown area. The plant was designed with a hydraulic capacity of approximately 2.0 million gallons per day (mgd). The average daily dry weather flow in recent months is 946,000 gallons per day. This is a reduction from 1.1 mgd in the mid 2000's and results from water conservation efforts of the City.

According to information shown in Table 2, the project will exhibit a typical effluent generation of nearly 50,500 gallons per day, with a peak generation approximately twice that (100,880 gallons per day). This level of effluent can be accommodated by Kerman's wastewater treatment plant, as well as collection system. The project will be required to install improvements to the sewer system, including a new sewer main along the project's Siskiyou Avenue frontage and collection lines within the subdivision. The project will

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

also pay impact fees to the City of Kerman. These fees are utilized by the City to make capital improvements to the sewer system.

4. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐

Discussion: The City of Kerman contracts with Mid Valley Disposal (headquartered in Kerman) for solid waste and recycling collection services. Mid Valley Disposal hauls non-recyclable materials to American Avenue Landfill located southwest of Kerman, near the City of San Joaquin. According to information provided by Fresno County, the landfill has a life span of 24 to 32 years, depending on volumes of waste it receives.

Mid Valley Disposal also provides recycling and yard waste pickup that includes paper, glass, metals, plastics and compostable yard waste.

In 2017 the City was diverting approximately 52% of its solid waste stream through recycling and composting programs, thereby exceeding the State's mandate that at least 50% of solid waste being diverted.

Development of the site will generate waste that is consistent with that generated by other existing residential and commercial developments in the community. Residents and customers will be provided with recycling, green waste and solid waste receptacles.

The project will also generate waste during construction of the proposed development, and the project contractor will be required to comply with California's construction and demolition debris recycling requirements to ensure that recyclable/reuseable materials are diverted from area landfills.

5. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

Discussion: See response to XIV. 4. All construction waste generated by development of the site will be recycled or disposed of properly. Future residents and tenants on site will be required to participate in Kerman's solid waste and recycling programs.

XX. WILDFIRE. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
1. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

Discussion: The site is not located in or near any State responsibility areas or lands classified as very high fire hazard severity zone. There will be no impact.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
2. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire? post-fire slope instability, or drainage changes?	☐	☐	☐	☒

Discussion: The project site is level and not subject to winds or other factors that would expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
3. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒

Discussion: The site is level, not forested and therefore not subject to wildfire. No infrastructure will be required to mitigate the potential for wildfire.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
4. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

Discussion: The site is level and not subject to flooding or landslides resulting from post-fire slope instability or slope changes.

XX. MANDATORY FINDINGS OF SIGNIFICANCE --

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

	Potentially Significant <u>Impact</u>	**Less Than Significant with <u>Mitigation</u>**	**Less Than Significant <u>Impact</u>**	**No <u>Impact</u>**
3. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

CHECLIST PREPARED BY:

Karl Schoettler

Name

February 12, 2019

Date

Appendix A: Mitigation Measures

Air Quality

Air Quality I

a. Comply with SJVAPCD's Indirect Source Review Rule (Rule 9510). Operation of the proposed project shall comply with SJVAPCD's ISR rule (Rule 9510). Prior to final discretionary project approval of the project, the Project applicant shall submit an Air Impact Assessment (AlA) application to the SJVAPCD. The AIA shall be submitted to and approved by the SJVAPCD prior to issuance of construction/grading permits by the City of Kerman. The AIA shall include: an estimate of operational emissions prior to the implementation of mitigation measures; a list of the mitigation measures to be applied to the project; an estimate of emissions for each applicable pollutant for the project and each phase thereof, following the implementation of mitigation; and a calculation of the applicable off-site fee, if required by Rule 9510. Measures that may be implemented to reduce operational emissions may include, but are not limited to, the following:

   a. The installation of wood-burning hearth devices shall be prohibited.
   b. Provide bus turnouts and transit improvements (e.g., transit shelters, benches, route signs, street lighting) where requested by the local and/or regional transit agency (e.g., Fresno County Rural Transit Agency).
   c. For single-family residential uses, offer buyers optional packages that incorporate photovoltaic solar systems.
   d. Install water-efficient appliances, toilets, faucets, and shower heads, where applicable.
   e. Utilize green building materials (materials which are resource efficient, recycled, and sustainable) available locally if possible.
   f. Provide shade tree planting in parking lots to reduce evaporative emissions from parked vehicles. Design should provide 50% tree coverage within 10 years of construction using low ROG emitting, low maintenance native drought-resistant trees.
   g. Plant drought tolerant native shade trees along southern exposures of buildings to reduce energy used to cool buildings in summer.
   h. For single-family residential project components, incorporate outdoor electrical outlets to encourage the use of electric landscape maintenance equipment.
   i. Install high-efficiency heating and cooling systems.
   j. Utilize high-efficiency gas or solar water heaters.
   k. Utilize built-in energy-efficient appliances (i.e., Energy Star rated).
   l. Utilize double- or triple-paned windows.
   m. Utilize low energy street lights (i.e., sodium, light-emitting diode [LED].
   n. Utilize energy-efficient interior lighting.
   o. Install low water consumption landscape. Use native plants that do not require watering after they are well established or minimal watering during the summer months and are low ROG emitting.
   p. For the non-residential project component, provide a minimum of one designated parking space for alternatively fueled vehicles.

q. Use low-VOC content paints during construction and long-term facility maintenance. To the extent possible construction materials that are prefinished or that do not require the application of architectural coatings should be used.
r. Provide a bicycle and pedestrian access network that internally links all uses and connects all existing or planned external streets and bicycle and pedestrian facilities contiguous with the project site.
s. Provide on-site bicycle parking beyond those required by California Green Building Standards Code and related facilities to support long-term use (lockers, or a locked room with standard racks and access limited to bicyclists only).
t. Implement traffic calming improvements as appropriate (e.g., marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, median islands, mini-circles, tight corner radii, etc.)

Air Quality II

a. The mitigation measure for this item is contain in the Mitigation Measure for item III 1.

b. Implement a Voluntary Emissions Reduction Agreement (VERA) with the SJVAPCD to Reduce Operational Emissions of NOX. If deemed necessary, depending on the emissions reductions achieved via compliance with Rule 9510 (refer to the Mitigation Measure in Item III 1.) a VERA shall be entered into with the SJVAPCD to reduce operational emissions of NOX to less than 10 tons/year. Emission reductions may be achieved by use of newer, low-emission equipment, implementation of on-site or off-site mitigation, and/or the funding of off-site mitigation, through participation in the SJVAPCD's off-site mitigation program. The VERA shall be reviewed and approved by the SJVAPCD prior to issuance of construction/grading permits by the City of Kerman. The project proponent/owner shall submit to the City of Kerman Planning Department documentation confirming compliance with the VERA, prior to issuance of final discretionary approval (e.g., approval of the grading permit). Development and implementation of the VERA shall be fully funded by the project proponent/owner. With approval by SJVAPCD, the VERA may also be used to demonstrate compliance with emission reductions required by SJVAPCD's ISR Rule (Rule 9510).

Air Quality III

Mitigation Measures

1. On-road diesel vehicles shall comply with Section 2485 of Title 13 of the California Code of Regulations. This regulation limits idling from diesel-fueled commercial motor vehicles with gross vehicular weight ratings of more than 10,000 pounds and licensed for operation on highways. It applies to California and non-California based vehicles. In general, the regulation specifies that drivers of said vehicles:

   a) Shall not idle the vehicle's primary diesel engine for greater than 5 minutes at any location, except as noted in Subsection (d) of the regulation; and,

   b) Shall not operate a diesel-fueled auxiliary power system to power a heater, air conditioner, or any ancillary equipment on that vehicle during sleeping or resting in a sleeper berth for greater than 5.0 minutes at any location when within 1,000 feet of a restricted area, except as noted in Subsection (d) of the regulation.

2. Off-road diesel equipment shall comply with the 5 minute idling restriction identified in Section 2449(d)(2) of the California Air Resources Board's In-Use off-Road Diesel regulation. The specific requirements and exceptions in the regulations can be reviewed at the following web sites: www.arb.ca.gov/msprog/truck-idling/2485.pdf and ww.arb.ca.gov/regact/2007/ordiesl07/frooal.pdf.

3. Signs shall be posted at the project site construction entrance to remind drivers and operators of the state's 5 minute idling limit.

4. To the extent available, replace fossil-fueled equipment with alternatively-fueled (e.g., natural gas) or electrically-driven equivalents.

5. Construction truck trips shall be scheduled, to the extent feasible, to occur during non-peak hours.

6. The burning of vegetative material shall be prohibited.

7. The proposed project shall prepare a Dust Control Plan (DCP) in accordance with SJVAPCD Regulation VIII for the control of fugitive dust emissions. Regulation VIII can be obtained on the SJVAPCD's website at website URL: https://www.valleyair.org/rules/1ruleslist.htm. At a minimum, the following measures shall be incorporated as part of the DCP:

   a) All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover.

   b) All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.

   c) All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.

   d) With the demolition of buildings up to six stories in height, all exterior surfaces of the building shall be wetted during demolition.

   e) When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained.

   f) All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.) (Use of blower devices is expressly forbidden.)

g) Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.

h) On-road vehicle speeds on unpaved surfaces of the project site shall be limited to 15 mph.

i) Sandbags or other erosion control measures shall be installed sufficient to prevent silt runoff to public roadways from sites with a slope greater than one percent.

j) Excavation and grading activities shall be suspended when winds exceed 20 mph (Regardless of wind speed, an owner/operator must comply with Regulation VIII's 20 percent opacity limitation).

Transportation

Existing Conditions Plus Project

- Intersection of Whitesbridge and Siskiyou

- Modify the westbound through-right lane to a through lane
- Add a westbound right turn lane
- Modify the traffic signal to accommodate the added lane

Near-Term plus Project

• Siskiyou Avenue / Whitesbridge Avenue:

- Modify the eastbound right-turn lane to a through right lane with a receiving lane east of Siskiyou Avenue;
- Modify the westbound through-right lane to a through lane;
- Add a second westbound through lane with a receiving lane west of Siskiyou Avenue;
- Add a westbound right-turn lane;
- Modify the northbound through-right lane to a through lane;
- Add a northbound right-turn lane;
- Modify the traffic signal to implement overlap phasing of the northbound right-turn with the westbound left-turn; and
- Modify the traffic signal to accommodate the added lanes.

• Del Norte Avenue / Whitesbridge Avenue:

- Add a second eastbound through lane with a receiving lane east of Del Norte Avenue;
- Add a second westbound through lane with a receiving lane west of Del Norte Avenue;
- Modify the northbound through-right lane to a through lane;
- Add a northbound right-turn lane ; and

- Modify the traffic signal to accommodate the added lanes.

Kearney Blvd. and Siskiyou Avenue:

- Modify the northbound through-right lane to a through lane
- Add a northbound right-turn lane

Cumulative Year 2038 (No Project)

• Siskiyou Avenue / Whitesbridge Avenue:

- Add a second eastbound through lane with a receiving lane east of Siskiyou Avenue;
- Modify the westbound through-right lane to a through lane;
- Add a second westbound through lane with a receiving lane west of Siskiyou Avenue;
- Add a westbound right-turn lane;
- Modify the northbound through-right lane to a through lane;
- Add a northbound right-turn lane;
- Modify the traffic signal to implement overlap phasing of the northbound right-turn with the westbound left-turn; and
- Modify the traffic signal to accommodate the added lanes.

• Del Norte Avenue / Whitesbridge Avenue:

- Modify the eastbound through-right lane to a through lane;
- Add a second eastbound through lane with a receiving lane east of Del Norte Avenue;
- Add an eastbound right-turn lane;
- Modify the westbound through-right lane to a through lane;
- Add a second westbound through lane with a receiving lane west of Del Norte Avenue;
- Add a westbound right-turn lane;
- Modify the northbound through-right lane to a through lane;
- Add a northbound right-turn lane;
- Modify the traffic signal to implement overlap phasing of the northbound right-turn with the westbound left-turn; and
- Modify the traffic signal to accommodate the added lanes.

Cumulative Year 2038 Plus Project Conditions

This analysis modeled conditions in the year 2038 (twenty years into the future) with traffic that would be added by the project. The analysis found that the intersections of Whitesbridge/Siskiyou and Whitesbridge/Del Norte would exceed Level of Service standards. Measures to mitigate these conditions are listed as:

Siskiyou Avenue / Whitesbridge Avenue:

- Add a second eastbound through lane with a receiving lane east of Siskiyou Avenue;
- Modify the westbound through-right lane to a through lane;
- Add a second westbound through lane with a receiving lane west of Siskiyou Avenue;
- Add a westbound right-turn lane;

- Modify the northbound through-right lane to a through lane;
- Add a northbound right-turn lane;
- Modify the traffic signal to implement overlap phasing of the northbound right-turn with the westbound left-turn; and
- Modify the traffic signal to accommodate the added lanes.

• Del Norte Avenue / Whitesbridge Avenue:

- Modify the eastbound through-right lane to a through lane;
- Add a second eastbound through lane with a receiving lane east of Del Norte Avenue;
- Add an eastbound right-turn lane;
- Modify the westbound through-right lane to a through lane;
- Add a second westbound through lane with a receiving lane west of Del Norte Avenue;
- Add a westbound right-turn lane;
- Modify the northbound through-right lane to a through lane;
- Add a northbound right-turn lane;
- Modify the traffic signal to implement overlap phasing of the northbound right-turn with the westbound left-turn; and
- Modify the traffic signal to accommodate the added lanes.

Fair Share Contribution

The traffic study has estimated the project's fair share contribution toward the cost of the foregoing mitigation measures as follows:

Whitesbridge/Siskiyou: 24.18%
Whitesbridge/Del Norte: 24.01%
Whitesbridge/Madera: 12.34%
Kearney/Siskiyou: 14.13%

Appendix B

AIR QUALITY & GREENHOUSE GAS IMPACT ANALYSIS

AIR QUALITY & GREENHOUSE GAS IMPACT ANALYSIS

FOR

TRACT MAP 6236

KERMAN, CA

NOVEMBER 2018

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LIST OF COMMON TERMS & ACRONYMS

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

INTRODUCTION

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

PROPOSED PROJECT SUMMARY

The proposed project includes the near-term development of a 141-lot single-family residential development. Future development would also include an approximate 64-unit multi-family residential development, as well as, approximately 3.05 acres of commercial uses. The project is located at the northeast corner of West Whitesbridge Avenue and North Siskiyou Avenue in the City of Kerman. The proposed site plan is depicted in Figure 1.

AIR QUALITY

EXISTING SETTING

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

TOPOGRAPHY, METEOROLOGY, AND POLLUTANT DISPERSION

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

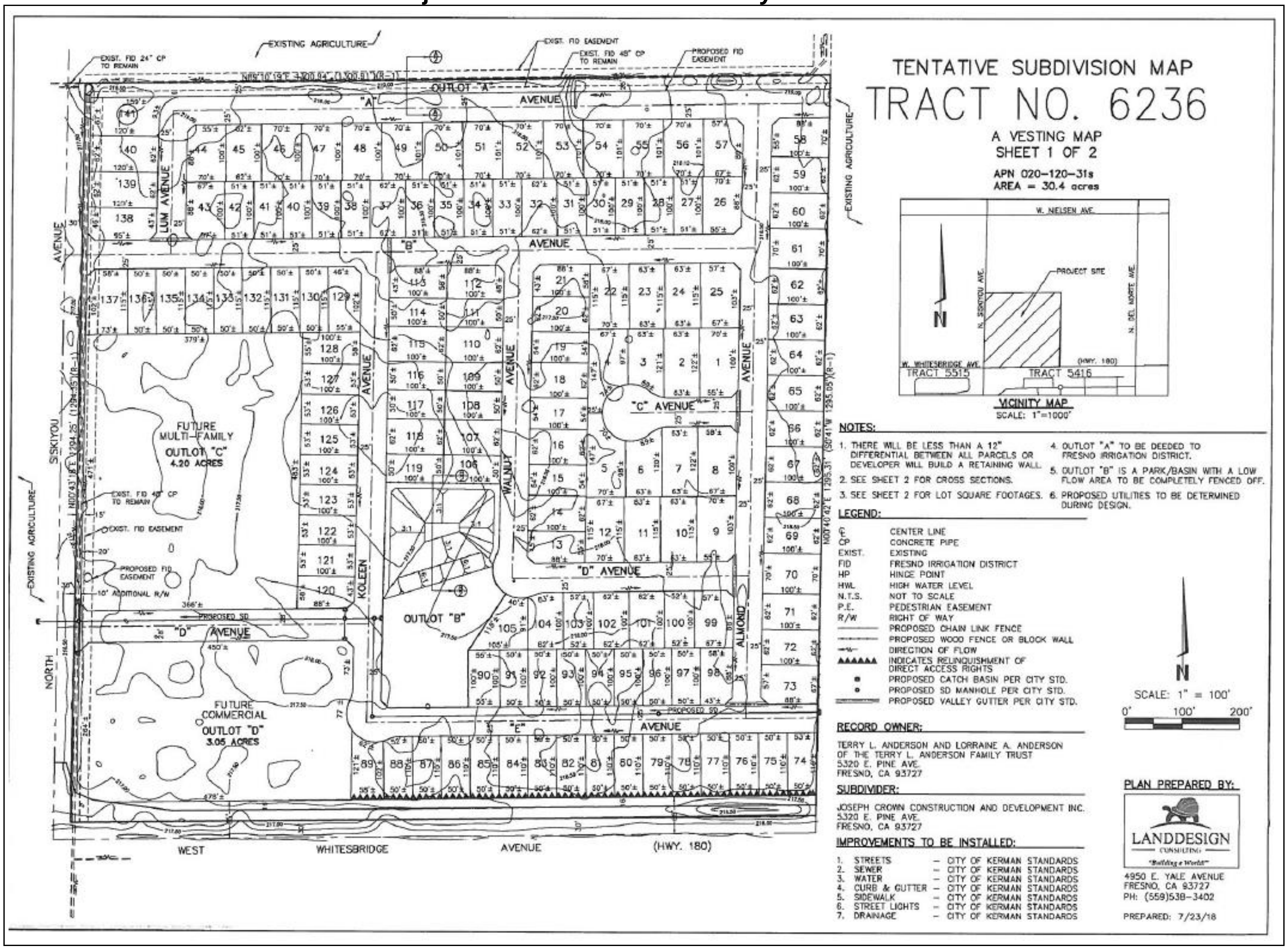
Topography

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

Meteorology and Climate

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

Figure 1
Project Site Location and Nearby Land Uses



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

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

The climate is semi-arid, with an annual normal precipitation of approximately 11 inches. Temperatures in the project area range from an average minimum of approximately 38°F, in January, to an average maximum of 98°F, in July (WRCC 2018).

Atmospheric Stability and Inversions

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

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

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

Air Pollutants of Concern

Criteria Air Pollutants

For the protection of public health and welfare, the Federal Clean Air Act (FCAA) required that the United States Environmental Protection Agency (U.S. EPA) establish National Ambient Air Quality Standards (NAAQS) for various pollutants. These pollutants are referred to as "criteria" pollutants because the U.S. EPA publishes criteria documents to justify the choice of standards. These standards define the maximum amount of an air pollutant that can be present in ambient air. An ambient air quality standard is generally specified as a concentration averaged over a specific time period, such as one hour, eight hours, 24 hours, or one year. The different averaging times and concentrations are meant to protect against different exposure effects. Standards established for the protection of human health are referred to as primary standards; whereas, standards established for the prevention of environmental and property damage are called secondary standards. The FCAA allows states to adopt additional or more health-protective standards. The air quality regulatory framework and ambient air quality standards are discussed in greater detail later in this report.

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

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

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

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

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

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

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

- "Inhalable coarse particles ($PM_{2.5}$- PM_{10})," such as those found near roadways and dusty industries, are between 2.5 and 10 micrometers in diameter. $PM_{2.5-10}$ is deposited in the thoracic region of the lungs.
- "Fine particles ($PM_{2.5}$)," such as those found in smoke and haze, are 2.5 micrometers in diameter and smaller. These particles can be directly emitted from sources such as forest fires, or they can form when gases emitted from power plants, industries and automobiles react in the air. They penetrate deeply into the thoracic and alveolar regions of the lungs.
- "Ultrafine particles (UFP)," are very small particles less than 0.1 micrometers in diameter largely resulting from the combustion of fossils fuels, meat, wood and other hydrocarbons. While UFP mass is a small portion of $PM_{2.5}$, its high surface area, deep lung penetration, and transfer into the bloodstream can result in disproportionate health impacts relative to their mass.

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

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

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

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

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

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

Other Pollutants

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

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

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

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

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

Odors

Typically odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from the psychological (i.e. irritation, anger, or anxiety) to the physiological, including circulatory and respiratory effects, nausea, vomiting, and headache.

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

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

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

Toxic Air Contaminants

Toxic air contaminants (TACs) are air pollutants that may cause or contribute to an increase in mortality or serious illness, or which may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air, but due to their high toxicity, they may pose a threat to public health even at very low concentrations. Because there is no threshold level below which adverse health impacts are not expected to occur, TACs differ from criteria pollutants for which acceptable levels of exposure can be determined and for which state and federal governments have set ambient air quality standards. TACs, therefore, are not considered "criteria pollutants" under either the FCAA or the California Clean Air Act (CCAA), and are thus not subject to National or California ambient air quality standards (NAAQS and CAAQS, respectively). Instead, the U.S. EPA and the ARB regulate Hazardous Air Pollutants (HAPs) and TACs, respectively, through statutes and regulations that generally require the use of the maximum or best available control technology to limit emissions. In conjunction with SJVAPCD rules, these federal and state statutes and regulations establish the regulatory framework for TACs. At the national levels, the U.S. EPA has established National Emission Standards for HAPs (NESHAPs), in accordance with the requirements of the FCAA and subsequent amendments. These are technology-based source-specific regulations that limit allowable emissions of HAPs.

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

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

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

Exposure to DPM can have immediate health effects. DPM can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. In studies with human volunteers, Exposure to DPM also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks. The elderly and people with emphysema, asthma, and chronic heart and lung disease are especially sensitive to fine-particle pollution. Because children's lungs and respiratory systems are still developing, they are also more susceptible than healthy adults to fine particles. Exposure to fine particles is associated with increased frequency of childhood illnesses and can also reduce lung function in children. In California, DPM has been identified as a carcinogen.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Methylene Chloride was identified by the ARB as a TAC in 1987. Methylene chloride is used as a solvent, a blowing and cleaning agent in the manufacture of polyurethane foam and plastic fabrication, and as a solvent in paint stripping operations. Paint removers account for the largest use of methylene chloride in California, where methylene chloride is the main ingredient in many paint stripping formulations. Plastic product manufacturers, manufacturers of synthetics, and aircraft and parts manufacturers are stationary sources reporting emissions of methylene chloride (ARB 2013).

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

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

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

Land Use Compatibility with TAC Emission Sources

The ARB published an informational guide entitled: *Air Quality and Land Use Handbook: A Community Health Perspective* (Handbook) in 2005. The purpose of this guide is to provide information to aid local jurisdictions in addressing issues and concerns related to the placement of sensitive land uses near major sources of air pollution. The ARB's Handbook includes recommended separation distances for various land uses that are based on relatively conservative estimations of emissions based on source-specific information. However, these recommendations are not site specific and should not be interpreted as defined "buffer zones". It is also important to note that the recommendations of the Handbook are advisory and need to be balanced with other state and local policies (ARB 2005). Depending on site and project-specific conditions, an assessment of potential increases in exposure to TACs may be warranted for proposed development projects located within the distances identified. CARB-recommended separation distances for various sources of emissions are summarized in Table 1.

ASBESTOS

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

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

Table 1
Recommendations on Siting New Sensitive Land Uses Near Air Pollutant Sources

Source Category	Advisory Recommendations
Freeways and High-Traffic Roads	• Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.
Distribution Centers	• Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). • Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	• Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. • Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	• Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or the ARB on the status of pending analyses of health risks.
Refineries	• Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	• Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloroethylene	• Avoid siting new sensitive land uses within 300 feet of any dry-cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district. • Do not site new sensitive land uses in the same building with perchloroethylene dry cleaning operations.
Gasoline Dispensing Facilities	• Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50-foot separation is recommended for typical gas dispensing facilities.

Recommendations are advisory, are not site specific, and may not fully account for future reductions in emissions, including those resulting from compliance with existing/future regulatory requirements.
Source: ARB 2005

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

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

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

Valley Fever

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

Coccidioides spores circulate in the air after contaminated soil and dust are disturbed by humans, animals, or the weather. The spores are too small to see without a microscope. When people breathe in the spores, they are at risk for developing valley fever. After the spores enter the lungs, the person's body temperature allows the spores to change shape and grow into spherules. When the spherules get large enough, they break open and release smaller pieces (called endospores) which can then potentially spread within the lungs or to other organs and grow into new spherules. In extremely rare cases, the fungal spores can enter the skin through a cut, wound, or splinter and cause a skin infection.

Symptoms of valley fever may appear between 1 and 3 weeks after exposure. Symptoms commonly include: fatigue, coughing, fever, shortness of breath, headaches, night sweats, muscle aches and joint pain, and rashes on the upper body or legs.

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

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

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

Regulatory Framework

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

Federal

U.S. Environmental Protection Agency

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

Federal Clean Air Act

The FCAA required the U.S. EPA to establish National Ambient Air Quality Standards (NAAQS), and also set deadlines for their attainment. Two types of NAAQS have been established: primary standards, which protect public health, and secondary standards, which protect public welfare from non-health-related adverse effects, such as visibility restrictions. NAAQS are summarized in Table 2.

Table 2
Summary of Ambient Air Quality Standards

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

** For more information on standards visit : https://www.arb.ca.gov/research/aaqs/aaqs2.pdf*
Source: ARB 2018a

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

National Emission Standards for Hazardous Air Pollutants

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

STATE

California Air Resources Board

The ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act of 1988. Other ARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control districts and air quality management districts, establishing California Ambient Air Quality Standards (CAAQS), which in many cases are more stringent than the NAAQS, and setting emissions standards for new motor vehicles. The CAAQS are summarized in Table 2. The emission standards established for motor vehicles differ depending on various factors including the model year, and the type of vehicle, fuel and engine used.

California Clean Air Act

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

California Assembly Bill 170

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

Assembly Bills 1807 & 2588 - Toxic Air Contaminants

Within California, TACs are regulated primarily through AB 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics Hot Spots Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for ARB to designate substances as TACs. This includes research, public participation, and scientific peer review before ARB designates a substance as a TAC. Existing sources of TACs that are subject to the Air Toxics Hot Spots Information and Assessment Act are required to: (1) prepare a toxic emissions inventory; (2) prepare a risk assessment if emissions are significant; (3) notify the public of significant risk levels; and (4) prepare and implement risk reduction measures.

San Joaquin Valley Air Pollution Control District

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

- *Regulation VIII (Fugitive Dust Prohibitions). Regulation VIII (Rules 8011-8081).* This regulation is a series of rules designed to reduce particulate emissions generated by human activity, including construction and demolition activities, carryout and trackout, paved and unpaved roads, bulk material handling and storage, unpaved vehicle/traffic areas, open space areas, etc.
- *Rule 4002 (National Emissions Standards for Hazardous Air Pollutants).* This rule may apply to projects in which portions of an existing building would be renovated, partially demolished or removed. With regard to asbestos, the NESHAP specifies work practices to be followed during renovation, demolition or other abatement activities when friable asbestos is involved. Prior to demolition activity, an asbestos survey of the existing structure may be required to identify the presence of any asbestos containing building materials (ACBM). Removal of identified ACBM must be removed by a certified asbestos contractor in accordance with CAL-OSHA requirements.
- *Rule 4102 (Nuisance).* Applies to any source operation that emits or may emit air contaminants or other materials.
- *Rule 4103 (Open Burning).* This rule regulates the use of open burning and specifies the types of materials that may be open burned. Section 5.1 of this rule prohibits the burning of trees and other vegetative (non-agricultural) material whenever the land is being developed for non-agricultural purposes.
- *Rule 4601 (Architectural Coatings).* Limits volatile organic compounds from architectural coatings.
- *Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations).* This rule applies to the manufacture and use of cutback, slow cure, and emulsified asphalt during paving and maintenance operations.
- *Rule 9510 (Indirect Source Review).* Requires developers of larger residential, commercial, recreational, and industrial projects to reduce smog-forming and particulate emissions from their projects' baselines. If project emissions still exceed the minimum baseline reductions, a project's developer will be required to mitigate the difference by paying an off-site fee to the District, which would then be used to fund clean-air projects. For projects subject to this rule, the ISR rule requires developers to mitigate and/or offset emissions sufficient to achieve: (1) 20-percent reduction of construction equipment exhaust NOx; (2) 45-percent reduction of construction equipment exhaust PM_{10}; (3) 33-percent reduction of operational NOx over 10 years; and (4) 50-percent reduction of operational PM_{10} over 10 years. SJVAPCD ISR applications must be filed "no later than applying for a final discretionary approval with a public agency."

Regulatory Attainment Designations

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

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

The state and national attainment status designations pertaining to the SJVAB are summarized in Table 3. The SJVAB is currently designated as a nonattainment area with respect to the state PM_{10} standard, ozone, and $PM_{2.5}$ standards. The SJVAB is designated nonattainment for the national 8-hour ozone and $PM_{2.5}$ standards. On September 25, 2008, the U.S. EPA redesignated the San Joaquin Valley to attainment for the PM_{10} NAAQS and approved the PM_{10} Maintenance Plan (SJVAPCD 2018).

Table 3
SJVAB Attainment Status Designations

Pollutant	National Designation	State Designation
Ozone, 1 hour	No Standard	Nonattainment/Severe
Ozone, 8 hour	Nonattainment/Extreme	Nonattainment
PM_{10}	Attainment	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
Carbon Monoxide	Attainment	Unclassified/Attainment
Nitrogen dioxide	Unclassified/Attainment	Attainment
Sulfur dioxide	Unclassified/Attainment	Attainment
Lead (particulate)	No Designation/Classification	Attainment
Hydrogen sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility-reducing particulates	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment
Source: SJVAPCD 2018		

SENSITIVE RECEPTORS

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

Sensitive land uses located in the vicinity of the proposed project site consist predominantly of residential land uses. The nearest residential land uses are located south of the project site, across West Whitesbridge Avenue. In addition, Kerman High School is located approximately 0.26 miles southeast of the project site.

IMPACTS & MITIGATION MEASURES

METHODOLOGY

Project Construction

Short-term construction emissions associated with the proposed project were calculated using the CalEEMod computer program. Emissions were quantified for site preparation, grading, asphalt paving, building construction, and the application of architectural coatings. Construction-generated emissions for the proposed 141-lot single-family residential development were based, in part, on anticipated construction schedules and information provided by the project applicant. Other information, such as off-road equipment usage requirements, architectural coating VOC contents, and construction-related vehicle trips were based on model defaults. The anticipated construction schedules for future development of the proposed commercial uses and the 64-unit multi-family residential development are not known at this time. As a result, construction emissions for these land uses were based on model defaults. To be conservative, construction of the future commercial and multi-family land uses was assumed to begin upon completion of the proposed 141-lot single-family residential development and were assumed to occur simultaneously. No demolition or off-site material transport is anticipated to be required. Modeling assumptions and output files are included in Appendix A of this report

Project Operations

Long-term operational emissions of criteria air pollutants associated with the proposed project were calculated using the CalEEMod computer program. Modeling was conducted based on traffic data derived, in part, from the traffic analysis prepared for the proposed project (JLB 2018). Mobile-source emissions for the proposed residential uses were based on SJVAPCD-recommended vehicle fleet distribution for residential uses. Vehicle fleet distribution for the proposed future commercial land uses were based on model defaults. All other modeling assumptions were based on the default parameters contained in the CalEEMod computer model. It is important to note that the specific future commercial uses to be developed are based on preliminary assumptions. Development of the future commercial land uses was assumed to include an approximate 26,015 square feet (sf) shopping center, an eight-pump fuel station, and a 3,200 sf restaurant. Modeling assumptions and output files are included in Appendix A of this report. Localized concentrations of TACs, mobile-source CO, and odors were qualitatively assessed.

THRESHOLDS OF SIGNIFICANCE

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

- Short-term Emissions—Construction impacts associated with the proposed project would be considered significant if project-generated emissions would exceed 100 tons per year (TPY) of CO, 10 TPY of ROG or NO_X, 27 TPY of SO_X, or 15 TPY of PM_{10} or $PM_{2.5}$.
- Long-term Emissions—Operational impacts associated with the proposed project would be considered significant if project generated emissions would exceed 100 tons per year (TPY) of CO, 10 TPY of ROG or NO_X, 27 TPY of SO_X, or 15 TPY of PM_{10} or $PM_{2.5}$.
- Conflict with or Obstruct Implementation of Applicable Air Quality Plan—Due to the region's non-attainment status for ozone, $PM_{2.5}$, and PM_{10}, if project-generated emissions of ozone precursor pollutants (i.e., ROG and NO_x) or PM would exceed the SJVAPCD's significance thresholds, then the project would be considered to conflict with the attainment plans.

- Local Mobile-Source CO Concentrations—Local mobile source impacts associated with the proposed project would be considered significant if the project contributes to CO concentrations at receptor locations in excess of the CAAQS (i.e., 9.0 ppm for 8 hours or 20 ppm for 1 hour).
- Exposure to toxic air contaminants (TAC) would be considered significant if the probability of contracting cancer for the Maximally Exposed Individual (i.e., maximum individual risk) would exceed 20 in 1 million or would result in a Hazard Index greater than 1.
- Odor impacts associated with the proposed project would be considered significant if the project has the potential to frequently expose members of the public to objectionable odors.

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

PROJECT IMPACTS

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

In accordance with SJVAPCD-recommended methodology for the assessment of air quality impacts, projects that result in significant air quality impacts at the project level are also considered to have a significant cumulative air quality impact. As noted in Impact AQ-B, short-term construction emissions would not exceed applicable thresholds. However, build-out of the proposed project would result in operational emissions of NO_X that would exceed SJVAPCD's significance threshold of 10 tons/year. As a result, emissions of NO_X could result in a significant cumulative contribution of ozone-precursor pollutants for which the SJVAB is currently designated non-attainment. For this reason, implementation of the proposed project could conflict with air quality attainment or maintenance planning efforts. This impact would be considered ***potentially significant***.

Mitigation Measure: Implement Mitigation Measures AQ-1 and AQ-2 (refer to Impact AQ-B).

Significance after Mitigation: With implementation of Mitigation Measures AQ-1 and AQ-2 this impact would be considered less than significant.

Impact AQ-B.	***Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?***

<u>Short-term Construction Emissions</u>

Short-term increases in emissions would occur during the construction process. Construction-generated emissions are of temporary duration, lasting only as long as construction activities occur, but have the potential to represent a significant air quality impact. The construction of the proposed project would result in the temporary generation of emissions associated with site grading and excavation, paving, motor vehicle exhaust associated with construction equipment and worker trips, as well as the movement of construction equipment on unpaved surfaces. Short-term construction emissions would result in increased emissions of ozone-precursor pollutants (i.e., ROG and NO_X) and emissions of PM. Emissions of ozone-precursors would result from the operation of on-road and off-road motorized vehicles and equipment. Emissions of airborne PM are largely dependent on the amount of ground disturbance associated with site preparation activities and can result in increased concentrations of PM that can adversely affect nearby sensitive land uses.

Estimated construction-generated annual emissions associated with the proposed 141-lot single-family residential development are summarized in Table 4. As noted in Table 4, construction of the proposed 141-lot single-family residential development would generate maximum uncontrolled annual emissions of approximately 1.9 tons/year of ROG, 4.3 tons/year of NO_x, 3.2 tons/year of CO, 0.7 tons/year of PM_{10}, and 0.4 tons/year of $PM_{2.5}$. Emissions of SO_2 would be negligible (e.g., less than 0.1 tons/year). Estimated construction-generated emissions for the proposed 141-lot single-family residential development would not exceed the SJVAPCD's significance thresholds of 10 tons/year of ROG, 10 tons/year of NO_x, or 15 tons/year PM_{10}.

Table 4
Annual Construction Emissions
141-Lot Single-Family Residential

Construction Phase	Emissions (TPY) [1]					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Site Preparation	0.0	0.5	0.2	0.0	0.2	0.1
Grading	0.1	1.2	0.8	0.0	0.3	0.1
Building Construction-2019	0.3	2.2	1.9	0.0	0.2	0.2
Building Construction-2020	0.3	2.8	2.4	0.0	0.2	0.2
Building Construction-2021	0.0	0.4	0.4	0.0	0.0	0.0
Paving	0.0	0.3	0.3	0.0	0.0	0.0
Architectural Coating	0.6	0.1	0.1	0.0	0.0	0.0
Maximum Annual Emissions:	1.9	4.3	3.2	0.0	0.7	0.4
Annual Significance Thresholds:	*10*	*10*	*None*	*None*	*15*	*15*
Exceeds Thresholds/Significant Impact?:	*No*	*No*	*No*	*No*	*No*	*No*

1. Based on CalEEMod computer modeling. Totals may not sum due to rounding. Does not include emission control measures.
2. Maximum annual emissions assumes building construction, architectural coating application, and paving could potentially occur simultaneously.
Refer to Appendix A for modeling results and assumptions.

Proposed Future 64-Unit Multi-Family Residential and Commercial Land Uses

Construction-generated emissions associated with the future development of the proposed 64-unit multi-family residential development and commercial land uses are summarized in Table 5. Assuming the construction of the proposed 64-unit multi-family residential development and commercial land uses were to occur simultaneously, construction of the proposed future land uses would generate maximum uncontrolled annual emissions of approximately 1.4 tons/year of ROG, 5.1 tons/year of NO_x, 4.8 tons/year of CO, 0.6 tons/year of PM_{10}, and 0.3 tons/year of $PM_{2.5}$. Emissions of SO_2 would be negligible (e.g., less than 0.1 tons/year). Estimated emissions associated with construction of the proposed future 64-unit multi-family residential development and commercial land uses would not exceed the SJVAPCD's significance thresholds of 10 tons/year of ROG, 10 tons/year of NO_x, or 15 tons/year of $PM_{10}/PM_{2.5}$.

Table 5
Annual Construction Emissions
Future 64-Unit Multi-Family Residential & Commercial

Construction Phase	Emissions (TPY) [1]					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Site Preparation	0.0	0.2	0.1	0.0	0.1	0.1
Grading	0.0	0.2	0.1	0.0	0.1	0.0
Building Construction	0.5	4.4	4.1	0.0	0.4	0.2
Paving	0.0	0.2	0.2	0.0	0.0	0.0
Architectural Coating	0.9	0.2	0.3	0.0	0.0	0.0
Maximum Annual Emissions:	1.4	5.1	4.8	0.0	0.6	0.3
Significance Thresholds:	*10*	*10*	*None*	*None*	*15*	*15*
Exceeds Thresholds/Significant Impact?:	*No*	*No*	*No*	*No*	*No*	*No*

1. *Based on CalEEMod computer modeling. Totals may not sum due to rounding. Does not include emission control measures.*
2. *Maximum annual emissions assumes construction of multi-family and commercial uses could potentially occur simultaneously within a one-year period.*

Refer to Appendix A for modeling results and assumptions.

Daily Construction Emissions

Proposed 141-Lot Single-Family Residential Development

Estimated daily on-site construction emissions associated with the proposed 141-lot single-family residential development are summarized in Table 6. As noted in Table 6, construction of the proposed 141-lot single-family residential development would generate maximum uncontrolled on-site emissions of approximately 6.9 lbs/day of ROG, 54.5 lbs/day of NO_x, 33.4 lbs/day of CO, 0.1 lbs/day of SO_x, 20.5 lbs/day of PM_{10}, and 12.1 lbs/day of $PM_{2.5}$. Daily on-site construction emissions would not exceed the SJVAPCD's recommended localized ambient air quality significance thresholds of 100 lbs/day for each of the criteria air pollutants evaluated.

Proposed Future 64-Unit Multi-Family Residential and Commercial Land Uses

Estimated daily on-site construction-generated emissions associated with the future development of the proposed 64-unit multi-family residential development and commercial land uses are summarized in Table 7. As noted in Table 7 and assuming that future development of the proposed multi-family and commercial uses were to occur simultaneously, uncontrolled on-site emissions would total approximately 9.8 lbs/day of ROG, 49.5 lbs/day of NO_x, 48.8 lbs/day of CO, 0.1 lbs/day of SO_x, 8.1 lbs/day of PM_{10}, and 4.7 lbs/day of $PM_{2.5}$. Daily on-site construction emissions associated with the development of the future 64-unit multi-family residential development and commercial land uses would not exceed the SJVAPCD's recommended localized ambient air quality significance thresholds of 100 lbs/day for each of the criteria air pollutants evaluated.

Table 6
Daily On-Site Construction Emissions
141-Lot Single-Family Residential

Construction Phase	Emissions (lbs/day) [1]					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Site Preparation	4.3	45.6	22.1	0.0	20.5	12.1
Grading	4.7	54.5	33.4	0.1	11.1	5.8
Building Construction – Year 2019	2.3	20.6	16.9	0.0	1.3	1.2
Building Construction – Year 2020	2.2	19.3	17.0	0.0	1.1	1.1
Building Construction – Year 2021	2.0	18.2	17.3	0.0	1.0	0.9
Paving	1.7	15.4	14.9	0.0	0.6	0.6
Architectural Coating	2.8	15.4	14.9	0.0	0.6	0.6
Maximum Daily Onsite Emissions:	6.9	54.5	33.4	0.1	20.5	12.1
Significance Thresholds:	*100*	*100*	*100*	*100*	*100*	*100*
Exceeds Thresholds/Significant Impact?:	*No*	*No*	*No*	*No*	*No*	*No*

1. Based on CalEEMod computer modeling. Totals may not sum due to rounding. Does not include emission control measures, including dust control per Regulation VIII.
2. Average daily onsite emissions are based on total onsite emissions divided by the total number of construction days.
3. Maximum daily onsite emissions assumes building construction, paving, and architectural coating application could potentially occur simultaneously.
Refer to Appendix A for modeling results and assumptions.

Table 7
Daily On-Site Construction Emissions
Future 64-Unit Multi-Family Residential & Commercial

Construction Phase	Emissions (lbs/day) [1]					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Site Preparation	1.56	16.2	8.5	0.0	8.1	4.7
Grading	0.7	7.7	4.9	0.0	2.4	1.4
Building Construction	4.3	39.8	37.9	0.1	2.2	2.1
Paving	1.1	8.7	9.8	0.0	0.5	0.4
Architectural Coating	4.4	1.0	1.1	0.0	0.1	0.1
Maximum Daily Onsite Emissions:	9.8	49.5	48.8	0.1	8.1	4.7
Significance Thresholds:	*100*	*100*	*100*	*100*	*100*	*100*
Exceeds Thresholds/Significant Impact?:	*No*	*No*	*No*	*No*	*No*	*No*

1. Based on CalEEMod computer modeling. Totals may not sum due to rounding. Does not include emission control measures, including dust control per Regulation VIII.
2. Average daily onsite emissions assumes development of future 64-unit MFR and commercial uses could occur simultaneously over a one-year period. Average daily onsite emissions are based on total onsite emissions divided by the total number of construction days. Construction days are based on default construction schedules contained in the model
3. Maximum daily onsite emissions assumes building construction, paving, and architectural coating application could potentially occur simultaneously.
Refer to Appendix A for modeling results and assumptions.

Short-term Construction Impact Summary

Short-term construction of the proposed project would not result in a significant impact to regional or local air quality conditions. Furthermore, it is important to note that the proposed project would be required to comply with SJVPACD Regulation VIII (Fugitive PM_{10} Prohibitions) and SJVAPCD Rule 9510 (Indirect Source Review). Mandatory compliance with SJVAPCD Regulation VIII and Rule 9510 would further reduce emissions of NO_X and PM_{10} from the project site. With compliance with SJVAPCD Regulation VIII and Rule 9510, emissions of NO_X would be reduced by approximately 20 percent, emissions of exhaust PM_{10} would be reduced by approximately 45 percent, and emissions of fugitive PM would be reduced by approximately 50 percent, or more. Given that project-generated emissions would not exceed applicable SJVAPCD significance thresholds, this impact would be considered ***less than significant***.

Long-term Operational Emissions

Estimated annual and daily operational emissions associated with the proposed 141-lot single-family residential development, as well as, future development of the proposed project, including the proposed future 64-unit multi-family residential development and commercial land uses, are discussed in greater detail, as follows:

Proposed 141-Lot Single-Family Residential Development

Estimated annual operational emissions associated with the near-term development of the proposed 141-lot single-family residential development are summarized in Table 8. As depicted, the proposed project would result in operational emissions of approximately 2.7 tons/year of ROG, 2.0 tons/year of NO_X, 14.8 tons/year of CO, 2.9 tons/year of PM_{10}, and 1.8 tons/year of $PM_{2.5}$ during the initial year of operation. Emissions of SO_X would be negligible (e.g., less than 0.1 tons/year). Operational emissions would be projected to decline in future years, with improvements in vehicle emissions standards. Operational emissions associated with the proposed 141-lot single-family residential development would not exceed SJVAPCD's mass-emissions significance thresholds.

Table 8
Long-term Operational Emissions (Unmitigated)
141-Lot Single-Family Residential

Season	Emissions (tons/year)[1]					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Area Source	2.2	0.2	9.6	0.0	1.4	1.4
Energy Use	0.0	0.1	0.1	0.0	0.0	0.0
Mobile Source[2]	0.5	1.7	5.2	0.0	1.5	0.4
Total:	2.7	2.0	14.8	0.0	2.9	1.8
Significance Thresholds (tons):	*10*	*10*	*None*	*None*	*15*	*None*
Exceeds Thresholds/Significant Impact?:	*No*	*No*	*--*	*--*	*No*	*--*
Average Daily Onsite Emissions (lbs)[3]:	*12.1*	*1.1*	*52.3*	*0.2*	*7.6*	*7.6*
Significance Thresholds (lbs):	*100*	*100*	*100*	*100*	*100*	*100*
Exceeds Thresholds/Significant Impact?:	*No*	*No*	*No*	*No*	*No*	*No*

1. Emissions were calculated using the CalEEMod computer program. Based on year 2021 operational conditions.
2. Based on SJVAPCD-recommended fleet distribution for residential land uses.
3. Based on calculated annual operational emissions from area sources and an average of 365 days annually.
Totals may not sum due to rounding.
Refer to Appendix A for modeling assumptions and results.

Estimated average-daily on-site operational emissions are also summarized in Table 8. As depicted, the proposed 141-lot single-family residential development would result in operational emissions of approximately 12.1 lbs/day of ROG, 1.1 lbs/day of NO_X, 52.3 lbs/day of CO, 0.2 lbs/day of SO_X, 7.6 lbs/day of PM_{10}, and 7.6 lbs/day of $PM_{2.5}$. Average-daily onsite emissions would not exceed the SJVAPCD's recommended significance thresholds of 100 lbs/day for each of the criteria air pollutants evaluated.

Proposed Project Buildout

Estimated annual operational emissions associated with the future buildout of the proposed project are summarized in Table 9. As depicted, buildout of the proposed project would result in operational emissions of approximately 4.6 tons/year of ROG, 17.8 tons/year of NO_X, 25.7 tons/year of CO, 0.1 tons/year of SO_X, 5.2 tons/year of PM_{10}, and 2.5 tons/year of $PM_{2.5}$ during the initial year of operation. Emissions of SO_X would be negligible (e.g., less than 0.1 tons/year). Operational emissions would be projected to decline in future years, with improvements in vehicle emissions standards. However, operational emissions of NO_X associated with the future buildout fo the proposed project would still be expected to exceed SJVAPCD's mass-emissions significance threshold of 10 tons/year.

Table 9
Long-term Operational Emissions (Unmitigated)
Project Buildout

Season	Emissions (tons/year)[1]					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Area Source	2.8	0.2	10.6	0.0	1.5	1.5
Energy Use	0.0	0.2	0.1	0.0	0.0	0.0
Mobile Source[2]	1.9	17.3	15.0	0.1	3.7	1.0
Total:	4.6	17.8	25.7	0.1	5.2	2.5
Significance Thresholds (tons):	*10*	*10*	*None*	*None*	*15*	*None*
Exceeds Thresholds/Significant Impact?:	*No*	***Yes***	--	--	*No*	--
Average Daily Onsite Emissions (lbs)[3]:	*15.1*	*1.3*	*58.2*	*0.2*	*8.2*	*8.2*
Significance Thresholds (lbs):	*100*	*100*	*100*	*100*	*100*	*100*
Exceeds Thresholds/Significant Impact?:	*No*	*No*	*No*	*No*	*No*	*No*

1. Emissions were calculated using the CalEEMod computer program. Includes 141-lot SFR, 64-Unit MFR, and commercial uses. To be conservative, buildout is based on year 2022 operational conditions.
2. Based on SJVAPCD-recommended fleet distribution for residential land uses. Commercial uses based on model defaults.
3. Based on calculated annual operational emissions from area sources and an average of 365 days annually.
Totals may not sum due to rounding.
Refer to Appendix A for modeling assumptions and results.

Estimated average-daily on-site operational emissions are also summarized in Table 9. As depicted, future buildout of the proposed project would result in operational emissions of approximately 15.1 lbs/day of ROG, 1.3 lbs/day of NO_X, 58.2 lbs/day of CO, 0.2 lbs/day of SO_X, 8.2 lbs/day of PM_{10}, and 8.2 lbs/day of $PM_{2.5}$. Average-daily onsite emissions would not exceed the SJVAPCD's recommended significance thresholds of 100 lbs/day for each of the criteria air pollutants evaluated.

Long-term Operational Impact Summary

Estimated annual operational emissions associated with the near-term development of the proposed 141-lot single-family residential development would not exceed SJVAPCD's significance thresholds. However, operational emissions of NO_X associated with the future buildout of the proposed project would exceed SJVAPCD's significance threshold of 10 tons/year. This impact is considered ***potentially significant***.

Mitigation Measures

Mitigation Measure AQ-1. **Comply with SJVAPCD's Indirect Source Review Rule (Rule 9510).** Operation of the proposed project shall comply with SJVAPCD's ISR rule (Rule 9510). Prior to final discretionary project approval of the project, the Project applicant shall submit an Air Impact Assessment (AIA) application to the SJVAPCD. The AIA shall be submitted to and approved by the SJVAPCD prior to issuance of construction/grading permits by the City of Kerman. The AIA shall include: an estimate of operational emissions prior to the implementation of mitigation measures; a list of the mitigation measures to be applied to the project; an estimate of emissions for each applicable pollutant for the project and each phase thereof, following the implementation of mitigation; and a calculation of the applicable off-site fee, if required by Rule 9510. Measures that may be implemented to reduce operational emissions may include, but are not limited to, the following:

a. The installation of wood-burning hearth devices shall be prohibited.

b. Provide bus turnouts and transit improvements (e.g., transit shelters, benches, route signs, street lighting) where requested by the local and/or regional transit agency (e.g., Fresno County Rural Transit Agency).

c. For single-family residential uses, offer buyers optional packages that incorporate photovoltaic solar systems.

d. Install water-efficient appliances, toilets, faucets, and shower heads, where applicable.

g. Utilize green building materials (materials which are resource efficient, recycled, and sustainable) available locally if possible.

h. Provide shade tree planting in parking lots to reduce evaporative emissions from parked vehicles. Design should provide 50% tree coverage within 10 years of construction using low ROG emitting, low maintenance native drought-resistant trees.

i. Plant drought tolerant native shade trees along southern exposures of buildings to reduce energy used to cool buildings in summer.

j. For single-family residential project components, incorporate outdoor electrical outlets to encourage the use of electric landscape maintenance equipment.

k. Install high-efficiency heating and cooling systems.

l. Utilize high-efficiency gas or solar water heaters.

m. Utilize built-in energy-efficient appliances (i.e., Energy Star rated).

n. Utilize double- or triple-paned windows.

o. Utilize low energy street lights (i.e., sodium, light-emitting diode [LED].

p. Utilize energy-efficient interior lighting.

q. Install low water consumption landscape. Use native plants that do not require watering after they are well established or minimal watering during the summer months and are low ROG emitting.

r. For the non-residential project component, provide a minimum of one designated parking space for alternatively fueled vehicles.

s. Use low-VOC content paints during construction and long-term facility maintenance. To the extent possible construction materials that are prefinished or that do not require the application of architectural coatings should be used.

t. Provide a bicycle and pedestrian access network that internally links all uses and connects all existing or planned external streets and bicycle and pedestrian facilities contiguous with the project site.

u. Provide on-site bicycle parking beyond those required by California Green Building Standards Code and related facilities to support long-term use (lockers, or a locked room with standard racks and access limited to bicyclists only).

v. Implement traffic calming improvements as appropriate (e.g., marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, median islands, mini-circles, tight corner radii, etc.)

Mitigation Measure AQ-2: **Implement a Voluntary Emissions Reduction Agreement (VERA) with the SJVAPCD to Reduce Operational Emissions of NO_X.** If deemed necessary, depending on the emissions reductions achieved via compliance with Rule 9510 (refer to Mitigation Measure AQ-1) a VERA shall be entered into with the SJVAPCD to reduce operational emissions of NO_X to less than 10 tons/year. Emission reductions may be achieved by use of newer, low-emission equipment, implementation of on-site or off-site mitigation, and/or the funding of off-site mitigation, through participation in the SJVAPCD's off-site mitigation program. The VERA shall be reviewed and approved by the SJVAPCD prior to issuance of construction/grading permits by the City of Kerman. The project proponent/owner shall submit to the City of Kerman Planning Department documentation confirming compliance with the VERA, prior to issuance of final discretionary approval (e.g., approval of the grading permit). Development and implementation of the VERA shall be fully funded by the project proponent/owner. With approval by SJVAPCD, the VERA may also be used to demonstrate compliance with emission reductions required by SJVAPCD's ISR Rule (Rule 9510).

Level of Significance after Mitigation

Mitigation Measure AQ-1 would require compliance with SJVAPCD Rule 9510 (Indirect Source Review). With implementation of Mitigation Measure AQ-2, a VERA would also be required to reduce operational emissions of NO_X to below the SJVAPCD's significance threshold of 10 tons/year. With mitigation, this impact would be considered less than significant.

Impact AQ-C.	***Would the project 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 that exceed quantitative thresholds for ozone precursors)?***

The SJVAB is currently designated non-attainment for the state and federal ozone and $PM_{2.5}$ ambient air quality standards and the state PM_{10} standard. As discussed in *Impact AQ-B*, short-term construction-generated emissions of ozone-precursor pollutants (e.g., ROG and NO_X) and PM would not exceed SJVAPCD's significance thresholds. However, operational emissions of NO_X associated with the future buildout of the proposed project would exceed SJVAPCD's significance threshold of 10 tons/year. This impact is considered ***potentially significant***.

Mitigation Measure: Implement Mitigation Measures AQ-1 and AQ-2 (refer to Impact AQ-B).

Significance after Mitigation: With implementation of Mitigation Measures AQ-1 and AQ-2 this impact would be considered less than significant.

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

Sensitive land uses located in the vicinity of the proposed project site consist predominantly of residential land uses. The nearest residential land uses are generally located west of the project site, across Locan Avenue. Long-term operational and short-term construction activities and emission sources that could adversely impact these nearest sensitive receptors are discussed below:

Long-term Operation

Localized Mobile-Source CO Emissions

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

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

Under existing-plus-project and future cumulative-plus-project conditions, the intersections of Siskiyou Avenue/Whitesbridge Avenue and Del Norte Avenue/Whitesbridge Avenue are projected to operate at unacceptable LOS during peak traffic hours. With implementation of the proposed traffic improvements, signalized intersections are projected to operate at LOS C, or better, for existing-plus-project, near-term, and future cumulative conditions (JBL 2018). In comparison to the CO screening criteria, implementation of the proposed project would not result in or contribute to unacceptable levels of service (i.e., LOS E, or worse) at nearby signalized intersections. As a result, the proposed project would not be anticipated to contribute substantially to localized CO concentrations that would exceed applicable standards. For this reason, this impact would be considered ***less than significant***.

Toxic Air Contaminants

The proposed single-family and multi-family residential developments would not be anticipated to result in the long-term operation of any major onsite stationary sources of TACs. The specific future commercial uses to be developed are based on preliminary assumptions. However, stationary sources of emissions commonly associated with commercial land uses could include back-up power generators and gasoline storage and dispensing facilities. The installation and operation of such emission sources would be subject to review by the SJVAPCD and subject to SJVAPCD permitting requirements to ensure that proposed emission sources would not pose a significant health risk to occupants of nearby land uses. For these reasons, long-term exposure to TACs would be considered ***less than significant***.

Short-term Construction

Naturally Occurring Asbestos

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

Diesel-Exhaust Emissions

Implementation of the proposed project would result in the generation of DPM emissions during construction associated with the use of off-road diesel equipment for site grading and excavation, paving and other construction activities. Health-related risks associated with diesel-exhaust emissions are primarily associated with long-term exposure and associated risk of contracting cancer. For residential land uses, the calculation of cancer risk associated with exposure of to TACs are typically calculated based on a 25 to 30-year period of exposure. The use of diesel-powered construction equipment, however, would be temporary and episodic and would occur over a relatively large area. Assuming that construction activities involving the use of diesel-fueled equipment would occur over an approximate 12-30 month period, project-related construction activities would constitute less than ten percent of the typical exposure period. As a result, exposure to construction-generated DPM would not be anticipated to exceed applicable thresholds (i.e., incremental increase in cancer risk of 20 in one million). In addition, implementation of

Mitigation Measure AQ-3 would result in further reductions of onsite DPM emissions. For these reasons, this impact would be considered ***less than significant***.

Localized PM Concentrations

Construction of the proposed project may result in the generation of fugitive dust. Fugitive dust emissions would be primarily associated with earth-moving, material handling and demolition activities, as well as, vehicle travel on unpaved and paved surfaces. Onsite off-road equipment and trucks would also result in short-term emissions of diesel-exhaust PM. Fugitive dust can also be generated during the clearing of vegetation, including the burning of vegetative material. Uncontrolled emissions of fugitive dust may contribute to increased occurrences of Valley Fever and may also result in increased nuisance impacts to nearby land uses and receptors. As a result, localized uncontrolled concentrations of construction-generated PM would be considered to have a ***potentially-significant*** impact.

<u>Mitigation Measures</u>

Mitigation Measure AQ-3: The following measures shall be implemented to reduce potential expose of sensitive receptors to localized concentrations of PM emissions at nearby land uses during project construction:

a. On-road diesel vehicles shall comply with Section 2485 of Title 13 of the California Code of Regulations. This regulation limits idling from diesel-fueled commercial motor vehicles with gross vehicular weight ratings of more than 10,000 pounds and licensed for operation on highways. It applies to California and non-California based vehicles. In general, the regulation specifies that drivers of said vehicles:

    1) Shall not idle the vehicle's primary diesel engine for greater than 5 minutes at any location, except as noted in Subsection (d) of the regulation; and,

    2) Shall not operate a diesel-fueled auxiliary power system to power a heater, air conditioner, or any ancillary equipment on that vehicle during sleeping or resting in a sleeper berth for greater than 5.0 minutes at any location when within 1,000 feet of a restricted area, except as noted in Subsection (d) of the regulation.

b. Off-road diesel equipment shall comply with the 5 minute idling restriction identified in Section 2449(d)(2) of the California Air Resources Board's In-Use off-Road Diesel regulation. The specific requirements and exceptions in the regulations can be reviewed at the following web sites: www.arb.ca.gov/msprog/truck-idling/2485.pdf and ww.arb.ca.gov/regact/2007/ordiesl07/frooal.pdf.

c. Signs shall be posted at the project site construction entrance to remind drivers and operators of the state's 5 minute idling limit.

d. To the extent available, replace fossil-fueled equipment with alternatively-fueled (e.g., natural gas) or electrically-driven equivalents.

e. Construction truck trips shall be scheduled, to the extent feasible, to occur during non-peak hours.

f. The burning of vegetative material shall be prohibited.

g. The proposed project shall prepare a Dust Control Plan (DCP) in accordance with SJVAPCD Regulation VIII for the control of fugitive dust emissions. Regulation VIII can be obtained on the SJVAPCD's website at website URL: https://www.valleyair.org/rules/1ruleslist.htm. At a minimum, the following measures shall be incorporated as part of the DCP:

    1) All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover.

    2) All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.

3) All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.

4) With the demolition of buildings up to six stories in height, all exterior surfaces of the building shall be wetted during demolition.

5) When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained.

6) All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.) (Use of blower devices is expressly forbidden.)

7) Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.

8) On-road vehicle speeds on unpaved surfaces of the project site shall be limited to 15 mph.

9) Sandbags or other erosion control measures shall be installed sufficient to prevent silt runoff to public roadways from sites with a slope greater than one percent.

10) Excavation and grading activities shall be suspended when winds exceed 20 mph (Regardless of wind speed, an owner/operator must comply with Regulation VIII's 20 percent opacity limitation).

Level of Significance after Mitigation

Mitigation Measure AQ-3 would help to ensure project compliance with Regulation VIII. Additional measures have also been incorporated to further reduce localized emissions of PM. With implementation of Mitigation Measure AQ-3, this impact would be considered less than significant.

Impact AQ-E. Would the project create objectionable odors affecting a substantial number of people?

The occurrence and severity of odor impacts depends on numerous factors, including: the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the receptors. While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and regulatory agencies.

No major sources of odors have been identified in the project area. However, construction of the proposed project would involve the use of a variety of gasoline or diesel-powered equipment that would emit exhaust fumes. Exhaust fumes, particularly diesel-exhaust, may be considered objectionable by some people. In addition, pavement coatings and architectural coatings used during project construction would also emit temporary odors. However, construction-generated emissions would occur intermittently throughout the workday and would dissipate rapidly within increasing distance from the source. As a result, short-term construction activities would not expose a substantial number of people to frequent odorous emissions. This impact would be considered ***less than significant***.

GREENHOUSE GASES AND CLIMATE CHANGE

EXISTING SETTING

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

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

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

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

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

- **Perfluorocarbons.** Perfluorocarbons (PFCs) are colorless, highly dense, chemically inert, and nontoxic. There are seven PFC gases: perfluoromethane (CF_4), perfluoroethane (C_2F_6), perfluoropropane (C_3F_8), perfluorobutane (C_4F_{10}), perfluorocyclobutane (C_4F_8), perfluoropentane (C_5F_{12}), and perfluorohexane (C_6F1_4). Natural geological emissions have been responsible for the PFCs that have accumulated in the atmosphere in the past; however, the largest current source is aluminum production, which releases CF_4 and C_2F_6 as byproducts. The estimated atmospheric lifetimes for PFCs ranges from 2,600 to 50,000 years (U.S. EPA 2018).

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

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

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

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. Often, estimates of GHG emissions are presented in CO_2e, which weight each gas by its global warming potential (GWP). Expressing GHG emissions in CO_2e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted. Table 10 provides a summary of the GWP for GHG emissions of typical concern with regard to community development projects, based on a 100-year time horizon. As indicated, Methane traps over 25 times more heat per molecule than CO_2, and N_2O absorbs roughly 298 times more heat per molecule than CO_2. Additional GHG with high GWP include Nitrogen trifluoride, Sulfur hexafluoride, Perfluorocarbons, and black carbon.

Table 10
Global Warming Potential for Greenhouse Gases

Greenhouse Gas	Global Warming Potential (100-year)
Carbon Dioxide (CO_2)	1
Methane (CH_4)	25
Nitrous Dioxide (N_2O)	298

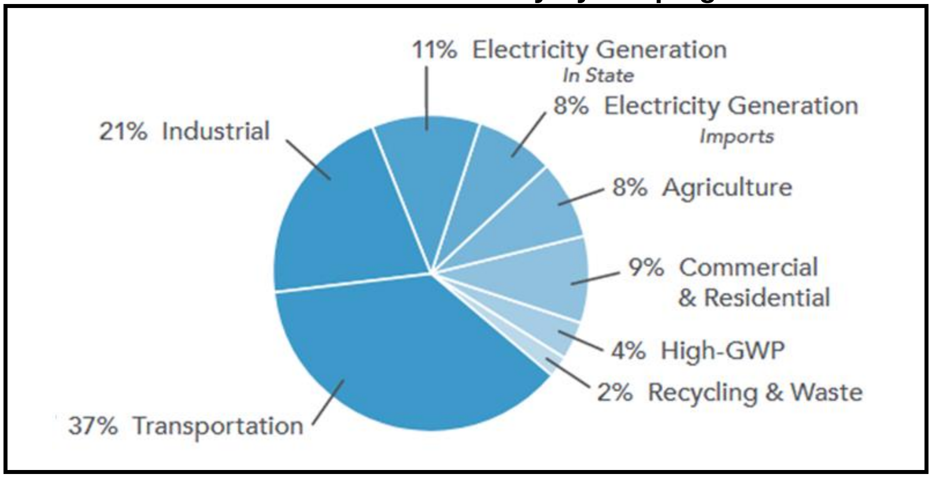
**Based on IPCC GWP values for 100-year time horizon*
Source: IPCC 2007

SOURCES OF GHG EMISSIONS

On a global scale, GHG emissions are predominantly associated with activities related to energy production; changes in land use, such as deforestation and land clearing; industrial sources; agricultural activities; transportation; waste and wastewater generation; and commercial and residential land uses. World-wide, energy production including the burning of coal, natural gas, and oil for electricity and heat is the largest single source of global GHG emissions (U.S. EPA 2018b).

In 2015, GHG emissions within California totaled 440.4 million metric tons (MMT) of CO_2e. GHG emissions, by sector, are summarized in Figure 2. Within California, the transportation sector is the largest contributor, accounting for approximately 37 percent of the total state-wide GHG emissions. Emissions associated with industrial uses are the second largest contributor, totaling roughly 21 percent. Electricity generation totaled roughly 19 percent (ARB 2018c).

Figure 2
California GHG Emissions Inventory by Scoping Plan Sector



Source: ARB 2017

Short-Lived Climate Pollutants

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

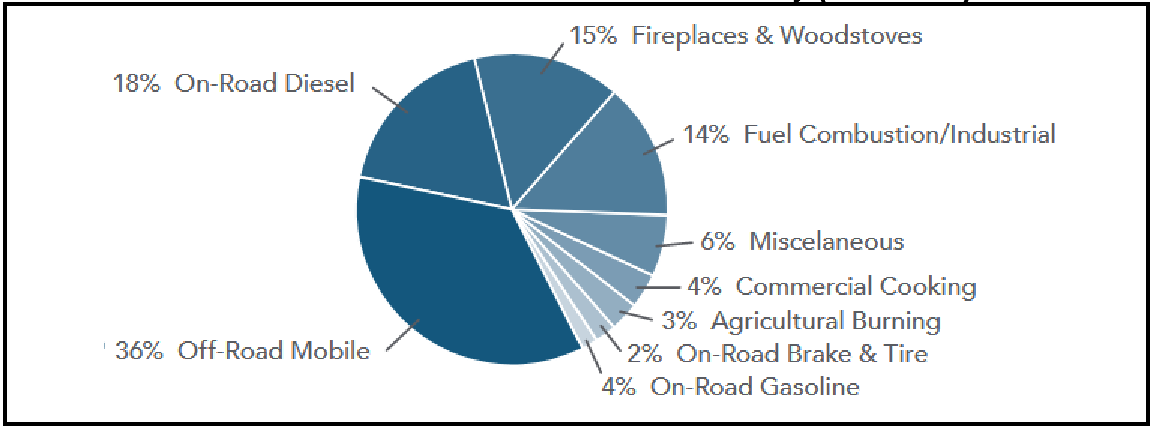
As part of the ARB's efforts to address SLCPs, the ARB has developed a statewide emission inventory for black carbon. The black carbon inventory will help support implementation of the SLCP Strategy, but it is not part of the State's GHG Inventory that tracks progress towards the State's climate targets. The most recent inventory for year 2013 conditions is depicted in Figure 3. As depicted, off-road mobile sources account for a majority of black carbon emissions totaling roughly 36 percent of the inventory. Other major anthropogenic sources of black carbon include on-road transportation, residential wood burning, fuel combustion, and industrial processes (ARB 2017).

EFFECTS OF GLOBAL CLIMATE CHANGE

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

Within California, climate changes would likely alter the ecological characteristics of many ecosystems throughout the state. Such alterations would likely include increases in surface temperatures and changes in the form, timing, and intensity of precipitation. For instance, historical records are depicting an increasing trend toward earlier snowmelt in the Sierra Nevada. This snow pack is a principal supply of water for the state, providing roughly 50 percent of state's annual runoff. If this trend continues, some areas of the state may experience an increased danger of floods during the winter months and possible exhaustion of the

Figure 3
California Black Carbon Emissions Inventory (Year 2013)



Source: ARB 2017

snowpack during spring and summer months. An earlier snowmelt would also impact the State's energy resources. Currently, approximately 20 percent of California's electricity comes from hydropower. An early exhaustion of the Sierra snowpack, may force electricity producers to switch to more costly or non-renewable forms of electricity generation during spring and summer months. A changing climate may also impact agricultural crop yields, coastal structures, and biodiversity. As a result, resultant changes in climate will likely have detrimental effects on some of California's largest industries, including agriculture, wine, tourism, skiing, recreational and commercial fishing, and forestry (PCL 2018).

REGULATORY FRAMEWORK

FEDERAL

Executive Order 13514

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

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

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

- Endangerment Finding: The Administrator found that the current and projected concentrations of the six key well-mixed GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) in the atmosphere threaten the public health and welfare of current and future generations.
- Cause or Contribute Finding: The Administrator found that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare.

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

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

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

STATE

Assembly Bill 1493

AB 1493 (Pavley) of 2002 (Health and Safety Code Sections 42823 and 43018.5) requires the ARB to develop and adopt the nation's first GHG emission standards for automobiles. These standards are also known as Pavley I. The California Legislature declared in AB 1493 that global warming is a matter of increasing concern for public health and the environment. It cites several risks that California faces from climate change, including a reduction in the state's water supply; an increase in air pollution caused by higher temperatures; harm to agriculture; an increase in wildfires; damage to the coastline; and economic losses caused by higher food, water, energy, and insurance prices. The bill also states that technological solutions to reduce GHG emissions would stimulate California's economy and provide jobs. In 2004, the State of California submitted a request for a waiver from federal clean air regulations, as the State is authorized to do under the FCAA, to allow the State to require reduced tailpipe emissions of CO_2. In late 2007, the U.S. EPA denied California's waiver request and declined to promulgate adequate federal regulations limiting GHG emissions. In early 2008, the State brought suit against the U.S. EPA related to this denial.

In January 2009, President Obama instructed the U.S. EPA to reconsider the Bush Administration's denial of California's and 13 other states' requests to implement global warming pollution standards for cars and trucks. In June 2009, the U.S. EPA granted California's waiver request, enabling the State to enforce its GHG emissions standards for new motor vehicles beginning with the current model year.

In 2009, President Obama announced a national policy aimed at both increasing fuel economy and reducing GHG pollution for all new cars and trucks sold in the US. The new standards would cover model years 2012 to 2016 and would raise passenger vehicle fuel economy to a fleet average of 35.5 miles per gallon by 2016. When the national program takes effect, California has committed to allowing automakers who show compliance with the national program to also be deemed in compliance with state requirements. California is committed to further strengthening these standards beginning in 2017 to obtain a 45 percent GHG reduction from the 2020 model year vehicles.

Executive Order No. S-3-05

Executive Order S-3-05 (State of California) proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the

Executive Order established total GHG emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, to the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

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

Assembly Bill 32 - California Global Warming Solutions Act of 2006

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

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

Climate Change Scoping Plan

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

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

The initial Scoping Plan was first approved by ARB on December 11, 2008 and is updated every five years. The first update of the Scoping Plan was approved by the ARB on May 22, 2014, which looked past 2020 to set mid-term goals (2030-2035) on the road to reaching the 2050 goals., The most recent update released by ARB is the *2017 Climate Change Scoping Plan*, which was released In November 2017. The *2017 Climate Change Scoping Plan* incorporates strategies for achieving the 2030 GHG-reduction target established in SB 32 and EO B-30-15.

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

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

ARB is required by current law, AB 32 of 2006, to regulate sources of GHGs to meet a state goal of reducing GHG emissions to 1990 levels by 2020 and an 80 percent reduction of 1990 levels by 2050. The California Energy Commissions and California Public Utilities Commission serve in advisory roles to help ARB develop the regulations to administer the 33 percent by 2020 requirement. ARB is also authorized to increase the target and accelerate and expand the time frame.

Mandatory Reporting of GHG Emissions

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

Cap-and-Trade Regulation

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

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

Senate Bill 32

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

Senate Bill 375

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

California Building Code

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

Green Building Standards

In essence, green buildings standards are indistinguishable from any other building standards. Both standards are contained in the California Building Code and regulate the construction of new buildings and improvements. The only practical distinction between the two is that whereas the focus of traditional building standards has been protecting public health and safety, the focus of green building standards is to improve environmental performance.

AB 32, which mandates the reduction of GHG emissions in California to 1990 levels by 2020, increased the urgency around the adoption of green building standards. In its scoping plan for the implementation of AB 32, ARB identified energy use as the second largest contributor to California's GHG emissions, constituting roughly 25 percent of all such emissions. In recommending a green building strategy as one element of the scoping plan, ARB estimated that green building standards would reduce GHG emissions by approximately 26 MMT of CO_2e by 2020. The green buildings standards were most recently updated in 2016.

Senate Bill 97

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

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

As part of the administrative rulemaking process, the California Natural Resources Agency developed a Final Statement of Reasons explaining the legal and factual bases, intent, and purpose of the CEQA Guidelines amendments. The amendments to the CEQA Guidelines implementing SB 97 became effective on March 18, 2010.

Short-Lived Climate Pollutant Reduction Strategy

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

SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT

SJVAPCD Climate Change Action Plan

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

Goals:

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

Actions:

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

SJVAPCD CEQA Greenhouse Gas Guidance.

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

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

Best performance standards (BPS) would be established according to performance-based determinations. Projects complying with BPS would not require specific quantification of greenhouse gas emissions and would be determined to have a less than significant cumulative impact for greenhouse gas emissions. Projects not complying with BPS would require quantification of greenhouse gas emissions and demonstration that greenhouse gas emissions have been reduced or mitigated by 29 percent, as targeted by ARB's AB 32 Scoping Plan. Furthermore, quantification of greenhouse gas emissions would be required for all projects for which the lead agency has determined that an Environmental Impact Report is required, regardless of whether the project incorporates Best Performance Standards.

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

IMPACTS & MITIGATION MEASURES

METHODOLOGY

Project Construction

Construction-generated GHG emissions associated with the proposed project were calculated using the CalEEMod computer program. Emissions were quantified for site preparation, grading, asphalt paving, building construction, and the application of architectural coatings. Construction-generated emissions for the proposed 141-lot single-family residential development were based, in part, on anticipated construction schedules and information provided by the project applicant. Other information, such as off-road equipment usage requirements, architectural coating VOC contents, and construction-related vehicle trips were based on model defaults. The anticipated construction schedules for future development of the proposed future commercial uses and the 64-unit multi-family residential development are not known at this time. As a result, construction emissions for these land uses were based on model defaults. To be conservative, construction of the commercial and multi-family land uses was assumed to begin upon completion of the proposed 141-lot single-family residential development and were assumed to occur simultaneously over a one-year period. Modeling assumptions and output files are included in Appendix A of this report

Project Operations

Long-term operational GHG emissions associated with the proposed project were calculated using the CalEEMod computer program. Modeling was conducted based on traffic data derived, in part, from the traffic analysis prepared for the proposed project (JLB 2018). Mobile source emissions for the proposed residential uses were based on SJVAPCD-recommended vehicle fleet distribution for residential uses. Vehicle fleet distribution for the proposed future commercial land uses were based on model defaults. All other modeling assumptions were based on the default parameters contained in the CalEEMod computer model. It is important to note that the specific future commercial uses to be developed are based on preliminary assumptions. Development of the future commercial land uses was assumed to include an approximate 26,015 sf shopping center, an eight-pump fuel station, and a 3,200 sf restaurant. Modeling assumptions and output files are included in Appendix A of this report.

THRESHOLDS OF SIGNIFICANCE

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

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

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

San Joaquin Valley Air Pollution Control District

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

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

The SJVAPCD has not yet adopted best performance standards for development projects. The quantification of project-generated GHG emissions in comparison to BAU conditions to determine consistency with AB 32's reduction goals is considered appropriate in some instances. However, based on a recent California Supreme Court's decision in *Center for Biological Diversity v. California Department of Fish and Wildlife and Newhall Land and Farming (2015) 224 Cal.App.4th 1105 (CBD vs. CDFW;* also known as the *"Newhall Ranch case")*, substantial evidence would need to be provided to document that project-level reductions in comparison to a BAU approach would be consistent with achieving AB 32's overall statewide reduction goal. Given that AB 32's statewide goal includes reductions that are not necessarily related to an individual development project, the use of this approach may be difficult to support given the lack of substantial evidence to adequately demonstrate a link between the data contained in the AB 32 Scoping Plan and individual development projects. Alternatively, the Court identified potential options for evaluating GHG impacts for individual development projects, which included the use of GHG efficiency metrics. In general, GHG efficiency metrics can be used to assess the GHG efficiency of an individual project based on a per capita basis or on a service population basis.

A GHG efficiency threshold based on service population can be calculated by dividing the GHG emissions inventory goal (allowable emissions), by the estimated service population of the individual project. For most development projects, service population is traditionally defined as the sum of the number of jobs and the number of residents provided by a project. The calculated GHG efficiency of the proposed project included an estimated 403 residents for the proposed single-family development, 183 residents for the proposed future multi-family development, and 299 employees for the proposed future commercial development. Residential population estimates were derived from the CalEEMod modeling conducted for this project. Commercial employee estimates were calculated based on rates derived from the United States Green Building Council. GHG efficiency for the proposed 141-residential development project was calculated assuming an initial buildout year of 2021. Buildout of the total project, including the future multi-family and commercial use were conservatively estimated for year 2022. To be conservative, construction-generated GHG emissions were amortized based on an estimated 30-year project life and included in annual operational GHG emissions estimates. GHG efficiencies were also calculated for year 2030 to be consistent with the statewide GHG-reduction target year. The methodology used for quantification of the target efficiency threshold applied to the proposed project is summarized in Table 11. Project-generated

GHG emissions that would exceed the efficiency thresholds identified would be considered to have a potentially significant impact on the environment that could conflict with GHG-reduction planning efforts.

Table 11
Project-Level GHG Efficiency Threshold Calculation

	2021	2022	2030
Land Use Sectors GHG Emissions Target[1]	259,000,000	246,000,000	163,000,000
Population[2]	40,639,392	40,980,939	43,939,250
Employment[3]	18,839,373	19,031,622	20,852,595
Service Population	60,012,561	60,547,398	64,791,845
GHG Efficiency Threshold ($MTCO_2e$/SP/yr)	4.3	4.1	2.5

Based on AB 32 Scoping Plan's land use inventory sectors for years 2020 and 2030; Includes transportation sources.

1. *California Air Resources Board. California 1990 Greenhouse Gas Emissions Level and 2020 Limit — by Sector and Activity (Land Use-driven sectors only) MMT CO2e - (based upon IPCC Fourth Assessment Report Global Warming Potentials)*
2. *California Department of Finance Demographic Research Unit. September 2018. Report P-1 "State Population Projections (2010 - 2060), Total Population by County". http://www.dof.ca.gov/Forecasting/Demographics/Projections/.*
3. *California Employment Development Department. Employment Projections Labor Market Information Resources and Data, "CA Long-Term. 2016-2026 Statewide Employment Projections". https://www.labormarketinfo.edd.ca.gov/data/employment-projections.html.*
4. *Employment data for interim years is estimated based on proportionality with population trends based on historical data.*

PROJECT IMPACTS

Impact GHG-A. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? And

Impact GHG-B. Would the project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

Implementation of the proposed project would contribute to increases of GHG emissions that are associated with global climate change. Short-term and long-term GHG emissions associated with the development of the proposed project are discussed in greater detail, as follows:

Short-term Construction GHG Emissions

Short-term annual GHG emissions are summarized in Table 12. Based on the modeling conducted, annual emissions of GHGs associated with construction of the proposed 141-lot single-family residential development would total approximately 521.4 $MTCO_2e$. The future construction of the proposed 64-unit multi-family residential and commercial uses would generate approximately 418.3 and 398.2 $MTCO_2e$. *In total, buildout of the project would generate a total of 1,337.9* $MTCO_2e$. There would also be a small amount of GHG emissions from waste generated during construction; however, this amount is speculative. Actual emissions would vary, depending on various factors including construction schedules, equipment required, and activities conducted. Assuming an average project life of 30 years, amortized construction-generated GHG emissions for the proposed project would total approximately 44.6 $MTCO_2e$/yr. Amortized construction-generated GHG emissions were included in the operational GHG emissions inventory for the evaluation of project-generated GHG emissions (refer to Table 12).

Table 12
Short-Term Construction GHG Emissions

Land Use	Total GHG Emissions ($MTCO_2e$)	Amortized GHG Emissions ($MTCO_2e$/Year)
141-Lot Single-Family Residential	521.4	17.4
Future 64-Unit Multi-Family Residential	418.3	13.9
Future Commercial	398.2	13.3
Total:	1,337.9	44.6

Based on CalEEMod computer modeling. Amortized emissions assumes a 30-year project life. Refer to Appendix A for modeling results and assumptions.

Long-term Operational GHG Emissions

Estimated operational GHG emissions associated with the proposed 141-lot single-family residential development, as well as, future buildout of the proposed project, including the proposed future 64-unit multi-family residential development and commercial land uses, are discussed in greater detail, as follows:

Proposed 141-Lot Single-Family Residential Development

Estimated operational GHG emissions associated with the proposed 141-Lot single-family residential development are summarized in Table 13. As depicted, operational GHG emissions would total approximately 2,180.8 $MTCO_2e$/year in 2021 and approximately 1,763.1 $MTCO_2e$/year in 2030. With the inclusion of amortized construction emissions, operational GHG emissions would total approximately 2198.2 $MTCO_2e$/year in 2021 and approximately 1,780.5 $MTCO_2e$/year in 2030. Based on this estimate and assuming a population of 403 residents, the calculated GHG efficiency for the proposed project would be 5.5 $MTCO_2e$/SP/yr in 2021 and 4.4 $MTCO_2e$/SP/yr in 2030. The GHG efficiency for the proposed project would exceed the thresholds of 4.3 $MTCO_2e$/SP/yr in 2021 and 2.5 $MTCO_2e$/SP/yr in 2030.

Proposed Project Buildout

Estimated operational GHG emissions associated with the buildout of the proposed project, including proposed residential and commercial land uses, are summarized in Table 14. As depicted, operational GHG emissions would total approximately 6,692.4 $MTCO_2e$/year in 2022 and approximately 5,630.1 $MTCO_2e$/year in 2030. Operational GHG emissions are also depicted in Figure 4. As shown in Figure 4, a majority of the project-generated GHG emissions, roughly 84 percent, are associated with the operation of motor vehicles. Energy use and area sources (e.g., landscaping, hearth devices) would account for roughly 15 percent of the total GHG emissions. The remaining approximately one percent of project-generated GHG emissions would be associated with water use and waste generation.

With the inclusion of amortized construction emissions, operational GHG emissions would total approximately 6,737.0 $MTCO_2e$/year in 2022 and approximately 5,674.7 $MTCO_2e$/year in 2030 (refer to Table 14). Based on this estimate and assuming a total buildout population of 885 residents and employees, the calculated GHG efficiency for the proposed project would be 7.6 $MTCO_2e$/SP/yr in 2022 and 6.4 $MTCO_2e$/SP/yr in 2030. The GHG efficiency for the proposed project would exceed the thresholds of 4.1 $MTCO_2e$/SP/yr in 2022 and 2.5 $MTCO_2e$/SP/yr in 2030.

Table 13
Long-term Operational GHG Emissions (Unmitigated)
141-Lot Single-Family Residential

Emissions Source	GHG Emissions ($MTCO_2e$ per year) [1]	
	Year 2021	Year 2030
Hearth	268.2	268.2
Landscaping	1.8	1.8
Energy Use	416.1	348.7
Mobile Sources[2]	1443.1	1096.1
Waste Generation[3]	28.5	28.5
Water Use[4]	23.1	19.8
Total Project Operational Emissions:	2,180.8	1,763.1
Amortized Construction Emissions:	17.4	17.4
Net Increase:	2,198.2	1,780.5
Project GHG Efficiency ($MTCO_2e$/SP/yr)[5]:	5.5	4.4
GHG Efficiency Threshold ($MTCO_2e$/SP/yr):	4.3	2.5
Exceeds Threshold/Significant Impact?	Yes	Yes

1. Project-generated emissions were quantified using the CalEEMod computer program.
2. Based on SJVAPCD fleet distribution estimates for residential land uses. Trip-generation rates were derived from the traffic analysis prepared for this project.
3. Based on current state-wide waste diversion rate of 61 percent.
4. Includes installation of low-flow water fixtures and water-efficient irrigation systems, per California's 2015 water-efficiency standards.
5. Based on a resident population of 403 individuals.
Refer to Appendix A for modeling results and assumptions.

GHG Emissions Summary

Increases in operational GHG emissions associated with the proposed 141-lot single-family residential development, as well as, future buildout of the proposed project, including the proposed future 64-unit multi-family residential development and commercial land uses, would exceed applicable significance thresholds. As a result, the proposed project would result in a significant increase in GHG emissions that could conflict with the State's GHG-reduction targets.

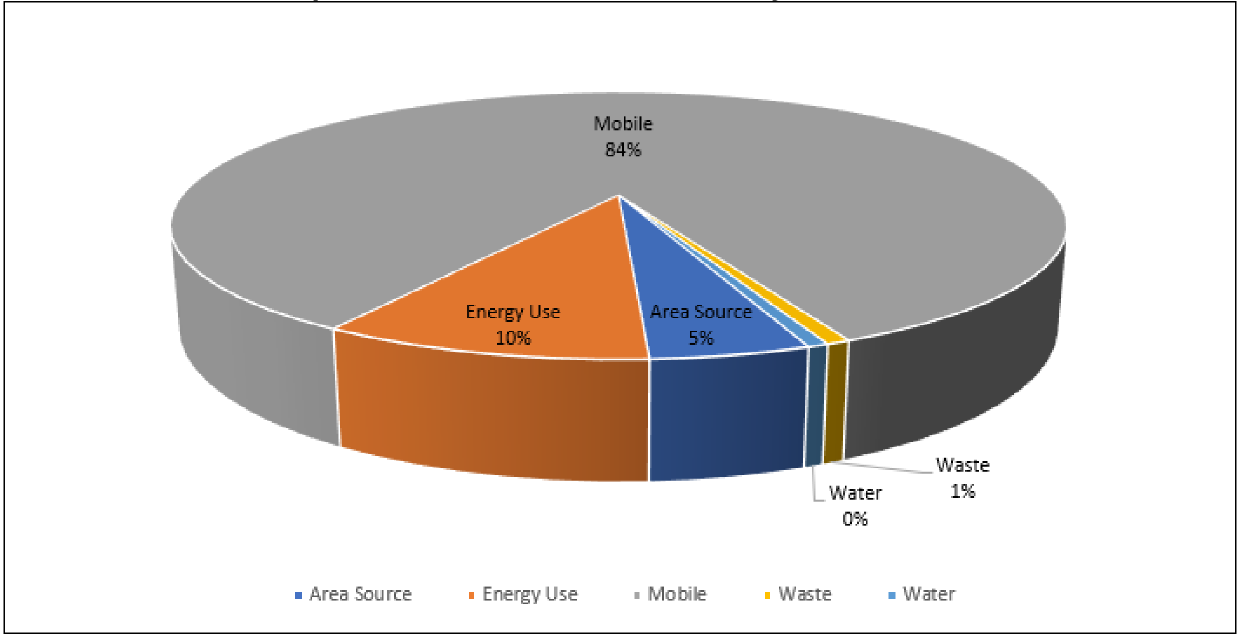
The proposed project would be designed to meet current building energy-efficiency standards, which includes measures to reduce overall energy use, water use, and waste generation. The project would also be designed to promote the use of alternative means of transportation, such as bicycle use, and to provide improved pedestrian access that would link the project site to nearby land uses. Additional measures would also be included, such as the prohibited use of wood-burning fireplaces. These improvements would help to further reduce the project's GHG emissions and would also help to reduce community-wide GHG emissions. However, even with implementation of these measures, project-generated GHG emissions would could still exceed applicable significance thresholds and conflict with GHG-reduction planning efforts. This impact would be considered ***potentially significant***.

Table 14
Long-term Operational GHG Emissions (Unmitigated)
Project Buildout

Emissions Source	GHG Emissions ($MTCO_2e$ per year) [1]	
	Year 2022	Year 2030
Hearth	310.5	310.5
Landscaping	2.6	2.6
Energy Use	649.4	545.5
Mobile Sources[2]	5,642.3	4,689.7
Waste Generation[3]	46.9	46.9
Water Use[4]	40.7	34.9
Total Project Operational Emissions:	6,692.4	5,630.1
Amortized Construction Emissions:	44.6	44.6
Net Increase:	6,737.0	5,674.7
Project GHG Efficiency ($MTCO_2e$/SP/yr)[5]:	7.6	6.4
GHG Efficiency Threshold ($MTCO_2e$/SP/yr):	4.1	2.5
Exceeds Threshold/Significant Impact?	Yes	Yes

1. Project-generated emissions were quantified using the CalEEMod computer program.
2. Based on SJVAPCD fleet distribution estimates for residential land uses. Fleet distribution for future commercial uses are based on model defaults. Trip-generation rates were derived from the traffic analysis prepared for this project.
3. Based on current state-wide waste diversion rate of 61 percent.
4. Includes installation of low-flow water fixtures and water-efficient irrigation systems, per California's 2015 water-efficiency standards.
5. Based on a combined resident and employee population of 885 individuals.
Refer to Appendix A for modeling results and assumptions.

Figure 4
Operational GHG Emissions at Project Buildout



Mitigation Measures

Mitigation Measure GHG-1. Implement Mitigation Measures AQ-1, AQ-2, and AQ-3.

Level of Significance after Mitigation

The proposed project would be designed to meet current building energy-efficiency standards, which includes measures to reduce overall energy use, water use, and waste generation. The project would also be designed to promote the use of alternative means of transportation, such as bicycle use, and to provide improved pedestrian access that would link the project site to nearby land uses. Additional measures would also be included, such as the prohibited use of wood-burning fireplaces. Implementation of Mitigation Measure AQ-1 would also require compliance with SJVAPCD Rule 9510, which would include the incorporation of mitigation measures to reduce operational emissions from motor vehicles, energy use, and area sources. These measures would also help to reduce operational emissions of GHGs. Furthermore, it is important to note that Mitigation Measure AQ-2, would require the project proponent to enter into a Voluntary Emissions Reduction Agreement (VERA) with the SJVAPCD. The VERA would result in additional reductions of operational emissions through various means, including implementation of additional on-site or off-site mitigation and/or the funding of off-site mitigation. These additional measures have not yet been identified, but would likely have the added benefit of reducing project-generated GHG emissions. Implementation of Mitigation Measure AQ-3 would reduce construction related emissions from diesel-fueled off-road and on-road vehicles, which would help to reduce short-term emissions of black carbon. Because the GHG emission reductions to be achieved through implementation of the Mitigation Measures AQ-1 and AQ-2 cannot be quantified at this time, increased GHG emissions associated with the proposed project would be considered to have a significant impact on the environment that could also conflict with GHG-reduction planning efforts, even with implementation of proposed mitigation measures.

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APPENDIX A

EMISSIONS MODELING & DOCUMENTATION

RULE 9510 APPLICABILITY

TOTAL SFR & MFR DUs	205	UNITS
TOTAL COMMERCIAL	30344	SF
RES. ISR THRESHOLD	50	UNITS
COMM. ISR THRESHOLD	10000	SF
OTHER (MIXED USE) ISR THRESHOLD	9000	SF
SUBJECT TO ISR 9510?	**YES**	

http://www.valleyair.org/rules/currntrules/CAB_rule_9510_March%202018.pdf

DUST CONTROL PLAN APPLICABILITY

TOTAL PROJECT ACREAGE	30.4	ACRES
RESIDENTIAL ACREAGE	27.35	ACRES
NONRESIDENTIAL ACREAGE	3.05	ACRES
RESIDENTIAL THRESHOLD	10	ACRES
NON-RESIDENTIAL THRESHOLD	5	ACRES
DUST CONTROL PLAN REQUIRED?	**YES**	

http://www.valleyair.org/rules/currntrules/r8021.pdf

MODELED LAND USES

Near-Term		
Single-Family Residential	141	LOTS
Future		
Multi-Family Residential	64	UNIT
Commercial		
Shopping Center (Retail General)	26015	SF
Fuel Station (Retail Service)	1129	SF
Restaurant with drive thru	3200	SF
Total Commercial	30344	SF

EMISSIONS SUMMARY - CONSTRUCTION UNMITIGATED

PHASE/ACTIVITY	NUMBER OF DAYS	UNMITIGATED CONSTRUCTION EMISSIONS (TONS/YEAR)									
						PM10			PM2.5		
		ROG	NOX	CO	SO2	FUG	EXH	TOT	FUG	EXH	TOT
141 LOT SFR											
SITE PREPARATION											
ONSITE	20	0.04	0.46	0.22	0.00	0.18	0.02	0.20	0.10	0.02	0.12
OFFSITE		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		0.04	0.46	0.23	0.00	0.18	0.02	0.20	0.10	0.02	0.12
GRADING											
ONSITE	45	0.11	1.23	0.75	0.00	0.20	0.05	0.25	0.08	0.05	0.13
OFFSITE		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		0.11	1.23	0.76	0.00	0.20	0.05	0.25	0.08	0.05	0.13
BUILDING CONST - 2019											
ONSITE	197	0.23	2.03	1.66	0.00	0.00	0.13	0.13	0.00	0.12	0.12
OFFSITE		0.03	0.21	0.19	0.00	0.05	0.00	0.05	0.10	0.00	0.10
TOTAL		0.26	2.24	1.85	0.00	0.05	0.13	0.18	0.10	0.12	0.22
BUILDING CONST - 2020											
ONSITE	260	0.28	2.51	2.21	0.00	0.00	0.15	0.15	0.00	0.14	0.14
OFFSITE		0.04	0.26	0.23	0.00	0.07	0.00	0.07	0.02	0.00	0.02
TOTAL		0.32	2.77	2.44	0.00	0.07	0.15	0.22	0.02	0.14	0.16
BUILDING CONST - 2021											
ONSITE	43	0.04	0.39	0.37	0.00	0.00	0.02	0.02	0.00	0.02	0.02
OFFSITE		0.00	0.04	0.04	0.00	0.01	0.00	0.01	0.00	0.00	0.00
TOTAL		0.04	0.43	0.41	0.00	0.01	0.02	0.03	0.00	0.02	0.02
PAVING											
ONSITE	35	0.03	0.27	0.26	0.00	0.00	0.01	0.01	0.00	0.01	0.01
OFFSITE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		0.03	0.27	0.26	0.00	0.00	0.01	0.01	0.00	0.01	0.01
ARCH COATING											
ONSITE	400	0.57	0.09	0.09	0.00	0.00	0.01	0.01	0.00	0.01	0.01
OFFSITE		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		0.57	0.09	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01
TOTAL 2019		*1.01*	*4.28*	*3.20*	*0.01*	*0.44*	*0.22*	*0.66*	*0.20*	*0.21*	*0.41*
TOTAL 2020		*1.91*	*3.00*	*2.71*	*0.01*	*0.08*	*0.16*	*0.24*	*0.02*	*0.15*	*0.17*
TOTAL 2021		*0.32*	*0.47*	*0.45*	*0.00*	*0.01*	*0.02*	*0.04*	*0.00*	*0.02*	*0.03*
SJVAPCD SIGNIFICANCE THRESHOLDS:		**10**	**10**					**15**			**15**
EXCEEDS THRESHOLDS?		**NO**	**NO**					**NO**			**NO**

PHASE/ACTIVITY	NUMBER OF DAYS	UNMITIGATED CONSTRUCTION EMISSIONS (TONS/YEAR)									
						PM10			PM2.5		
		ROG	NOX	CO	SO2	FUG	EXH	TOT	FUG	EXH	TOT
FUTURE UNIT MFR											
SITE PREPARATION											
ONSITE	5	0.01	0.10	0.05	0.00	0.05	0.01	0.05	0.02	0.00	0.03
OFFSITE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		0.01	0.10	0.05	0.00	0.05	0.01	0.05	0.02	0.00	0.03
GRADING											
ONSITE	8	0.01	0.10	0.06	0.00	0.03	0.00	0.03	0.01	0.00	0.02
OFFSITE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		0.01	0.10	0.06	0.00	0.03	0.00	0.03	0.01	0.00	0.02
BUILDING CONST											
ONSITE	230	0.22	2.00	1.91	0.00	0.00	0.11	0.11	0.00	0.10	0.10
OFFSITE		0.03	0.20	0.21	0.00	0.07	0.00	0.07	0.02	0.00	0.02
TOTAL		0.25	2.20	2.12	0.00	0.07	0.11	0.18	0.02	0.10	0.12
PAVING											
ONSITE	18	0.01	0.10	0.11	0.00	0.00	0.01	0.01	0.00	0.00	0.00
OFFSITE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		0.01	0.10	0.11	0.00	0.00	0.01	0.01	0.00	0.00	0.01
ARCH COATING											
ONSITE	130	0.62	0.10	0.12	0.00	0.00	0.01	0.01	0.00	0.01	0.01
OFFSITE		0.00	0.00	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00
TOTAL		0.63	0.10	0.14	0.00	0.01	0.01	0.01	0.00	0.01	0.01
ANNUAL TOTAL		*0.91*	*2.60*	*2.49*	*0.00*	*0.15*	*0.13*	*0.28*	*0.06*	*0.12*	*0.18*
SJVAPCD SIGNIFICANCE THRESHOLDS:		**10**	**10**					**15**			**15**
EXCEEDS THRESHOLDS?		**NO**	**NO**					**NO**			**NO**

PHASE/ACTIVITY	NUMBER OF DAYS	UNMITIGATED CONSTRUCTION EMISSIONS (TONS/YEAR)									
						PM10			PM2.5		
		ROG	NOX	CO	SO2	FUG	EXH	TOT	FUG	EXH	TOT
FUTURE COMMERCIAL											
SITE PREPARATION	3										
ONSITE		0.01	0.06	0.03	0.00	0.03	0.00	0.03	0.01	0.00	0.02
OFFSITE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		0.01	0.06	0.03	0.00	0.03	0.00	0.03	0.01	0.00	0.02
GRADING	6										
ONSITE		0.01	0.07	0.05	0.00	0.02	0.00	0.02	0.01	0.00	0.01
OFFSITE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		0.01	0.07	0.05	0.00	0.02	0.00	0.02	0.01	0.00	0.01
BUILDING CONST	220										
ONSITE		0.21	1.92	1.82	0.00	0.00	0.11	0.11	0.00	0.10	0.10
OFFSITE		0.03	0.27	0.18	0.00	0.06	0.00	0.06	0.02	0.00	0.02
TOTAL		0.24	2.19	2.01	0.00	0.06	0.11	0.17	0.02	0.10	0.12
PAVING	10										
ONSITE		0.01	0.05	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OFFSITE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		0.01	0.05	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ARCH COATING	120										
ONSITE		0.25	0.09	0.11	0.00	0.00	0.01	0.01	0.00	0.01	0.01
OFFSITE		0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		0.25	0.09	0.12	0.00	0.00	0.01	0.01	0.00	0.01	0.01
ANNUAL TOTAL		*0.51*	*2.47*	*2.28*	*0.00*	*0.11*	*0.12*	*0.24*	*0.04*	*0.11*	*0.16*
SJVAPCD SIGNIFICANCE THRESHOLDS:		**10**	**10**					**15**			**15**
EXCEEDS CEQA THRESHOLDS?		**NO**	**NO**					**NO**			**NO**

TOTAL MFR & COMMERCIAL CONSTRUCTION											
SITE PREPARATION		0.02	0.16	0.09	0.00	0.07	0.01	0.08	0.04	0.01	0.05
GRADING		0.02	0.17	0.11	0.00	0.05	0.01	0.05	0.02	0.01	0.03
BUILDING CONST		0.49	4.40	4.13	0.01	0.13	0.22	0.35	0.04	0.20	0.24

EMISSIONS SUMMARY - CONSTRUCTION UNMITIGATED

	UNMITIGATED ONSITE CONSTRUCTION EMISSIONS (AVG LBS/DAY)									
					PM10			PM2.5		
	ROG	NOX	CO	SO2	FUG	EXH	TOT	FUG	EXH	TOT
141 LOT SFR										
SITE PREPARATION	SITE PREPARATION									
ONSITE	4.34	45.57	22.06	0.04	18.07	2.39	20.46	9.93	2.20	12.13
OFFSITE										
TOTAL										
GRADING	GRADING									
ONSITE	4.74	54.52	33.38	0.06	8.68	2.38	11.06	3.60	2.19	5.79
OFFSITE										
TOTAL										
BUILDING CONST - 2019	BUILDING CONST - 2019									
ONSITE	2.34	20.61	16.85	0.00	0.00	1.32	1.32	0.00	1.22	1.22
OFFSITE										
TOTAL										
BUILDING CONST - 2020	BUILDING CONST - 2020									
ONSITE	2.15	19.31	17.00	0.00	0.00	1.13	1.13	0.00	1.08	1.08
OFFSITE										
TOTAL										
BUILDING CONST - 2021	BUILDING CONST - 2021									
ONSITE	1.99	18.24	17.34	0.03	0.00	1.00	1.00	0.00	0.94	0.94
OFFSITE										
TOTAL										
PAVING	PAVING									
ONSITE	1.71	15.43	14.86	0.00	0.00	0.57	0.57	0.00	0.57	0.57
OFFSITE										
TOTAL										
ARCH COATING	ARCH COATING									
ONSITE	2.83	0.43	0.43	0.00	0.00	0.03	0.03	0.00	0.03	0.03
OFFSITE										
TOTAL										
MAXIMUM DAILY	*6.88*	*54.52*	*33.38*	*0.06*	*18.07*	*2.39*	*20.46*	*9.93*	*2.20*	*12.13*
SJVAPCD SIGNIFICANCE THRESHOLDS:	**100**	**100**	**100**	**100**			**100**			**100**
EXCEEDS THRESHOLDS?	**NO**	**NO**	**NO**	**NO**			**NO**			**NO**

**Maximum daily includes site preparation, grading, or building construction. Building construction includes paving and architectural coating application.*

	UNMITIGATED ONSITE CONSTRUCTION EMISSIONS (AVG LBS/DAY)									
					PM10			PM2.5		
	ROG	NOX	CO	SO2	FUG	EXH	TOT	FUG	EXH	TOT
FUTURE UNIT MFR										
SITE PREPARATION	SITE PREPARATION									
ONSITE	0.97	10.12	5.29	0.01	4.52	0.51	5.03	2.48	0.47	2.95
OFFSITE										
TOTAL										
GRADING	GRADING									
ONSITE	0.41	4.40	2.82	0.01	1.16	0.21	1.37	0.60	0.19	0.79
OFFSITE										
TOTAL										
BUILDING CONST	BUILDING CONST									
ONSITE	2.22	20.35	19.35	0.03	0.00	1.12	1.12	0.00	1.05	1.05
OFFSITE										
TOTAL										
PAVING	PAVING									
ONSITE	0.64	5.58	6.30	0.01	0.00	0.30	0.30	0.00	0.27	0.27
OFFSITE										
TOTAL										
ARCH COATING	ARCH COATING									
ONSITE	3.12	0.50	0.59	0.00	0.00	0.03	0.03	0.00	0.03	0.03
OFFSITE										
TOTAL										
MAXIMUM DAILY	*5.98*	*26.43*	*26.25*	*0.04*	*0.00*	*1.45*	*1.45*	*0.00*	*1.36*	*1.36*
SJVAPCD SIGNIFICANCE THRESHOLDS:	**100**	**100**	**100**	**100**			**100**			**100**
EXCEEDS THRESHOLDS?	**NO**	**NO**	**NO**	**NO**			**NO**			**NO**

**Maximum daily includes site preparation, grading, or building construction. Building construction includes paving and architectural coating application.*

	UNMITIGATED ONSITE CONSTRUCTION EMISSIONS (AVG LBS/DAY)									
					PM10			PM2.5		
	ROG	**NOX**	**CO**	**SO2**	**FUG**	**EXH**	**TOT**	**FUG**	**EXH**	**TOT**
FUTURE COMMERCIAL										
SITE PREPARATION	SITE PREPARATION									
ONSITE	0.58	6.08	3.17	0.01	2.71	0.31	3.02	1.49	0.28	1.77
OFFSITE										
TOTAL										
GRADING	GRADING									
ONSITE	0.31	3.30	2.12	0.00	0.88	0.15	1.03	0.45	0.14	0.59
OFFSITE										
TOTAL										
BUILDING CONST	BUILDING CONST									
ONSITE	2.12	19.47	18.51	0.03	0.00	1.07	1.07	0.00	1.01	1.01
OFFSITE										
TOTAL										
PAVING	PAVING									
ONSITE	0.48	3.10	3.50	0.01	0.00	0.17	0.17	0.00	0.15	0.15
OFFSITE										
TOTAL										
ARCH COATING	ARCH COATING									
ONSITE	1.23	0.46	0.55	0.00	0.00	0.03	0.03	0.00	0.03	0.03
OFFSITE										
TOTAL										
MAXIMUM DAILY	*3.83*	*23.02*	*22.56*	*0.04*	*0.00*	*1.26*	*1.26*	*0.00*	*1.19*	*1.19*
SJVAPCD SIGNIFICANCE THRESHOLDS:	**100**	**100**	**100**	**100**			**100**			**100**
EXCEEDS THRESHOLDS?	**NO**	**NO**	**NO**	**NO**			**NO**			**NO**

**Maximum daily includes site preparation, grading, or building construction. Building construction includes paving and architectural coating application.*

TOTAL MFR & COMMERCIAL CONSTRUCTION										
SITE PREPARATION	1.56	16.20	8.46	0.02	7.23	0.82	8.05	3.97	0.75	4.72
GRADING	0.71	7.70	4.93	0.01	2.04	0.36	2.40	1.05	0.33	1.38
BUILDING CONST	4.34	39.82	37.86	0.06	0.00	2.19	2.19	0.00	2.06	2.06

EMISSIONS SUMMARY - CONSTRUCTION (w/T3 OFF-ROAD EQUIPMENT & DUST CONTROL)

PHASE/ACTIVITY	NUMBER OF DAYS	MITIGATED (w/TIER 3 OFFROAD EQUIPMENT/DUST CONTROL) CONSTRUCTION EMISSIONS (TONS/YEAR)									
						PM10			PM2.5		
		ROG	NOX	CO	SO2	FUG	EXH	TOT	FUG	EXH	TOT
141 LOT SFR											
SITE PREPARATION	20										
ONSITE		0.01	0.19	0.23	0.00	0.07	0.01	0.08	0.04	0.01	0.05
OFFSITE		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		0.01	0.19	0.24	0.00	0.07	0.01	0.08	0.04	0.01	0.05
GRADING	45										
ONSITE		0.03	0.67	0.83	0.00	0.08	0.03	0.11	0.03	0.03	0.06
OFFSITE		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		0.03	0.67	0.84	0.00	0.08	0.03	0.11	0.03	0.03	0.06
BUILDING CONST - 2019	197										
ONSITE		0.07	1.37	1.72	0.00	0.00	0.09	0.09	0.00	0.09	0.09
OFFSITE		0.03	0.21	0.19	0.00	0.05	0.00	0.05	0.10	0.00	0.10
TOTAL		0.10	1.58	1.91	0.00	0.05	0.09	0.14	0.10	0.09	0.19
BUILDING CONST - 2020	260										
ONSITE		0.09	1.86	2.34	0.00	0.00	0.12	0.12	0.00	0.12	0.12
OFFSITE		0.04	0.26	0.23	0.00	0.07	0.00	0.07	0.02	0.00	0.02
TOTAL		0.13	2.12	2.57	0.00	0.07	0.12	0.19	0.02	0.12	0.14
BUILDING CONST - 2021	43										
ONSITE		0.02	0.32	0.40	0.00	0.00	0.02	0.02	0.00	0.02	0.02
OFFSITE		0.00	0.04	0.04	0.00	0.01	0.00	0.01	0.00	0.00	0.00
TOTAL		0.02	0.36	0.44	0.00	0.01	0.02	0.03	0.00	0.02	0.02
PAVING	35										
ONSITE		0.01	0.20	0.30	0.00	0.00	0.01	0.01	0.00	0.01	0.01
OFFSITE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		0.01	0.20	0.30	0.00	0.00	0.01	0.01	0.00	0.01	0.01
ARCH COATING	400										
ONSITE		0.56	0.06	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OFFSITE		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		0.56	0.06	0.10	0.00	0.00	0.00	0.01	0.00	0.00	0.01
TOTAL 2019		*0.72*	*2.71*	*3.40*	*0.01*	*0.21*	*0.14*	*0.35*	*0.09*	*0.23*	*0.41*
REDUCTION COMPARED TO UNMITIGATED		*29%*	*37%*			*53%*	*36%*	*47%*			
TOTAL 2020		*1.70*	*2.31*	*2.84*	*0.01*	*0.08*	*0.13*	*0.21*	*0.02*	*0.13*	*0.15*
REDUCTION COMPARED TO UNMITIGATED		*11%*	*23%*			*0%*	*19%*	*13%*			
TOTAL 2021		*0.29*	*0.39*	*0.48*	*0.00*	*0.01*	*0.02*	*0.04*	*0.00*	*0.02*	*0.03*
REDUCTION COMPARED TO UNMITIGATED		*10%*	*16%*			*0%*	*5%*	*3%*			
SJVAPCD SIGNIFICANCE THRESHOLDS:		**10**	**10**					**15**			**15**
EXCEEDS CEQA THRESHOLDS?		**NO**	**NO**					**NO**			**NO**

PHASE/ACTIVITY	NUMBER OF DAYS	MITIGATED (w/TIER 3 OFFROAD EQUIPMENT/DUST CONTROL) CONSTRUCTION EMISSIONS (TONS/YEAR)									
						PM10			PM2.5		
		ROG	NOX	CO	SO2	FUG	EXH	TOT	FUG	EXH	TOT
FUTURE UNIT MFR											
SITE PREPARATION	5										
ONSITE		0.00	0.05	0.06	0.00	0.02	0.00	0.02	0.01	0.00	0.01
OFFSITE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		0.00	0.05	0.06	0.00	0.02	0.00	0.02	0.01	0.00	0.01
GRADING	8										
ONSITE		0.00	0.06	0.08	0.00	0.01	0.00	0.01	0.01	0.00	0.01
OFFSITE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		0.00	0.06	0.08	0.00	0.01	0.00	0.01	0.01	0.00	0.01
BUILDING CONST	230										
ONSITE		0.08	1.64	2.06	0.00	0.00	0.10	0.10	0.00	0.10	0.10
OFFSITE		0.03	0.20	0.21	0.00	0.07	0.00	0.07	0.02	0.00	0.02
TOTAL		0.11	1.84	2.27	0.00	0.07	0.10	0.17	0.02	0.10	0.12
PAVING	18										
ONSITE		0.01	0.08	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OFFSITE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		0.01	0.08	0.13	0.00	0.00	0.00	0.01	0.00	0.00	0.01
ARCH COATING	130										
ONSITE		0.61	0.09	0.12	0.00	0.00	0.01	0.01	0.00	0.01	0.01
OFFSITE		0.00	0.00	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00
TOTAL		0.62	0.09	0.14	0.00	0.01	0.01	0.01	0.00	0.01	0.01
ANNUAL TOTAL		*0.74*	*2.12*	*2.67*	*0.00*	*0.11*	*0.12*	*0.23*	*0.04*	*0.12*	*0.16*
REDUCTION COMPARED TO UNMITIGATED		*19%*	*19%*			*29%*	*8%*	*19%*			
SJVAPCD SIGNIFICANCE THRESHOLDS:		**10**	**10**					**15**			**15**
EXCEEDS CEQA THRESHOLDS?		**NO**	**NO**					**NO**			**NO**

PHASE/ACTIVITY	NUMBER OF DAYS	MITIGATED (w/TIER 3 OFFROAD EQUIPMENT/DUST CONTROL) CONSTRUCTION EMISSIONS (TONS/YEAR)									
						PM10			PM2.5		
		ROG	NOX	CO	SO2	FUG	EXH	TOT	FUG	EXH	TOT
FUTURE COMMERCIAL											
SITE PREPARATION											
ONSITE	3	0.00	0.03	0.03	0.00	0.01	0.00	0.01	0.01	0.00	0.01
OFFSITE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		0.00	0.03	0.04	0.00	0.01	0.00	0.01	0.01	0.00	0.01
GRADING											
ONSITE	6	0.00	0.04	0.06	0.00	0.01	0.00	0.01	0.00	0.00	0.01
OFFSITE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		0.00	0.04	0.06	0.00	0.01	0.00	0.01	0.00	0.00	0.01
BUILDING CONST											
ONSITE	220	0.07	1.56	1.97	0.00	0.00	0.10	0.10	0.00	0.10	0.10
OFFSITE		0.03	0.27	0.18	0.00	0.06	0.00	0.06	0.02	0.00	0.02
TOTAL		0.10	1.84	2.15	0.00	0.06	0.10	0.16	0.02	0.10	0.12
PAVING											
ONSITE	10	0.01	0.05	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OFFSITE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		0.01	0.05	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ARCH COATING											
ONSITE	120	0.24	0.08	0.11	0.00	0.00	0.01	0.01	0.00	0.01	0.01
OFFSITE		0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		0.24	0.08	0.13	0.00	0.00	0.01	0.01	0.00	0.01	0.01
ANNUAL TOTAL		*0.35*	*2.04*	*2.44*	*0.00*	*0.09*	*0.11*	*0.20*	*0.03*	*0.11*	*0.14*
REDUCTION COMPARED TO UNMITIGATED		*31%*	*18%*			*25%*	*8%*	*16%*			
SJVAPCD SIGNIFICANCE THRESHOLDS:		**10**	**10**					**15**			**15**
EXCEEDS CEQA THRESHOLDS?		**NO**	**NO**					**NO**			**NO**
TOTAL SFR CONSTRUCTION (All YEARS)		2.71	5.41	6.72	0.01	0.30	0.30	0.59	0.11	0.38	0.59
REDUCTION COMPARED TO UNMITIGATED		17%	30%			44%	27%	37%			
TOTAL MFR & COMMERCIAL CONSTRUCTION		1.09	4.16	5.11	0.01	0.19	0.23	0.43	0.06	0.23	0.30
REDUCTION COMPARED TO UNMITIGATED		23%	18%			27%	8%	18%			
SJVAPCD SIGNIFICANCE THRESHOLDS:		**10**	**10**					**15**			**15**
EXCEEDS THRESHOLDS?		**NO**	**NO**					**NO**			**NO**

EMISSIONS SUMMARY - CONSTRUCTION MITIGATED

PHASE/ACTIVITY	MITIGATED (w/TIER 3 OFFROAD EQUIPMENT/DUST CONTROL) ONSITE CONSTRUCTION EMISSIONS (AVG LBS/DAY)									
					PM10			PM2.5		
	ROG	NOX	CO	SO2	FUG	EXH	TOT	FUG	EXH	TOT
141 LOT SFR										
SITE PREPARATION	SITE PREPARATION									
ONSITE	0.93	19.07	22.96	0.04	7.05	0.95	7.99	3.87	0.95	4.82
OFFSITE										
TOTAL										
GRADING	GRADING									
ONSITE	1.52	29.98	36.72	0.06	3.38	1.30	4.68	1.40	1.30	2.70
OFFSITE										
TOTAL										
BUILDING CONST - 2019	BUILDING CONST - 2019									
ONSITE	0.66	13.94	17.51	0.03	0.00	0.89	0.89	0.00	0.89	0.89
OFFSITE										
TOTAL										
BUILDING CONST - 2020	BUILDING CONST - 2020									
ONSITE	0.68	14.34	18.01	0.03	0.00	0.91	0.91	0.00	0.91	0.91
OFFSITE										
TOTAL										
BUILDING CONST - 2021	BUILDING CONST - 2021									
ONSITE	0.71	14.89	18.71	0.03	0.00	0.94	0.94	0.00	0.94	0.94
OFFSITE										
TOTAL										
PAVING	PAVING									
ONSITE	0.82	11.30	17.30	0.02	0.00	0.61	0.61	0.00	0.61	0.61
OFFSITE										
TOTAL										
ARCH COATING	ARCH COATING									
ONSITE	2.78	0.32	0.43	0.00	0.00	0.02	0.02	0.00	0.02	0.02
OFFSITE										
TOTAL										
MAXIMUM DAILY	*4.31*	*29.98*	*36.72*	*0.06*	*7.05*	*0.95*	*7.99*	*3.87*	*0.95*	*4.82*
SJVAPCD SIGNIFICANCE THRESHOLDS:	**100**	**100**	**100**	**100**			**100**			**100**
EXCEEDS CEQA THRESHOLDS?	**NO**	**NO**	**NO**	**NO**			**NO**			**NO**

**Maximum daily includes site preparation, grading, or building construction. Building construction includes paving and architectural coating application.*

PHASE/ACTIVITY	MITIGATED (w/TIER 3 OFFROAD EQUIPMENT/DUST CONTROL) ONSITE CONSTRUCTION EMISSIONS (AVG LBS/DAY)									
					PM10			PM2.5		
	ROG	NOX	CO	SO2	FUG	EXH	TOT	FUG	EXH	TOT
FUTURE UNIT MFR										
SITE PREPARATION	SITE PREPARATION									
ONSITE	0.23	4.77	5.74	0.01	1.76	0.24	2.00	0.97	0.24	1.21
OFFSITE										
TOTAL										
GRADING	GRADING									
ONSITE	0.13	2.64	3.38	0.01	0.45	0.13	0.59	0.23	0.13	0.37
OFFSITE										
TOTAL										
BUILDING CONST	BUILDING CONST									
ONSITE	0.79	16.61	20.87	0.03	0.00	1.05	1.05	0.00	1.05	1.05
OFFSITE										
TOTAL										
PAVING	PAVING									
ONSITE	0.30	4.67	6.96	0.01	0.00	0.27	0.27	0.00	0.27	0.27
OFFSITE										
TOTAL										
ARCH COATING	ARCH COATING									
ONSITE	3.07	0.44	0.60	0.00	0.00	0.03	0.03	0.00	0.03	0.03
OFFSITE										
TOTAL										
MAXIMUM DAILY	*4.16*	*21.72*	*28.42*	*0.04*	*0.00*	*1.36*	*1.36*	*0.00*	*1.36*	*1.36*
SJVAPCD SIGNIFICANCE THRESHOLDS:	**100**	**100**	**100**	**100**			**100**			**100**
EXCEEDS CEQA THRESHOLDS?	**NO**	**NO**	**NO**	**NO**			**NO**			**NO**

**Maximum daily includes site preparation, grading, or building construction. Building construction includes paving and architectural coating application.*

PHASE/ACTIVITY	MITIGATED (w/TIER 3 OFFROAD EQUIPMENT/DUST CONTROL) ONSITE CONSTRUCTION EMISSIONS (AVG LBS/DAY)									
					PM10			PM2.5		
	ROG	NOX	CO	SO2	FUG	EXH	TOT	FUG	EXH	TOT
FUTURE COMMERCIAL										
SITE PREPARATION	SITE PREPARATION									
ONSITE	0.14	2.86	3.44	0.01	1.06	0.14	1.20	0.58	0.14	0.72
OFFSITE										
TOTAL										
GRADING	GRADING									
ONSITE	0.10	1.98	2.53	0.00	0.34	0.10	0.44	0.18	0.10	0.28
OFFSITE										
TOTAL										
BUILDING CONST	BUILDING CONST									
ONSITE	0.75	15.89	19.96	0.03	0.00	1.01	1.01	0.00	1.01	1.01
OFFSITE										
TOTAL										
PAVING	PAVING									
ONSITE	0.30	2.59	3.87	0.01	0.00	0.15	0.15	0.00	0.15	0.15
OFFSITE										
TOTAL										
ARCH COATING	ARCH COATING									
ONSITE	1.18	0.41	0.55	0.00	0.00	0.03	0.03	0.00	0.03	0.03
OFFSITE										
TOTAL										
MAXIMUM DAILY	*2.23*	*18.89*	*24.38*	*0.04*	*0.00*	*1.19*	*1.19*	*0.00*	*1.19*	*1.19*
SJVAPCD SIGNIFICANCE THRESHOLDS:	**100**	**100**	**100**	**100**			**100**			**100**
EXCEEDS CEQA THRESHOLDS?	**NO**	**NO**	**NO**	**NO**			**NO**			**NO**

**Maximum daily includes site preparation, grading, or building construction. Building construction includes paving and architectural coating application.*

EMISSIONS SUMMARY - OPERATIONAL

PHASE/ACTIVITY	OPERATIONAL EMISSIONS (TONS/YEAR)									
					PM10			PM2.5		
	ROG	NOX	CO	SO2	FUG	EXH	TOT	FUG	EXH	TOT
141 LOT SFR										
Area	2.2102	0.2031	9.5445	0.028	0	1.3922	1.3922	0	1.3922	1.3922
Energy	0.0151	0.1291	0.0549	0.00082	0	0.0104	0.0104	0	0.0104	0.0104
Mobile	0.4546	1.6626	5.1657	0.0157	1.4554	0.0141	1.4695	0.3896	0.0132	0.4028
TOTAL UNMITIGATED	**2.68**	**1.99**	**14.77**	**0.04**	**1.46**	**1.42**	**2.87**	**0.39**	**1.42**	**1.81**
SJVAPCD SIGNIFICANCE THRESHOLDS:	**10**	**10**					**15**			**15**
EXCEEDS CEQA THRESHOLDS?	**NO**	**NO**					**NO**			**NO**
TOTAL WITH NAT. GAS FIREPLACES ONLY	1.75	1.86	6.29	0.02	1.46	0.03	1.49	0.39	0.03	0.42
SJVAPCD SIGNIFICANCE THRESHOLDS:	**10**	**10**					**15**			**15**
EXCEEDS CEQA THRESHOLDS?	**NO**	**NO**					**NO**			**NO**
PERCENT REDUCTIONS:		**7%**					**48%**			
TOTAL WITH NO FIREPLACES	1.74	1.80	6.27	0.02	1.46	0.03	1.49	0.39	0.03	0.42
SJVAPCD SIGNIFICANCE THRESHOLDS:	**10**	**10**					**15**			**15**
EXCEEDS CEQA THRESHOLDS?	**NO**	**NO**					**NO**			**NO**
PERCENT REDUCTIONS:		**10%**					**48%**			

PHASE/ACTIVITY	OPERATIONAL EMISSIONS (TONS/YEAR)									
					PM10			PM2.5		
	ROG	NOX	CO	SO2	FUG	EXH	TOT	FUG	EXH	TOT
FUTURE 64 UNIT MFR										
Area	0.3961	0.0391	1.0782	0.00211	0	0.1012	0.1012	0	0.1012	0.1012
Energy	0.00488	0.0417	0.0177	0.00027	0	0.00337	0.00337	0	0.00337	0.00337
Mobile	0.1444	0.5268	1.6284	0.00523	0.5006	0.00456	0.5051	0.134	0.00426	0.1382
TOTAL UNMITIGATED	**0.55**	**0.61**	**2.72**	**0.01**	**0.50**	**0.11**	**0.61**	**0.13**	**0.11**	**0.24**
SJVAPCD SIGNIFICANCE THRESHOLDS:	**10**	**10**					**15**			**15**
EXCEEDS CEQA THRESHOLDS?	**NO**	**NO**					**NO**			**NO**
TOTAL WITH NAT. GAS FIREPLACES ONLY	0.48	0.60	2.13	0.01	0.50	0.01	0.51	0.13	0.01	0.15
SJVAPCD SIGNIFICANCE THRESHOLDS:	**10**	**10**					**15**			**15**
EXCEEDS CEQA THRESHOLDS?	**NO**	**NO**					**NO**			**NO**
PERCENT REDUCTIONS:		**0.02**					**0.16**			
TOTAL WITH NO FIREPLACES	0.48	0.57	2.12	0.01	0.50	0.01	0.51	0.13	0.01	0.14
SJVAPCD SIGNIFICANCE THRESHOLDS:	**10**	**10**					**15**			**15**
EXCEEDS CEQA THRESHOLDS?	**NO**	**NO**					**NO**			**NO**
PERCENT REDUCTIONS:		**0.06**					**0.16**			

PHASE/ACTIVITY	OPERATIONAL EMISSIONS (TONS/YEAR)									
					PM10			PM2.5		
	ROG	NOX	CO	SO2	FUG	EXH	TOT	FUG	EXH	TOT
FUTURE COMMERCIAL										
Area	0.1482	0	0.00036	0	0	0	0	0	0	0
Energy	0.0051	0.0464	0.039	0.00028	0	0.00353	0.00353	0	0.00353	0.00353
Mobile	1.2555	15.1477	8.1717	0.0396	1.7184	0.031	1.7494	0.4632	0.0293	0.4925
TOTAL UNMITIGATED	**1.41**	**15.19**	**8.21**	**0.04**	**1.72**	**0.03**	**1.75**	**0.46**	**0.03**	**0.50**
SJVAPCD SIGNIFICANCE THRESHOLDS:	**10**	**10**					**15**			**15**
EXCEEDS THRESHOLDS?	**NO**	**YES**					**NO**			**NO**

PHASE/ACTIVITY	OPERATIONAL EMISSIONS (TONS/YEAR)									
					PM10			PM2.5		
	ROG	NOX	CO	SO2	FUG	EXH	TOT	FUG	EXH	TOT
PROJECT BUILDOUT (SFR, MFR, COMMERCIAL)										
Area	2.7545	0.2422	10.62306	0.03011	0	1.4934	1.4934	0	1.4934	1.4934
Energy	0.02508	0.2172	0.1116	0.00137	0	0.0173	0.0173	0	0.0173	0.0173
Mobile	1.8545	17.3371	14.9658	0.06053	3.6744	0.04966	3.724	0.9868	0.04676	1.0335
TOTAL UNMITIGATED	**4.63**	**17.80**	**25.70**	**0.09**	**3.67**	**1.56**	**5.23**	**0.99**	**1.56**	**2.54**
SJVAPCD SIGNIFICANCE THRESHOLDS:	**10**	**10**					**15**			**15**
EXCEEDS CEQA THRESHOLDS?	**NO**	**YES**					**NO**			**NO**
TOTAL WITH NAT. GAS FIREPLACES ONLY	3.64	17.65	16.64	0.06	3.67	0.08	3.76	0.99	0.08	
SJVAPCD SIGNIFICANCE THRESHOLDS:	**10**	**10**					**15**			**15**
EXCEEDS CEQA THRESHOLDS?	**NO**	**YES**					**NO**			**NO**
PERCENT REDUCTIONS:		**0.01**					**0.28**			
TOTAL WITH NO FIREPLACES	3.63	17.57	16.60	0.06	3.67	0.08	3.75	0.99	0.07	1.06
SJVAPCD SIGNIFICANCE THRESHOLDS:	**10**	**10**					**15**			**15**
EXCEEDS CEQA THRESHOLDS?	**NO**	**YES**					**NO**			**NO**
PERCENT REDUCTIONS:		**0.01**					**0.28**			

GHG EMISSIONS SUMMARY - BUILDOUT YEARS 2021-2022

	MTCO2e					
	Construction	Amortized	Operation	Total w/Am.Const. & Wood/Nat. Gas Hearths	Total w/Am.Const. & Nat. Gas Hearths Only	Total Am.Const. w/o Hearths
141 Lot SFR	521.4	17.38	2180.8	2198.18	1991.38	1929.98
		Hearth	268.2	268.2	61.4	0
		Landscaping	1.8	1.8	1.8	1.8
		Energy	416.1	416.1	416.1	416.1
		Mobile	1443.1	1443.1	1443.1	1443.1
		Waste	28.5	28.5	28.5	28.5
		Water	23.1	23.1	23.1	23.1
			Service Population		403	
			MTCO2e/SP	5.45	4.94	4.79
			Threshold	4.32	4.32	4.32
			Exceeds Threshold?	**Yes**	**Yes**	**Yes**

**Based on buildout year 2021 conditions.*

64 Unit MFR	418.3	13.94	646.4	660.34	645.94	618.04
		Hearth	42.3	42.3	27.90	0.00
		Landscaping	0.8	0.8	0.8	0.8
		Energy	105.7	105.7	105.7	105.7
		Mobile	481.3	481.3	481.3	481.3
		Waste	5.8	5.8	5.8	5.8
		Water	10.5	10.5	10.5	10.5
			Service Population		183	
			MTCO2e/SP	3.61	3.53	3.38
			Threshold	4.07	4.07	4.07
			Exceeds Threshold?	No	No	No

**Does not include anticipated reductions associated with the installation of solar PV. To be conservative, based on Buildout year 2022 conditions.*

Commercial	398.17	13.27	3865.2	3878.47	3878.47	3878.47
		Landscaping	0			
		Energy	127.6			
		Mobile	3717.9			
		Waste	12.6			
		Water	7.1			
			Service Population		299	
			MTCO2e/SP	12.97	12.97	12.97
			Threshold	4.07	4.07	4.07
			Exceeds Threshold?	**Yes**	**Yes**	**Yes**

**To be conservative, based on Buildout year 2022 conditions.*

Project Buildout (SFR, MFR, Commercial)	1337.87	44.60	6692.4	6737.0	6515.8	6426.5
		Hearth	310.5	310.5	89.3	0.0
		Landscaping	2.6	2.6	2.6	2.6
		Energy	649.4	521.8	521.8	521.8
		Mobile	5642.3	1924.4	1924.4	1924.4
		Waste	46.9	34.3	34.3	34.3
		Water	40.7	33.6	33.6	33.6
			Service Population		885	
			MTCO2e/SP	7.61	7.36	7.26
			Threshold	4.07	4.07	4.07
			Exceeds Threshold?	**Yes**	**Yes**	**Yes**

Commercial SP Calculation

USGBC. Default Occupancy Countys. https://www.usgbc.org/credits/new-construction-existing-buildings-commercial-interiors-core-and-shell-schools-new-constr-3

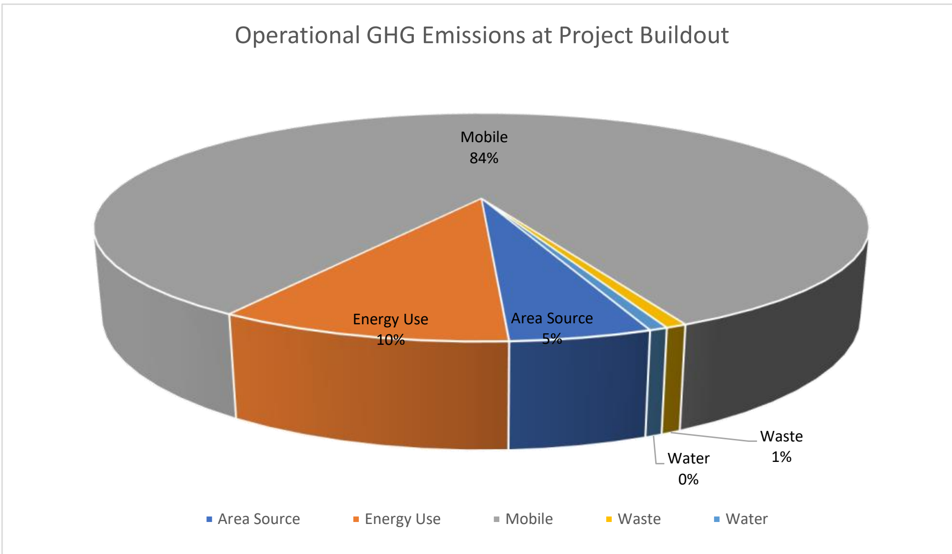
Shopping Center (Retail General)	550	sf/employee	130	sf/transient workers/other
Fuel Station (Retail Service)	600	sf/employee	130	sf/transient workers/other
Restaurant with drive thru	435	sf/employee	95	sf/transient workers/other

	Proposed Project			
	SF	Employees	Transients/Other	Total Occupants
Shopping Center (Retail General)	26015	47	200	247
Fuel Station (Retail Service)	1129	2	9	11
Restaurant with drive thru	3200	7	34	41
Total	30344	57	242	299

SUMMARY OF OPERATIONAL GHG EMISSIONS AT PROJECT BUILDOUT

	141 Unit SFR	64 Unit MFR	Commercial	Total
Area Source	270	43.1	0.0	313.1
Energy Use	416.1	105.7	127.6	649.4
Mobile	1443.1	481.3	3717.9	5642.3
Waste	28.5	5.8	12.6	46.9
Water	23.1	10.5	7.1	40.7

**Includes prohibited use of hearth devices in residential dwelling units; compliance with current building standards.*



GHG EMISSIONS SUMMARY - BUILDOUT YEAR 2030

	MTCO2e					
	Construction	Amortized	Operation	Total w/Am.Const. & Wood/Nat. Gas Hearths	Total w/Am.Const. & Nat. Gas Hearths Only	Total Am.Const. w/o Hearths
141 Lot SFR	521.4	17.38	1763.1	1780.48	1573.68	1512.28
Hearth			268.2	268.2	61.4	0
Landscaping			1.8	1.8	1.8	1.8
Energy			348.7	348.7	348.7	348.7
Mobile			1096.1	1096.1	1096.1	1096.1
Waste			28.5	28.5	28.5	28.5
Water			19.8	19.8	19.8	19.8
Service Population				403		
MTCO2e/SP				4.42	3.90	3.75
Threshold				2.50	2.50	2.50
Exceeds Threshold?				**Yes**	**Yes**	**Yes**

**Based on buildout year 2021 conditions.*

64 Unit MFR	418.3	13.94	529	542.94	645.94	500.64
Hearth			42.3	42.3	27.90	0.00
Landscaping			0.8	0.8	0.8	0.8
Energy			88.7	105.7	105.7	105.7
Mobile			382.4	481.3	481.3	481.3
Waste			5.8	5.8	5.8	5.8
Water			9	10.5	10.5	10.5
Service Population				183		
MTCO2e/SP				2.97	3.53	2.74
Threshold				2.50	2.50	2.50
Exceeds Threshold?				**Yes**	**Yes**	**Yes**

**Does not include anticipated reductions associated with the installation of solar PV. To be conservative, based on Buildout year 2022 conditions.*

Commercial	398.17	13.27	3338	3351.27	3351.27	3351.27
Landscaping			0			
Energy			108.1			
Mobile			3211.2			
Waste			12.6			
Water			6.1			
Service Population				299		
MTCO2e/SP				11.21	11.21	11.21
Threshold				2.50	2.50	2.50
Exceeds Threshold?				**Yes**	**Yes**	**Yes**

**To be conservative, based on Buildout year 2022 conditions.*

Project Buildout (SFR, MFR, Commercial)	1337.87	44.60	5630.1	5674.7	5570.9	5364.2
Hearth			310.5	310.5	89.3	0.0
Landscaping			2.6	2.6	2.6	2.6
Energy			545.5	454.4	454.4	454.4
Mobile			4689.7	1577.4	1577.4	1577.4
Waste			46.9	34.3	34.3	34.3
Water			34.9	30.3	30.3	30.3
Service Population				885		
MTCO2e/SP				6.41	6.29	6.06
Threshold				2.50	2.50	2.50
Exceeds Threshold?				**Yes**	**Yes**	**Yes**

Commercial SP Calculation

USGBC. Default Occupancy Countys. https://www.usgbc.org/credits/new-construction-existing-buildings-commercial-interiors-core-and-shell-schools-new-constr-3

Shopping Center (Retail General)	550	sf/employee	130	sf/transient workers/other
Fuel Station (Retail Service)	600	sf/employee	130	sf/transient workers/other
Restaurant with drive thru	435	sf/employee	95	sf/transient workers/other

	Proposed Project			
	SF	Employees	Transients/Other	Total Occupants
Shopping Center (Retail General)	26015	47	200	247
Fuel Station (Retail Service)	1129	2	9	11
Restaurant with drive thru	3200	7	34	41
Total	30344	57	242	299

SUMMARY OF OPERATIONAL GHG EMISSIONS AT PROJECT BUILDOUT

	141 Unit SFR	**64 Unit MFR**	**Commercial**	**Total**
Area Source	270	43.1	0.0	313.1
Energy Use	348.7	88.7	108.1	545.5
Mobile	1096.1	382.4	3211.2	4689.7
Waste	28.5	5.8	12.6	46.9
Water	19.8	9.0	6.1	34.9

**Includes prohibited use of hearth devices in residential dwelling units; compliance with current building standards.*

GHG EFFICIENCY THRESHOLD CALCULATION

	YEAR			
	2020	2021	2022	2030
POPULATION	40,639,392	40,980,939	41,321,565	43,939,250
EMPLOYMENT	18,839,373	19,031,622	19,225,833	20,852,595
SERVICE POPULATION	59478764.53	60012560.92	60547398.15	64791845.05

**Based on statewide projections.*

GHG EMISSIONS INVENTORY

LAND USE SECTOR (TOTAL):	272.85	259	246	163
				40%

GHG EFFICIENCY TARGET/THRESHOLD

LAND USE SECTOR (TOTAL):	4.6	4.3	4.1	2.5

Sources:

California Air Resources Board. California 1990 Greenhouse Gas Emissions Level and 2020 Limit — by Sector and Activity (Land Use-driven sectors only) MMT CO2e - (based upon IPCC Fourth Assessment Report Global Warming Potentials)

California Department of Finance Demographic Research Unit. September 2018. Report P-1 "State Population Projections (2010 - 2060), Total Population by County". http://www.dof.ca.gov/Forecasting/Demographics/Projections/.

California Employment Development Department. Employment Projections Labor Market Information Resources and Data, "CA Long-Term. 2016-2026 Statewide Employment Projections". https://www.labormarketinfo.edd.ca.gov/data/employment-projections.html.

Employment data for interim years is estimated based on proportionality with population trends based on historical data.

SJVAPCD RULE 9510 ISR EMISSION REDUCTIONS

The Indirect Source Review (ISR) rule, which went into effect March 1, 2006, requires developers of larger residential, commercial and industrial projects to reduce smog-forming and particulate emissions generated by their projects.

(Refer to ISR Rule for additional applicability and emission-reduction requirements. http://www.valleyair.org/isr/isrhome.htm)

SUMMARY OF EMISSION REDUCTION REQUIREMENTS

6.1 Construction Equipment Emissions

6.1.1 The exhaust emissions for construction equipment greater than fifty (50) horsepower used or associated with the development project shall be reduced by the following amounts from the statewide average as estimated by the ARB:

6.1.1.1 20% of the total NOx emissions, and

6.1.1.2 45% of the total PM10 exhausts emissions.

6.1.2 An applicant may reduce construction emissions on-site by using less-polluting construction equipment, which can be achieved by utilizing add-on controls, cleaner fuels, or newer lower emitting equipment.

6.2 Operational Emissions

6.2.1 NOx Emissions

Applicants shall reduce 33.3%, of the project's operational baseline NOx emissions over a period of ten years as quantified in the approved AIA as specified in Section 5.6.

6.2.2 PM10 Emissions

Applicants shall reduce of 50% of the project's operational baseline PM10 emissions over a period of ten years as quantified in the approved AIA as specified in Section 5.6.

6.3 The requirements listed in Sections 6.1 and 6.2 above can be met through any combination of on-site emission reduction measures or off-site fees.

District Accepted Fleet Mix for Residential Projects

	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY
2013	0.5322	0.1901	0.1671	0.0628	0.0020	0.0011	0.0097	0.0243	0.0000	0.0047	0.0032
2014	0.5352	0.1905	0.1673	0.0609	0.0019	0.0010	0.0095	0.0232	0.0000	0.0047	0.0030
2015	0.5376	0.1911	0.1676	0.0591	0.0018	0.0010	0.0096	0.0219	0.0000	0.0047	0.0029
2016	0.5398	0.1917	0.1674	0.0576	0.0018	0.0010	0.0094	0.0213	0.0000	0.0046	0.0028
2017	0.5410	0.1927	0.1671	0.0563	0.0017	0.0010	0.0093	0.0210	0.0000	0.0045	0.0028
2018	0.5412	0.1941	0.1669	0.0553	0.0017	0.0009	0.0092	0.0209	0.0000	0.0045	0.0027
2019	0.5411	0.1955	0.1669	0.0545	0.0016	0.0009	0.0091	0.0208	0.0000	0.0044	0.0026
2020	0.5402	0.1972	0.1668	0.0540	0.0016	0.0009	0.0091	0.0206	0.0000	0.0044	0.0026
2021	0.5373	0.2000	0.1671	0.0542	0.0014	0.0009	0.0090	0.0206	0.0000	0.0044	0.0026
2022	0.5343	0.2030	0.1673	0.0545	0.0013	0.0009	0.0086	0.0207	0.0000	0.0044	0.0025
2023	0.5305	0.2058	0.1673	0.0550	0.0011	0.0009	0.0085	0.0218	0.0000	0.0043	0.0025
2024	0.5277	0.2090	0.1675	0.0556	0.0009	0.0009	0.0080	0.0214	0.0000	0.0043	0.0025
2025	0.5244	0.2120	0.1677	0.0563	0.0008	0.0009	0.0076	0.0212	0.0000	0.0043	0.0025
2026	0.5215	0.2146	0.1681	0.0569	0.0008	0.0009	0.0075	0.0203	0.0000	0.0044	0.0025
2027	0.5185	0.2170	0.1684	0.0575	0.0008	0.0010	0.0074	0.0195	0.0000	0.0044	0.0025
2028	0.5159	0.2192	0.1686	0.0582	0.0008	0.0010	0.0074	0.0187	0.0000	0.0044	0.0025
2029	0.5134	0.2212	0.1688	0.0587	0.0008	0.0010	0.0074	0.0181	0.0000	0.0044	0.0025
2030	0.5110	0.2231	0.1690	0.0593	0.0008	0.0010	0.0074	0.0173	0.0000	0.0044	0.0025
2031	0.5076	0.2254	0.1693	0.0598	0.0008	0.0010	0.0074	0.0174	0.0000	0.0044	0.0026
2032	0.5044	0.2274	0.1696	0.0602	0.0008	0.0010	0.0075	0.0176	0.0000	0.0044	0.0026
2033	0.5014	0.2291	0.1700	0.0606	0.0008	0.0010	0.0075	0.0178	0.0000	0.0044	0.0027
2034	0.4987	0.2308	0.1703	0.0609	0.0008	0.0010	0.0076	0.0180	0.0000	0.0044	0.0027
2035	0.4960	0.2323	0.1707	0.0613	0.0008	0.0010	0.0076	0.0182	0.0000	0.0044	0.0027
2036	0.4933	0.2333	0.1709	0.0615	0.0008	0.0010	0.0077	0.0191	0.0000	0.0044	0.0029
2037	0.4907	0.2341	0.1710	0.0618	0.0009	0.0010	0.0078	0.0202	0.0000	0.0044	0.0030
2038	0.4883	0.2348	0.1712	0.0620	0.0009	0.0010	0.0078	0.0213	0.0000	0.0044	0.0031
2039	0.4857	0.2356	0.1714	0.0623	0.0009	0.0010	0.0079	0.0223	0.0000	0.0043	0.0032
2040	0.4834	0.2363	0.1716	0.0625	0.0009	0.0010	0.0079	0.0233	0.0000	0.0043	0.0033

SBUS	MH
0.0012	0.0016
0.0012	0.0016
0.0011	0.0016
0.0011	0.0015
0.0011	0.0015
0.0011	0.0015
0.0011	0.0015
0.0011	0.0015
0.0009	0.0016
0.0007	0.0018
0.0004	0.0019
0.0002	0.0020
0.0001	0.0022
0.0002	0.0023
0.0005	0.0025
0.0007	0.0026
0.0009	0.0028
0.0012	0.0030
0.0012	0.0031
0.0012	0.0033
0.0012	0.0035
0.0012	0.0036
0.0012	0.0038
0.0012	0.0039
0.0011	0.0040
0.0011	0.0041
0.0011	0.0043
0.0011	0.0044

TSM 6236 - 141 Lot Residential

Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	141.00	Dwelling Unit	30.40	253,800.00	403
Other Asphalt Surfaces	3.50	Acre	3.50	152,460.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 45

Climate Zone 3 **Operational Year** 2021

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 488.3 **CH4 Intensity (lb/MWhr)** 0.022 **N2O Intensity (lb/MWhr)** 0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Includes RPS adjustment

Land Use - 141 SFR, 30.4 acres total, 3.5 acres paved

Construction Phase - Based on estimated construction schedule provided by applicant.

Off-road Equipment - Based on default equipment usage identified in the model.

Trips and VMT - Based on model defaults

Grading - No material imported/exported.

Vehicle Trips - Weekday trips based on 9.44 trips/day derived from the traffic analysis. Weekend trip rates based on model defaults.

Energy Use -

Vehicle Emission Factors - .

Vehicle Emission Factors -

Vehicle Emission Factors -

Fleet Mix - Based on SJVAPCD's residential fleet mix.

Woodstoves - Based on model defaults.

Construction Off-road Equipment Mitigation - Assumes 61%CE for watering exposed areas, 50%CE for water onsite roads/travelways, 15 mph speed limit. Use of T3 equipment included for modeling purposes.

Area Mitigation - Only natural gas hearths included as mitigation.

Energy Mitigation - Includes installation of energy-efficient appliances (e.g., dishwashers and fans). Includes 28% improvement in energy efficiency with compliance with current building standards.
https://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2016_Building_Energy_Efficiency_Standards_FAQ.pdf

Water Mitigation - Includes use of low-flow fixtures and water-efficient irrigation systems.

Waste Mitigation - Assumes 61% diversion rate per CalReycle's 2016 estimated equivalent.
https://www.calrecycle.ca.gov/LGCentral/GoalMeasure/DisposalRate/MostRecent/

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	35.00	400.00
tblConstructionPhase	PhaseEndDate	6/7/2021	3/4/2021
tblConstructionPhase	PhaseEndDate	3/1/2021	3/4/2021
tblConstructionPhase	PhaseEndDate	4/1/2019	4/4/2019
tblConstructionPhase	PhaseEndDate	4/19/2021	5/23/2019

tblConstructionPhase	PhaseStartDate	4/20/2021	8/23/2019
tblConstructionPhase	PhaseStartDate	4/2/2019	4/5/2019
tblConstructionPhase	PhaseStartDate	1/29/2019	2/1/2019
tblConstructionPhase	PhaseStartDate	3/2/2021	4/5/2019
tblFleetMix	HHD	0.12	0.02
tblFleetMix	LDA	0.49	0.54
tblFleetMix	LDT1	0.03	0.20
tblFleetMix	LDT2	0.17	0.17
tblFleetMix	LHD1	0.02	1.4000e-003
tblFleetMix	LHD2	4.7320e-003	9.0000e-004
tblFleetMix	MCY	5.1540e-003	2.6000e-003
tblFleetMix	MDV	0.12	0.05
tblFleetMix	MH	6.2900e-004	1.6000e-003
tblFleetMix	MHD	0.03	9.0000e-003
tblFleetMix	OBUS	2.3660e-003	0.00
tblFleetMix	SBUS	1.0970e-003	9.0000e-004
tblFleetMix	UBUS	1.5900e-003	4.4000e-003
tblLandUse	LotAcreage	45.78	30.40
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	488.3
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblVehicleTrips	WD_TR	9.52	9.44
tblWoodstoves	NumberCatalytic	30.40	45.78
tblWoodstoves	NumberNoncatalytic	30.40	45.78

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	1.0104	4.2839	3.1992	5.8200e-003	0.4356	0.2242	0.6598	0.1963	0.2093	0.4056						521.4022
2020	1.9116	2.9993	2.7081	5.0800e-003	0.0769	0.1626	0.2395	0.0207	0.1537	0.1745						447.2588
2021	0.3222	0.4679	0.4542	8.7000e-004	0.0132	0.0239	0.0371	3.5600e-003	0.0226	0.0261						76.4079
Maximum	**1.9116**	**4.2839**	**3.1992**	**5.8200e-003**	**0.4356**	**0.2242**	**0.6598**	**0.1963**	**0.2093**	**0.4056**						**521.4022**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.7160	2.7140	3.3976	5.8200e-003	0.2064	0.1427	0.3491	0.0864	0.1426	0.2290						521.4016
2020	1.6982	2.3067	2.8425	5.0800e-003	0.0769	0.1325	0.2094	0.0207	0.1324	0.1532						447.2584
2021	0.2910	0.3920	0.4838	8.7000e-004	0.0132	0.0226	0.0359	3.5600e-003	0.0226	0.0262						76.4078
Maximum	**1.6982**	**2.7140**	**3.3976**	**5.8200e-003**	**0.2064**	**0.1427**	**0.3491**	**0.0864**	**0.1426**	**0.2290**						**521.4016**

TSM 6236 - 141 Lot Residential - Fresno County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	16.62	30.17	-5.70	0.00	43.60	27.45	36.52	49.83	22.79	32.63	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2019	3-31-2019	1.7528	0.8688
2	4-1-2019	6-30-2019	1.1894	0.7997
3	7-1-2019	9-30-2019	1.0482	0.7581
4	10-1-2019	12-31-2019	1.3163	1.0131
5	1-1-2020	3-31-2020	1.2193	0.9945
6	4-1-2020	6-30-2020	1.2183	0.9935
7	7-1-2020	9-30-2020	1.2317	1.0045
8	10-1-2020	12-31-2020	1.2327	1.0054
9	1-1-2021	3-31-2021	0.7906	0.6835
		Highest	1.7528	1.0131

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.2102	0.2031	9.5445	0.0280		1.3922	1.3922		1.3922	1.3922						269.9025
Energy	0.0199	0.1699	0.0723	1.0800e-003		0.0137	0.0137		0.0137	0.0137						472.6343
Mobile	0.4546	1.6626	5.1657	0.0157	1.4554	0.0141	1.4695	0.3896	0.0132	0.4028						1,443.0968
Waste						0.0000	0.0000		0.0000	0.0000						72.9610
Water						0.0000	0.0000		0.0000	0.0000						28.0692
Total	**2.6847**	**2.0356**	**14.7825**	**0.0448**	**1.4554**	**1.4201**	**2.8755**	**0.3896**	**1.4192**	**1.8088**						**2,286.6637**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.2773	0.0649	1.0717	3.9000e-004		0.0101	0.0101		0.0101	0.0101						63.1969
Energy	0.0151	0.1291	0.0549	8.2000e-004		0.0104	0.0104		0.0104	0.0104						416.0802
Mobile	0.4546	1.6626	5.1657	0.0157	1.4554	0.0141	1.4695	0.3896	0.0132	0.4028						1,443.0968
Waste						0.0000	0.0000		0.0000	0.0000						28.4548
Water						0.0000	0.0000		0.0000	0.0000						23.0820
Total	**1.7470**	**1.8566**	**6.2923**	**0.0169**	**1.4554**	**0.0346**	**1.4900**	**0.3896**	**0.0337**	**0.4233**						**1,973.9107**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**34.93**	**8.79**	**57.43**	**62.29**	**0.00**	**97.56**	**48.18**	**0.00**	**97.63**	**76.60**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**13.68**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2019	1/28/2019	5	20	
2	Grading	Grading	2/1/2019	4/4/2019	5	45	
3	Building Construction	Building Construction	4/5/2019	3/4/2021	5	500	
4	Paving	Paving	4/5/2019	5/23/2019	5	35	
5	Architectural Coating	Architectural Coating	8/23/2019	3/4/2021	5	400	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 3.5

Residential Indoor: 513,945; Residential Outdoor: 171,315; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	51.00	15.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1807	0.0000	0.1807	0.0993	0.0000	0.0993						0.0000
Off-Road	0.0434	0.4557	0.2206	3.8000e-004		0.0239	0.0239		0.0220	0.0220						34.4390
Total	**0.0434**	**0.4557**	**0.2206**	**3.8000e-004**	**0.1807**	**0.0239**	**0.2046**	**0.0993**	**0.0220**	**0.1213**						**34.4390**

3.2 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	8.5000e-004	5.6000e-004	5.6100e-003	1.0000e-005	1.4400e-003	1.0000e-005	1.4500e-003	3.8000e-004	1.0000e-005	3.9000e-004						1.2864
Total	**8.5000e-004**	**5.6000e-004**	**5.6100e-003**	**1.0000e-005**	**1.4400e-003**	**1.0000e-005**	**1.4500e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**						**1.2864**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0705	0.0000	0.0705	0.0387	0.0000	0.0387						0.0000
Off-Road	9.3100e-003	0.1907	0.2296	3.8000e-004		9.4600e-003	9.4600e-003		9.4600e-003	9.4600e-003						34.4389
Total	**9.3100e-003**	**0.1907**	**0.2296**	**3.8000e-004**	**0.0705**	**9.4600e-003**	**0.0799**	**0.0387**	**9.4600e-003**	**0.0482**						**34.4389**

3.2 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	8.5000e-004	5.6000e-004	5.6100e-003	1.0000e-005	1.4400e-003	1.0000e-005	1.4500e-003	3.8000e-004	1.0000e-005	3.9000e-004						1.2864
Total	**8.5000e-004**	**5.6000e-004**	**5.6100e-003**	**1.0000e-005**	**1.4400e-003**	**1.0000e-005**	**1.4500e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**						**1.2864**

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1952	0.0000	0.1952	0.0809	0.0000	0.0809						0.0000
Off-Road	0.1066	1.2267	0.7510	1.4000e-003		0.0536	0.0536		0.0493	0.0493						126.3193
Total	**0.1066**	**1.2267**	**0.7510**	**1.4000e-003**	**0.1952**	**0.0536**	**0.2488**	**0.0809**	**0.0493**	**0.1302**						**126.3193**

3.3 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.1300e-003	1.4000e-003	0.0140	4.0000e-005	3.6000e-003	2.0000e-005	3.6200e-003	9.6000e-004	2.0000e-005	9.8000e-004						3.2160
Total	**2.1300e-003**	**1.4000e-003**	**0.0140**	**4.0000e-005**	**3.6000e-003**	**2.0000e-005**	**3.6200e-003**	**9.6000e-004**	**2.0000e-005**	**9.8000e-004**						**3.2160**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0761	0.0000	0.0761	0.0316	0.0000	0.0316						0.0000
Off-Road	0.0343	0.6745	0.8263	1.4000e-003		0.0292	0.0292		0.0292	0.0292						126.3191
Total	**0.0343**	**0.6745**	**0.8263**	**1.4000e-003**	**0.0761**	**0.0292**	**0.1054**	**0.0316**	**0.0292**	**0.0608**						**126.3191**

3.3 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.1300e-003	1.4000e-003	0.0140	4.0000e-005	3.6000e-003	2.0000e-005	3.6200e-003	9.6000e-004	2.0000e-005	9.8000e-004						3.2160
Total	**2.1300e-003**	**1.4000e-003**	**0.0140**	**4.0000e-005**	**3.6000e-003**	**2.0000e-005**	**3.6200e-003**	**9.6000e-004**	**2.0000e-005**	**9.8000e-004**						**3.2160**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2279	2.0341	1.6563	2.6000e-003		0.1245	0.1245		0.1170	0.1170						228.2573
Total	**0.2279**	**2.0341**	**1.6563**	**2.6000e-003**		**0.1245**	**0.1245**		**0.1170**	**0.1170**						**228.2573**

3.4 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	6.6600e-003	0.1957	0.0334	4.1000e-004	9.5900e-003	1.4200e-003	0.0110	2.7700e-003	1.3600e-003	4.1300e-003						39.5003
Worker	0.0233	0.0153	0.1534	3.9000e-004	0.0394	2.6000e-004	0.0396	0.0105	2.4000e-004	0.0107						35.1721
Total	**0.0299**	**0.2110**	**0.1867**	**8.0000e-004**	**0.0489**	**1.6800e-003**	**0.0506**	**0.0132**	**1.6000e-003**	**0.0148**						**74.6724**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0650	1.3728	1.7248	2.6000e-003		0.0872	0.0872		0.0872	0.0872						228.2570
Total	**0.0650**	**1.3728**	**1.7248**	**2.6000e-003**		**0.0872**	**0.0872**		**0.0872**	**0.0872**						**228.2570**

3.4 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	6.6600e-003	0.1957	0.0334	4.1000e-004	9.5900e-003	1.4200e-003	0.0110	2.7700e-003	1.3600e-003	4.1300e-003						39.5003
Worker	0.0233	0.0153	0.1534	3.9000e-004	0.0394	2.6000e-004	0.0396	0.0105	2.4000e-004	0.0107						35.1721
Total	**0.0299**	**0.2110**	**0.1867**	**8.0000e-004**	**0.0489**	**1.6800e-003**	**0.0506**	**0.0132**	**1.6000e-003**	**0.0148**						**74.6724**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2777	2.5134	2.2072	3.5300e-003		0.1463	0.1463		0.1376	0.1376						305.2596
Total	**0.2777**	**2.5134**	**2.2072**	**3.5300e-003**		**0.1463**	**0.1463**		**0.1376**	**0.1376**						**305.2596**

3.4 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	7.3400e-003	0.2435	0.0389	5.6000e-004	0.0130	1.2900e-003	0.0143	3.7600e-003	1.2400e-003	5.0000e-003						53.1570
Worker	0.0288	0.0183	0.1857	5.1000e-004	0.0534	3.4000e-004	0.0538	0.0142	3.2000e-004	0.0145						46.2594
Total	**0.0362**	**0.2618**	**0.2246**	**1.0700e-003**	**0.0664**	**1.6300e-003**	**0.0681**	**0.0180**	**1.5600e-003**	**0.0195**						**99.4164**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0883	1.8636	2.3415	3.5300e-003		0.1184	0.1184		0.1184	0.1184						305.2592
Total	**0.0883**	**1.8636**	**2.3415**	**3.5300e-003**		**0.1184**	**0.1184**		**0.1184**	**0.1184**						**305.2592**

3.4 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	7.3400e-003	0.2435	0.0389	5.6000e-004	0.0130	1.2900e-003	0.0143	3.7600e-003	1.2400e-003	5.0000e-003						53.1570
Worker	0.0288	0.0183	0.1857	5.1000e-004	0.0534	3.4000e-004	0.0538	0.0142	3.2000e-004	0.0145						46.2594
Total	**0.0362**	**0.2618**	**0.2246**	**1.0700e-003**	**0.0664**	**1.6300e-003**	**0.0681**	**0.0180**	**1.5600e-003**	**0.0195**						**99.4164**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0428	0.3922	0.3729	6.1000e-004		0.0216	0.0216		0.0203	0.0203						52.4327
Total	**0.0428**	**0.3922**	**0.3729**	**6.1000e-004**		**0.0216**	**0.0216**		**0.0203**	**0.0203**						**52.4327**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	1.0200e-003	0.0380	5.7900e-003	9.0000e-005	2.2400e-003	1.0000e-004	2.3400e-003	6.5000e-004	1.0000e-004	7.4000e-004						9.0434
Worker	4.5800e-003	2.8000e-003	0.0289	8.0000e-005	9.1700e-003	6.0000e-005	9.2300e-003	2.4400e-003	5.0000e-005	2.4900e-003						7.6726
Total	**5.6000e-003**	**0.0408**	**0.0347**	**1.7000e-004**	**0.0114**	**1.6000e-004**	**0.0116**	**3.0900e-003**	**1.5000e-004**	**3.2300e-003**						**16.7160**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0152	0.3201	0.4022	6.1000e-004		0.0203	0.0203		0.0203	0.0203						52.4327
Total	**0.0152**	**0.3201**	**0.4022**	**6.1000e-004**		**0.0203**	**0.0203**		**0.0203**	**0.0203**						**52.4327**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	1.0200e-003	0.0380	5.7900e-003	9.0000e-005	2.2400e-003	1.0000e-004	2.3400e-003	6.5000e-004	1.0000e-004	7.4000e-004						9.0434
Worker	4.5800e-003	2.8000e-003	0.0289	8.0000e-005	9.1700e-003	6.0000e-005	9.2300e-003	2.4400e-003	5.0000e-005	2.4900e-003						7.6726
Total	**5.6000e-003**	**0.0408**	**0.0347**	**1.7000e-004**	**0.0114**	**1.6000e-004**	**0.0116**	**3.0900e-003**	**1.5000e-004**	**3.2300e-003**						**16.7160**

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0255	0.2668	0.2566	4.0000e-004		0.0144	0.0144		0.0133	0.0133						36.1150
Paving	4.5900e-003					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**0.0300**	**0.2668**	**0.2566**	**4.0000e-004**		**0.0144**	**0.0144**		**0.0133**	**0.0133**						**36.1150**

3.5 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.2400e-003	8.2000e-004	8.1800e-003	2.0000e-005	2.1000e-003	1.0000e-005	2.1100e-003	5.6000e-004	1.0000e-005	5.7000e-004						1.8760
Total	**1.2400e-003**	**8.2000e-004**	**8.1800e-003**	**2.0000e-005**	**2.1000e-003**	**1.0000e-005**	**2.1100e-003**	**5.6000e-004**	**1.0000e-005**	**5.7000e-004**						**1.8760**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8200e-003	0.1977	0.3027	4.0000e-004		0.0107	0.0107		0.0107	0.0107						36.1149
Paving	4.5900e-003					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**0.0144**	**0.1977**	**0.3027**	**4.0000e-004**		**0.0107**	**0.0107**		**0.0107**	**0.0107**						**36.1149**

3.5 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.2400e-003	8.2000e-004	8.1800e-003	2.0000e-005	2.1000e-003	1.0000e-005	2.1100e-003	5.6000e-004	1.0000e-005	5.7000e-004						1.8760
Total	**1.2400e-003**	**8.2000e-004**	**8.1800e-003**	**2.0000e-005**	**2.1000e-003**	**1.0000e-005**	**2.1100e-003**	**5.6000e-004**	**1.0000e-005**	**5.7000e-004**						**1.8760**

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5539					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	0.0124	0.0854	0.0856	1.4000e-004		5.9900e-003	5.9900e-003		5.9900e-003	5.9900e-003						11.8977
Total	**0.5662**	**0.0854**	**0.0856**	**1.4000e-004**		**5.9900e-003**	**5.9900e-003**		**5.9900e-003**	**5.9900e-003**						**11.8977**

3.6 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.2000e-003	1.4500e-003	0.0145	4.0000e-005	3.7200e-003	2.0000e-005	3.7400e-003	9.9000e-004	2.0000e-005	1.0100e-003						3.3232
Total	**2.2000e-003**	**1.4500e-003**	**0.0145**	**4.0000e-005**	**3.7200e-003**	**2.0000e-005**	**3.7400e-003**	**9.9000e-004**	**2.0000e-005**	**1.0100e-003**						**3.3232**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5539					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	2.7600e-003	0.0631	0.0852	1.4000e-004		4.4200e-003	4.4200e-003		4.4200e-003	4.4200e-003						11.8977
Total	**0.5566**	**0.0631**	**0.0852**	**1.4000e-004**		**4.4200e-003**	**4.4200e-003**		**4.4200e-003**	**4.4200e-003**						**11.8977**

3.6 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.2000e-003	1.4500e-003	0.0145	4.0000e-005	3.7200e-003	2.0000e-005	3.7400e-003	9.9000e-004	2.0000e-005	1.0100e-003						3.3232
Total	**2.2000e-003**	**1.4500e-003**	**0.0145**	**4.0000e-005**	**3.7200e-003**	**2.0000e-005**	**3.7400e-003**	**9.9000e-004**	**2.0000e-005**	**1.0100e-003**						**3.3232**

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.5603					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	0.0317	0.2206	0.2399	3.9000e-004		0.0145	0.0145		0.0145	0.0145						33.5124
Total	**1.5920**	**0.2206**	**0.2399**	**3.9000e-004**		**0.0145**	**0.0145**		**0.0145**	**0.0145**						**33.5124**

3.6 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	5.6500e-003	3.5900e-003	0.0364	1.0000e-004	0.0105	7.0000e-005	0.0105	2.7800e-003	6.0000e-005	2.8500e-003						9.0705
Total	**5.6500e-003**	**3.5900e-003**	**0.0364**	**1.0000e-004**	**0.0105**	**7.0000e-005**	**0.0105**	**2.7800e-003**	**6.0000e-005**	**2.8500e-003**						**9.0705**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.5603					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	7.7900e-003	0.1778	0.2401	3.9000e-004		0.0125	0.0125		0.0125	0.0125						33.5123
Total	**1.5681**	**0.1778**	**0.2401**	**3.9000e-004**		**0.0125**	**0.0125**		**0.0125**	**0.0125**						**33.5123**

3.6 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	5.6500e-003	3.5900e-003	0.0364	1.0000e-004	0.0105	7.0000e-005	0.0105	2.7800e-003	6.0000e-005	2.8500e-003						9.0705
Total	**5.6500e-003**	**3.5900e-003**	**0.0364**	**1.0000e-004**	**0.0105**	**7.0000e-005**	**0.0105**	**2.7800e-003**	**6.0000e-005**	**2.8500e-003**						**9.0705**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2680					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	4.9300e-003	0.0344	0.0409	7.0000e-005		2.1200e-003	2.1200e-003		2.1200e-003	2.1200e-003						5.7547
Total	**0.2729**	**0.0344**	**0.0409**	**7.0000e-005**		**2.1200e-003**	**2.1200e-003**		**2.1200e-003**	**2.1200e-003**						**5.7547**

3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	9.0000e-004	5.5000e-004	5.6700e-003	2.0000e-005	1.8000e-003	1.0000e-005	1.8100e-003	4.8000e-004	1.0000e-005	4.9000e-004						1.5044
Total	**9.0000e-004**	**5.5000e-004**	**5.6700e-003**	**2.0000e-005**	**1.8000e-003**	**1.0000e-005**	**1.8100e-003**	**4.8000e-004**	**1.0000e-005**	**4.9000e-004**						**1.5044**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2680					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	1.3400e-003	0.0305	0.0412	7.0000e-005		2.1400e-003	2.1400e-003		2.1400e-003	2.1400e-003						5.7547
Total	**0.2693**	**0.0305**	**0.0412**	**7.0000e-005**		**2.1400e-003**	**2.1400e-003**		**2.1400e-003**	**2.1400e-003**						**5.7547**

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	9.0000e-004	5.5000e-004	5.6700e-003	2.0000e-005	1.8000e-003	1.0000e-005	1.8100e-003	4.8000e-004	1.0000e-005	4.9000e-004						1.5044
Total	**9.0000e-004**	**5.5000e-004**	**5.6700e-003**	**2.0000e-005**	**1.8000e-003**	**1.0000e-005**	**1.8100e-003**	**4.8000e-004**	**1.0000e-005**	**4.9000e-004**						**1.5044**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4546	1.6626	5.1657	0.0157	1.4554	0.0141	1.4695	0.3896	0.0132	0.4028						1,443.0968
Unmitigated	0.4546	1.6626	5.1657	0.0157	1.4554	0.0141	1.4695	0.3896	0.0132	0.4028						1,443.0968

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	1,331.04	1,397.31	1215.42	3,878,853	3,878,853
Total	1,331.04	1,397.31	1,215.42	3,878,853	3,878,853

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	7.30	7.50	48.40	15.90	35.70	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.537300	0.200000	0.167100	0.054200	0.001400	0.000900	0.009000	0.020600	0.000000	0.004400	0.002600	0.000900	0.001600

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000						265.7066
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000						274.7407
NaturalGas Mitigated	0.0151	0.1291	0.0549	8.2000e-004		0.0104	0.0104		0.0104	0.0104						150.3736
NaturalGas Unmitigated	0.0199	0.1699	0.0723	1.0800e-003		0.0137	0.0137		0.0137	0.0137						197.8936

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	3.68648e+006	0.0199	0.1699	0.0723	1.0800e-003		0.0137	0.0137		0.0137	0.0137						197.8936
Total		**0.0199**	**0.1699**	**0.0723**	**1.0800e-003**		**0.0137**	**0.0137**		**0.0137**	**0.0137**						**197.8936**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	2.80125e+006	0.0151	0.1291	0.0549	8.2000e-004		0.0104	0.0104		0.0104	0.0104						150.3736
Total		**0.0151**	**0.1291**	**0.0549**	**8.2000e-004**		**0.0104**	**0.0104**		**0.0104**	**0.0104**						**150.3736**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	1.23526e +006				274.7407
Total					**274.7407**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	1.19465e +006				265.7066
Total					**265.7066**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.2773	0.0649	1.0717	3.9000e-004		0.0101	0.0101		0.0101	0.0101						63.1969
Unmitigated	2.2102	0.2031	9.5445	0.0280		1.3922	1.3922		1.3922	1.3922						269.9025

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2382					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	1.0011					0.0000	0.0000		0.0000	0.0000						0.0000
Hearth	0.9392	0.1910	8.4953	0.0280		1.3865	1.3865		1.3865	1.3865						268.1509
Landscaping	0.0318	0.0121	1.0493	6.0000e-005		5.7800e-003	5.7800e-003		5.7800e-003	5.7800e-003						1.7517
Total	**2.2102**	**0.2031**	**9.5445**	**0.0280**		**1.3922**	**1.3922**		**1.3922**	**1.3922**						**269.9025**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2382					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	1.0011					0.0000	0.0000		0.0000	0.0000						0.0000
Hearth	6.1700e-003	0.0527	0.0224	3.4000e-004		4.2600e-003	4.2600e-003		4.2600e-003	4.2600e-003						61.4452
Landscaping	0.0318	0.0121	1.0493	6.0000e-005		5.7800e-003	5.7800e-003		5.7800e-003	5.7800e-003						1.7517
Total	**1.2772**	**0.0649**	**1.0717**	**4.0000e-004**		**0.0100**	**0.0100**		**0.0100**	**0.0100**						**63.1969**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated				23.0820
Unmitigated				28.0692

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	9.18672 / 5.79163				28.0692
Total					**28.0692**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	7.34937 / 5.43834				23.0820
Total					**23.0820**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated				28.4548
Unmitigated				72.9610

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	145.08				72.9610
Total					**72.9610**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	56.5812				28.4548
Total					**28.4548**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

TSM 6236 - 141 Lot Residential Year 2030

Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	3.50	Acre	3.50	152,460.00	0
Single Family Housing	141.00	Dwelling Unit	30.40	253,800.00	403

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 45

Climate Zone 3 **Operational Year** 2030

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 364.4 **CH4 Intensity (lb/MWhr)** 0.016 **N2O Intensity (lb/MWhr)** 0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Includes RPS adjustment

Land Use - 141 SFR, 30.4 acres total, 3.5 acres paved

Construction Phase - Based on estimated construction schedule provided by applicant.

Off-road Equipment - Based on default equipment usage identified in the model.

Trips and VMT - Based on model defaults

Grading - No material imported/exported.

Vehicle Trips - Weekday trips based on 9.44 trips/day derived from the traffic analysis. Weekend trip rates based on model defaults.

Vehicle Emission Factors - .

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - Based on model defaults.

Energy Use -

Construction Off-road Equipment Mitigation - Assumes 61%CE for watering exposed areas, 50%CE for water onsite roads/travelways, 15 mph speed limit. Use of T3 equipment included for modeling purposes.

Area Mitigation - Only natural gas hearths included as mitigation.

Fleet Mix - Based on SJVAPCD residential fleet mix.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	9,148.00	0.00
tblAreaCoating	Area_Parking	9148	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	35.00	400.00
tblFleetMix	HHD	0.13	0.02
tblFleetMix	LDA	0.52	0.51
tblFleetMix	LDT1	0.03	0.22
tblFleetMix	LDT2	0.18	0.17
tblFleetMix	LHD1	9.7000e-003	8.0000e-004
tblFleetMix	LHD2	3.4040e-003	1.0000e-003

tblFleetMix	MCY	4.5630e-003	2.5000e-003
tblFleetMix	MDV	0.09	0.06
tblFleetMix	MH	4.3600e-004	3.0000e-003
tblFleetMix	MHD	0.03	7.4000e-003
tblFleetMix	OBUS	2.3060e-003	0.00
tblFleetMix	SBUS	9.9800e-004	1.2000e-003
tblFleetMix	UBUS	1.1850e-003	4.4000e-003
tblLandUse	LotAcreage	45.78	30.40
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.016
tblProjectCharacteristics	CO2IntensityFactor	641.35	364.4
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblTripsAndVMT	VendorTripNumber	40.00	15.00
tblTripsAndVMT	WorkerTripNumber	115.00	51.00
tblTripsAndVMT	WorkerTripNumber	23.00	10.00
tblVehicleTrips	WD_TR	9.52	9.44
tblWoodstoves	NumberCatalytic	30.40	45.78
tblWoodstoves	NumberNoncatalytic	30.40	45.78

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	1.0104	4.2839	3.1992	5.8200e-003	0.4356	0.2242	0.6598	0.1963	0.2093	0.4056						521.4022
2020	1.9116	2.9993	2.7081	5.0800e-003	0.0769	0.1626	0.2395	0.0207	0.1537	0.1745						447.2588
2021	0.3222	0.4679	0.4542	8.7000e-004	0.0132	0.0239	0.0371	3.5600e-003	0.0226	0.0261						76.4079
Maximum	**1.9116**	**4.2839**	**3.1992**	**5.8200e-003**	**0.4356**	**0.2242**	**0.6598**	**0.1963**	**0.2093**	**0.4056**						**521.4022**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.7160	2.7140	3.3976	5.8200e-003	0.2064	0.1427	0.3491	0.0864	0.1426	0.2290						521.4016
2020	1.6982	2.3067	2.8425	5.0800e-003	0.0769	0.1325	0.2094	0.0207	0.1324	0.1532						447.2584
2021	0.2910	0.3920	0.4838	8.7000e-004	0.0132	0.0226	0.0359	3.5600e-003	0.0226	0.0262						76.4078
Maximum	**1.6982**	**2.7140**	**3.3976**	**5.8200e-003**	**0.2064**	**0.1427**	**0.3491**	**0.0864**	**0.1426**	**0.2290**						**521.4016**

TSM 6236 - 141 Lot Residential Year 2030 - Fresno County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**16.62**	**30.17**	**-5.70**	**0.00**	**43.60**	**27.45**	**36.52**	**49.83**	**22.79**	**32.63**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2019**	**3-31-2019**	1.7528	0.8688
2	**4-1-2019**	**6-30-2019**	1.1894	0.7997
3	**7-1-2019**	**9-30-2019**	1.0482	0.7581
4	**10-1-2019**	**12-31-2019**	1.3163	1.0131
5	**1-1-2020**	**3-31-2020**	1.2193	0.9945
6	**4-1-2020**	**6-30-2020**	1.2183	0.9935
7	**7-1-2020**	**9-30-2020**	1.2317	1.0045
8	**10-1-2020**	**12-31-2020**	1.2327	1.0054
9	**1-1-2021**	**3-31-2021**	0.7906	0.6835
		Highest	1.7528	1.0131

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.2097	0.2030	9.5395	0.0280		1.3923	1.3923		1.3923	1.3923						269.9018
Energy	0.0199	0.1699	0.0723	1.0800e-003		0.0137	0.0137		0.0137	0.0137						402.9613
Mobile	0.2455	0.8756	2.7586	0.0119	1.4548	8.0000e-003	1.4628	0.3894	7.4300e-003	0.3969						1,096.1013
Waste						0.0000	0.0000		0.0000	0.0000						72.9610
Water						0.0000	0.0000		0.0000	0.0000						24.1221
Total	**2.4751**	**1.2485**	**12.3703**	**0.0410**	**1.4548**	**1.4140**	**2.8688**	**0.3894**	**1.4134**	**1.8029**						**1,866.0474**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.2767	0.0648	1.0667	3.9000e-004		0.0101	0.0101		0.0101	0.0101						63.1962
Energy	0.0151	0.1291	0.0549	8.2000e-004		0.0104	0.0104		0.0104	0.0104						348.6982
Mobile	0.2455	0.8756	2.7586	0.0119	1.4548	8.0000e-003	1.4628	0.3894	7.4300e-003	0.3969						1,096.1013
Waste						0.0000	0.0000		0.0000	0.0000						28.4548
Water						0.0000	0.0000		0.0000	0.0000						19.7654
Total	**1.5373**	**1.0695**	**3.8801**	**0.0131**	**1.4548**	**0.0285**	**1.4833**	**0.3894**	**0.0279**	**0.4174**						**1,556.2158**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**37.89**	**14.34**	**68.63**	**68.11**	**0.00**	**97.98**	**48.30**	**0.00**	**98.02**	**76.85**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**16.60**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2019	1/28/2019	5	20	
2	Grading	Grading	2/1/2019	4/4/2019	5	45	
3	Building Construction	Building Construction	4/5/2019	3/4/2021	5	500	
4	Paving	Paving	4/5/2019	5/23/2019	5	35	
5	Architectural Coating	Architectural Coating	8/23/2019	3/4/2021	5	400	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 3.5

Residential Indoor: 513,945; Residential Outdoor: 171,315; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	51.00	15.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1807	0.0000	0.1807	0.0993	0.0000	0.0993						0.0000
Off-Road	0.0434	0.4557	0.2206	3.8000e-004		0.0239	0.0239		0.0220	0.0220						34.4390
Total	**0.0434**	**0.4557**	**0.2206**	**3.8000e-004**	**0.1807**	**0.0239**	**0.2046**	**0.0993**	**0.0220**	**0.1213**						**34.4390**

3.2 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	8.5000e-004	5.6000e-004	5.6100e-003	1.0000e-005	1.4400e-003	1.0000e-005	1.4500e-003	3.8000e-004	1.0000e-005	3.9000e-004						1.2864
Total	**8.5000e-004**	**5.6000e-004**	**5.6100e-003**	**1.0000e-005**	**1.4400e-003**	**1.0000e-005**	**1.4500e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**						**1.2864**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0705	0.0000	0.0705	0.0387	0.0000	0.0387						0.0000
Off-Road	9.3100e-003	0.1907	0.2296	3.8000e-004		9.4600e-003	9.4600e-003		9.4600e-003	9.4600e-003						34.4389
Total	**9.3100e-003**	**0.1907**	**0.2296**	**3.8000e-004**	**0.0705**	**9.4600e-003**	**0.0799**	**0.0387**	**9.4600e-003**	**0.0482**						**34.4389**

3.2 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	8.5000e-004	5.6000e-004	5.6100e-003	1.0000e-005	1.4400e-003	1.0000e-005	1.4500e-003	3.8000e-004	1.0000e-005	3.9000e-004						1.2864
Total	**8.5000e-004**	**5.6000e-004**	**5.6100e-003**	**1.0000e-005**	**1.4400e-003**	**1.0000e-005**	**1.4500e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**						**1.2864**

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1952	0.0000	0.1952	0.0809	0.0000	0.0809						0.0000
Off-Road	0.1066	1.2267	0.7510	1.4000e-003		0.0536	0.0536		0.0493	0.0493						126.3193
Total	**0.1066**	**1.2267**	**0.7510**	**1.4000e-003**	**0.1952**	**0.0536**	**0.2488**	**0.0809**	**0.0493**	**0.1302**						**126.3193**

3.3 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.1300e-003	1.4000e-003	0.0140	4.0000e-005	3.6000e-003	2.0000e-005	3.6200e-003	9.6000e-004	2.0000e-005	9.8000e-004						3.2160
Total	**2.1300e-003**	**1.4000e-003**	**0.0140**	**4.0000e-005**	**3.6000e-003**	**2.0000e-005**	**3.6200e-003**	**9.6000e-004**	**2.0000e-005**	**9.8000e-004**						**3.2160**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0761	0.0000	0.0761	0.0316	0.0000	0.0316						0.0000
Off-Road	0.0343	0.6745	0.8263	1.4000e-003		0.0292	0.0292		0.0292	0.0292						126.3191
Total	**0.0343**	**0.6745**	**0.8263**	**1.4000e-003**	**0.0761**	**0.0292**	**0.1054**	**0.0316**	**0.0292**	**0.0608**						**126.3191**

3.3 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.1300e-003	1.4000e-003	0.0140	4.0000e-005	3.6000e-003	2.0000e-005	3.6200e-003	9.6000e-004	2.0000e-005	9.8000e-004						3.2160
Total	**2.1300e-003**	**1.4000e-003**	**0.0140**	**4.0000e-005**	**3.6000e-003**	**2.0000e-005**	**3.6200e-003**	**9.6000e-004**	**2.0000e-005**	**9.8000e-004**						**3.2160**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2279	2.0341	1.6563	2.6000e-003		0.1245	0.1245		0.1170	0.1170						228.2573
Total	**0.2279**	**2.0341**	**1.6563**	**2.6000e-003**		**0.1245**	**0.1245**		**0.1170**	**0.1170**						**228.2573**

3.4 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	6.6600e-003	0.1957	0.0334	4.1000e-004	9.5900e-003	1.4200e-003	0.0110	2.7700e-003	1.3600e-003	4.1300e-003						39.5003
Worker	0.0233	0.0153	0.1534	3.9000e-004	0.0394	2.6000e-004	0.0396	0.0105	2.4000e-004	0.0107						35.1721
Total	**0.0299**	**0.2110**	**0.1867**	**8.0000e-004**	**0.0489**	**1.6800e-003**	**0.0506**	**0.0132**	**1.6000e-003**	**0.0148**						**74.6724**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0650	1.3728	1.7248	2.6000e-003		0.0872	0.0872		0.0872	0.0872						228.2570
Total	**0.0650**	**1.3728**	**1.7248**	**2.6000e-003**		**0.0872**	**0.0872**		**0.0872**	**0.0872**						**228.2570**

3.4 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	6.6600e-003	0.1957	0.0334	4.1000e-004	9.5900e-003	1.4200e-003	0.0110	2.7700e-003	1.3600e-003	4.1300e-003						39.5003
Worker	0.0233	0.0153	0.1534	3.9000e-004	0.0394	2.6000e-004	0.0396	0.0105	2.4000e-004	0.0107						35.1721
Total	**0.0299**	**0.2110**	**0.1867**	**8.0000e-004**	**0.0489**	**1.6800e-003**	**0.0506**	**0.0132**	**1.6000e-003**	**0.0148**						**74.6724**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2777	2.5134	2.2072	3.5300e-003		0.1463	0.1463		0.1376	0.1376						305.2596
Total	**0.2777**	**2.5134**	**2.2072**	**3.5300e-003**		**0.1463**	**0.1463**		**0.1376**	**0.1376**						**305.2596**

3.4 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	7.3400e-003	0.2435	0.0389	5.6000e-004	0.0130	1.2900e-003	0.0143	3.7600e-003	1.2400e-003	5.0000e-003						53.1570
Worker	0.0288	0.0183	0.1857	5.1000e-004	0.0534	3.4000e-004	0.0538	0.0142	3.2000e-004	0.0145						46.2594
Total	**0.0362**	**0.2618**	**0.2246**	**1.0700e-003**	**0.0664**	**1.6300e-003**	**0.0681**	**0.0180**	**1.5600e-003**	**0.0195**						**99.4164**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0883	1.8636	2.3415	3.5300e-003		0.1184	0.1184		0.1184	0.1184						305.2592
Total	**0.0883**	**1.8636**	**2.3415**	**3.5300e-003**		**0.1184**	**0.1184**		**0.1184**	**0.1184**						**305.2592**

3.4 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	7.3400e-003	0.2435	0.0389	5.6000e-004	0.0130	1.2900e-003	0.0143	3.7600e-003	1.2400e-003	5.0000e-003						53.1570
Worker	0.0288	0.0183	0.1857	5.1000e-004	0.0534	3.4000e-004	0.0538	0.0142	3.2000e-004	0.0145						46.2594
Total	**0.0362**	**0.2618**	**0.2246**	**1.0700e-003**	**0.0664**	**1.6300e-003**	**0.0681**	**0.0180**	**1.5600e-003**	**0.0195**						**99.4164**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0428	0.3922	0.3729	6.1000e-004		0.0216	0.0216		0.0203	0.0203						52.4327
Total	**0.0428**	**0.3922**	**0.3729**	**6.1000e-004**		**0.0216**	**0.0216**		**0.0203**	**0.0203**						**52.4327**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	1.0200e-003	0.0380	5.7900e-003	9.0000e-005	2.2400e-003	1.0000e-004	2.3400e-003	6.5000e-004	1.0000e-004	7.4000e-004						9.0434
Worker	4.5800e-003	2.8000e-003	0.0289	8.0000e-005	9.1700e-003	6.0000e-005	9.2300e-003	2.4400e-003	5.0000e-005	2.4900e-003						7.6726
Total	**5.6000e-003**	**0.0408**	**0.0347**	**1.7000e-004**	**0.0114**	**1.6000e-004**	**0.0116**	**3.0900e-003**	**1.5000e-004**	**3.2300e-003**						**16.7160**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0152	0.3201	0.4022	6.1000e-004		0.0203	0.0203		0.0203	0.0203						52.4327
Total	**0.0152**	**0.3201**	**0.4022**	**6.1000e-004**		**0.0203**	**0.0203**		**0.0203**	**0.0203**						**52.4327**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	1.0200e-003	0.0380	5.7900e-003	9.0000e-005	2.2400e-003	1.0000e-004	2.3400e-003	6.5000e-004	1.0000e-004	7.4000e-004						9.0434
Worker	4.5800e-003	2.8000e-003	0.0289	8.0000e-005	9.1700e-003	6.0000e-005	9.2300e-003	2.4400e-003	5.0000e-005	2.4900e-003						7.6726
Total	**5.6000e-003**	**0.0408**	**0.0347**	**1.7000e-004**	**0.0114**	**1.6000e-004**	**0.0116**	**3.0900e-003**	**1.5000e-004**	**3.2300e-003**						**16.7160**

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0255	0.2668	0.2566	4.0000e-004		0.0144	0.0144		0.0133	0.0133						36.1150
Paving	4.5900e-003					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**0.0300**	**0.2668**	**0.2566**	**4.0000e-004**		**0.0144**	**0.0144**		**0.0133**	**0.0133**						**36.1150**

3.5 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.2400e-003	8.2000e-004	8.1800e-003	2.0000e-005	2.1000e-003	1.0000e-005	2.1100e-003	5.6000e-004	1.0000e-005	5.7000e-004						1.8760
Total	**1.2400e-003**	**8.2000e-004**	**8.1800e-003**	**2.0000e-005**	**2.1000e-003**	**1.0000e-005**	**2.1100e-003**	**5.6000e-004**	**1.0000e-005**	**5.7000e-004**						**1.8760**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8200e-003	0.1977	0.3027	4.0000e-004		0.0107	0.0107		0.0107	0.0107						36.1149
Paving	4.5900e-003					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**0.0144**	**0.1977**	**0.3027**	**4.0000e-004**		**0.0107**	**0.0107**		**0.0107**	**0.0107**						**36.1149**

3.5 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.2400e-003	8.2000e-004	8.1800e-003	2.0000e-005	2.1000e-003	1.0000e-005	2.1100e-003	5.6000e-004	1.0000e-005	5.7000e-004						1.8760
Total	**1.2400e-003**	**8.2000e-004**	**8.1800e-003**	**2.0000e-005**	**2.1000e-003**	**1.0000e-005**	**2.1100e-003**	**5.6000e-004**	**1.0000e-005**	**5.7000e-004**						**1.8760**

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5539					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	0.0124	0.0854	0.0856	1.4000e-004		5.9900e-003	5.9900e-003		5.9900e-003	5.9900e-003						11.8977
Total	**0.5662**	**0.0854**	**0.0856**	**1.4000e-004**		**5.9900e-003**	**5.9900e-003**		**5.9900e-003**	**5.9900e-003**						**11.8977**

3.6 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.2000e-003	1.4500e-003	0.0145	4.0000e-005	3.7200e-003	2.0000e-005	3.7400e-003	9.9000e-004	2.0000e-005	1.0100e-003						3.3232
Total	**2.2000e-003**	**1.4500e-003**	**0.0145**	**4.0000e-005**	**3.7200e-003**	**2.0000e-005**	**3.7400e-003**	**9.9000e-004**	**2.0000e-005**	**1.0100e-003**						**3.3232**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5539					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	2.7600e-003	0.0631	0.0852	1.4000e-004		4.4200e-003	4.4200e-003		4.4200e-003	4.4200e-003						11.8977
Total	**0.5566**	**0.0631**	**0.0852**	**1.4000e-004**		**4.4200e-003**	**4.4200e-003**		**4.4200e-003**	**4.4200e-003**						**11.8977**

3.6 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.2000e-003	1.4500e-003	0.0145	4.0000e-005	3.7200e-003	2.0000e-005	3.7400e-003	9.9000e-004	2.0000e-005	1.0100e-003						3.3232
Total	**2.2000e-003**	**1.4500e-003**	**0.0145**	**4.0000e-005**	**3.7200e-003**	**2.0000e-005**	**3.7400e-003**	**9.9000e-004**	**2.0000e-005**	**1.0100e-003**						**3.3232**

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.5603					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	0.0317	0.2206	0.2399	3.9000e-004		0.0145	0.0145		0.0145	0.0145						33.5124
Total	**1.5920**	**0.2206**	**0.2399**	**3.9000e-004**		**0.0145**	**0.0145**		**0.0145**	**0.0145**						**33.5124**

3.6 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	5.6500e-003	3.5900e-003	0.0364	1.0000e-004	0.0105	7.0000e-005	0.0105	2.7800e-003	6.0000e-005	2.8500e-003						9.0705
Total	**5.6500e-003**	**3.5900e-003**	**0.0364**	**1.0000e-004**	**0.0105**	**7.0000e-005**	**0.0105**	**2.7800e-003**	**6.0000e-005**	**2.8500e-003**						**9.0705**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.5603					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	7.7900e-003	0.1778	0.2401	3.9000e-004		0.0125	0.0125		0.0125	0.0125						33.5123
Total	**1.5681**	**0.1778**	**0.2401**	**3.9000e-004**		**0.0125**	**0.0125**		**0.0125**	**0.0125**						**33.5123**

3.6 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	5.6500e-003	3.5900e-003	0.0364	1.0000e-004	0.0105	7.0000e-005	0.0105	2.7800e-003	6.0000e-005	2.8500e-003						9.0705
Total	**5.6500e-003**	**3.5900e-003**	**0.0364**	**1.0000e-004**	**0.0105**	**7.0000e-005**	**0.0105**	**2.7800e-003**	**6.0000e-005**	**2.8500e-003**						**9.0705**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2680					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	4.9300e-003	0.0344	0.0409	7.0000e-005		2.1200e-003	2.1200e-003		2.1200e-003	2.1200e-003						5.7547
Total	**0.2729**	**0.0344**	**0.0409**	**7.0000e-005**		**2.1200e-003**	**2.1200e-003**		**2.1200e-003**	**2.1200e-003**						**5.7547**

3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	9.0000e-004	5.5000e-004	5.6700e-003	2.0000e-005	1.8000e-003	1.0000e-005	1.8100e-003	4.8000e-004	1.0000e-005	4.9000e-004						1.5044
Total	**9.0000e-004**	**5.5000e-004**	**5.6700e-003**	**2.0000e-005**	**1.8000e-003**	**1.0000e-005**	**1.8100e-003**	**4.8000e-004**	**1.0000e-005**	**4.9000e-004**						**1.5044**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2680					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	1.3400e-003	0.0305	0.0412	7.0000e-005		2.1400e-003	2.1400e-003		2.1400e-003	2.1400e-003						5.7547
Total	**0.2693**	**0.0305**	**0.0412**	**7.0000e-005**		**2.1400e-003**	**2.1400e-003**		**2.1400e-003**	**2.1400e-003**						**5.7547**

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	9.0000e-004	5.5000e-004	5.6700e-003	2.0000e-005	1.8000e-003	1.0000e-005	1.8100e-003	4.8000e-004	1.0000e-005	4.9000e-004						1.5044
Total	**9.0000e-004**	**5.5000e-004**	**5.6700e-003**	**2.0000e-005**	**1.8000e-003**	**1.0000e-005**	**1.8100e-003**	**4.8000e-004**	**1.0000e-005**	**4.9000e-004**						**1.5044**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2455	0.8756	2.7586	0.0119	1.4548	8.0000e-003	1.4628	0.3894	7.4300e-003	0.3969						1,096.1013
Unmitigated	0.2455	0.8756	2.7586	0.0119	1.4548	8.0000e-003	1.4628	0.3894	7.4300e-003	0.3969						1,096.1013

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	1,331.04	1,397.31	1215.42	3,878,853	3,878,853
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	1,331.04	1,397.31	1,215.42	3,878,853	3,878,853

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	7.30	7.50	48.40	15.90	35.70	86	11	3
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.511000	0.223100	0.169000	0.059300	0.000800	0.001000	0.007400	0.017300	0.000000	0.004400	0.002500	0.001200	0.003000
Other Asphalt Surfaces	0.517186	0.028486	0.175263	0.093589	0.009700	0.003404	0.033644	0.129242	0.002306	0.001185	0.004563	0.000998	0.000436

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000						198.3246
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000						205.0677
NaturalGas Mitigated	0.0151	0.1291	0.0549	8.2000e-004		0.0104	0.0104		0.0104	0.0104						150.3736
NaturalGas Unmitigated	0.0199	0.1699	0.0723	1.0800e-003		0.0137	0.0137		0.0137	0.0137						197.8936

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Single Family Housing	3.68648e+006	0.0199	0.1699	0.0723	1.0800e-003		0.0137	0.0137		0.0137	0.0137						197.8936
Total		**0.0199**	**0.1699**	**0.0723**	**1.0800e-003**		**0.0137**	**0.0137**		**0.0137**	**0.0137**						**197.8936**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Single Family Housing	2.80125e+006	0.0151	0.1291	0.0549	8.2000e-004		0.0104	0.0104		0.0104	0.0104						150.3736
Total		**0.0151**	**0.1291**	**0.0549**	**8.2000e-004**		**0.0104**	**0.0104**		**0.0104**	**0.0104**						**150.3736**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0				0.0000
Single Family Housing	1.23526e +006				205.0677
Total					**205.0677**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0				0.0000
Single Family Housing	1.19465e +006				198.3246
Total					**198.3246**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.2767	0.0648	1.0667	3.9000e-004		0.0101	0.0101		0.0101	0.0101						63.1962
Unmitigated	2.2097	0.2030	9.5395	0.0280		1.3923	1.3923		1.3923	1.3923						269.9018

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2382					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	1.0011					0.0000	0.0000		0.0000	0.0000						0.0000
Hearth	0.9392	0.1910	8.4953	0.0280		1.3865	1.3865		1.3865	1.3865						268.1509
Landscaping	0.0312	0.0120	1.0442	6.0000e-005		5.8100e-003	5.8100e-003		5.8100e-003	5.8100e-003						1.7510
Total	**2.2097**	**0.2030**	**9.5395**	**0.0280**		**1.3923**	**1.3923**		**1.3923**	**1.3923**						**269.9018**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2382					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	1.0011					0.0000	0.0000		0.0000	0.0000						0.0000
Hearth	6.1700e-003	0.0527	0.0224	3.4000e-004		4.2600e-003	4.2600e-003		4.2600e-003	4.2600e-003						61.4452
Landscaping	0.0312	0.0120	1.0442	6.0000e-005		5.8100e-003	5.8100e-003		5.8100e-003	5.8100e-003						1.7510
Total	**1.2767**	**0.0648**	**1.0667**	**4.0000e-004**		**0.0101**	**0.0101**		**0.0101**	**0.0101**						**63.1962**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated				19.7654
Unmitigated				24.1221

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0				0.0000
Single Family Housing	9.18672 / 5.79163				24.1221
Total					**24.1221**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0				0.0000
Single Family Housing	7.34937 / 5.43834				19.7654
Total					**19.7654**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated				28.4548
Unmitigated				72.9610

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0				0.0000
Single Family Housing	145.08				72.9610
Total					**72.9610**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0				0.0000
Single Family Housing	56.5812				28.4548
Total					**28.4548**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

TSM 6236 - Commercial

Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	2.30	Acre	2.30	100,188.00	0
Fast Food Restaurant with Drive Thru	3.20	1000sqft	0.07	3,200.00	0
Convenience Market With Gas Pumps	8.00	Pump	0.03	1,129.40	0
Regional Shopping Center	26.02	1000sqft	0.60	26,015.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 45

Climate Zone 3 **Operational Year** 2022

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 488.3 **CH4 Intensity (lb/MWhr)** 0.022 **N2O Intensity (lb/MWhr)** 0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Includes RPS adjustment

Land Use - shopping center: 26.015ksf, market w/fp: 8fp, fast-food w/drivethru: 3.2ksf, 3.05 acres total, 2.3 acres paved

Construction Phase - Based on model defaults. Arch coating to begin approximately 5 months after initiation of building construction.

Off-road Equipment - Based on default equipment usage identified in the model.

Trips and VMT - Based on model defaults

Grading - No material imported/exported.

Architectural Coating - Based on model defaults.

Vehicle Trips - Weekday trips derived from the traffic analysis. Weekend trip rates based on model defaults.

Vehicle Emission Factors - .

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - Based on model defaults.

Energy Use -

Construction Off-road Equipment Mitigation - Assumes 61%CE for watering exposed areas, 50%CE for water onsite roads/travelways, 15 mph speed limit. Use of T3 equipment included for modeling purposes.

Area Mitigation - .

Energy Mitigation - Includes 5% reduction for nonresidential uses with compliance with current building standards.

Water Mitigation - Includes use of low-flow fixtures and water-efficient irrigation systems.

Waste Mitigation - Assumes 61% diversion rate per CalReycle's 2016 estimated equivalent. https://www.calrecycle.ca.gov/LGCentral/GoalMeasure/DisposalRate/MostRecent/

Fleet Mix - Based on SJVAPCD's residential fleet mix.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	10.00	120.00
tblLandUse	LandUseSquareFeet	26,020.00	26,015.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	488.3
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005

tblVehicleTrips	WD_TR	542.60	322.50
tblVehicleTrips	WD_TR	496.12	470.95
tblVehicleTrips	WD_TR	42.70	37.75

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.5082	2.4741	2.2763	4.5100e-003	0.1140	0.1216	0.2355	0.0432	0.1145	0.1577						398.1734
Maximum	**0.5082**	**2.4741**	**2.2763**	**4.5100e-003**	**0.1140**	**0.1216**	**0.2355**	**0.0432**	**0.1145**	**0.1577**						**398.1734**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.3512	2.0407	2.4385	4.5100e-003	0.0855	0.1124	0.1979	0.0280	0.1124	0.1403						398.1731
Maximum	**0.3512**	**2.0407**	**2.4385**	**4.5100e-003**	**0.0855**	**0.1124**	**0.1979**	**0.0280**	**0.1124**	**0.1403**						**398.1731**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**30.89**	**17.52**	**-7.13**	**0.00**	**25.02**	**7.51**	**15.99**	**35.28**	**1.82**	**10.99**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2021	3-31-2021	0.7651	0.5669
2	4-1-2021	6-30-2021	0.7523	0.6062
3	7-1-2021	9-30-2021	0.9122	0.7558
		Highest	0.9122	0.7558

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1482	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						7.5000e-004
Energy	5.2000e-003	0.0472	0.0397	2.8000e-004		3.5900e-003	3.5900e-003		3.5900e-003	3.5900e-003						129.3590
Mobile	1.2555	15.1477	8.1717	0.0396	1.7184	0.0310	1.7494	0.4632	0.0293	0.4925						3,717.9321
Waste						0.0000	0.0000		0.0000	0.0000						32.2762
Water						0.0000	0.0000		0.0000	0.0000						8.6564
Total	**1.4089**	**15.1949**	**8.2117**	**0.0398**	**1.7184**	**0.0346**	**1.7530**	**0.4632**	**0.0328**	**0.4961**						**3,888.2245**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1482	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						7.5000e-004
Energy	5.1000e-003	0.0464	0.0390	2.8000e-004		3.5300e-003	3.5300e-003		3.5300e-003	3.5300e-003						127.5451
Mobile	1.2555	15.1477	8.1717	0.0396	1.7184	0.0310	1.7494	0.4632	0.0293	0.4925						3,717.9321
Waste						0.0000	0.0000		0.0000	0.0000						12.5877
Water						0.0000	0.0000		0.0000	0.0000						7.0652
Total	**1.4088**	**15.1940**	**8.2110**	**0.0398**	**1.7184**	**0.0345**	**1.7529**	**0.4632**	**0.0328**	**0.4960**						**3,865.1309**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.01**	**0.01**	**0.01**	**0.00**	**0.00**	**0.17**	**0.00**	**0.00**	**0.18**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.59**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2021	1/5/2021	5	3	
2	Grading	Grading	1/6/2021	1/13/2021	5	6	
3	Building Construction	Building Construction	1/14/2021	11/17/2021	5	220	
4	Architectural Coating	Architectural Coating	6/14/2021	11/26/2021	5	120	
5	Paving	Paving	11/18/2021	12/1/2021	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3

Acres of Paving: 2.3

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 45,517; Non-Residential Outdoor: 15,172; Striped Parking Area: 6,011 (Architectural Coating – sqft)

OffRoad Equipment

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

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	52.00	21.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0271	0.0000	0.0271	0.0149	0.0000	0.0149						0.0000
Off-Road	5.8300e-003	0.0608	0.0317	6.0000e-005		3.0700e-003	3.0700e-003		2.8200e-003	2.8200e-003						5.0559
Total	**5.8300e-003**	**0.0608**	**0.0317**	**6.0000e-005**	**0.0271**	**3.0700e-003**	**0.0302**	**0.0149**	**2.8200e-003**	**0.0177**						**5.0559**

3.2 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.1000e-004	7.0000e-005	6.8000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005						0.1805
Total	**1.1000e-004**	**7.0000e-005**	**6.8000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**						**0.1805**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0106	0.0000	0.0106	5.8100e-003	0.0000	5.8100e-003						0.0000
Off-Road	1.4000e-003	0.0286	0.0344	6.0000e-005		1.4200e-003	1.4200e-003		1.4200e-003	1.4200e-003						5.0559
Total	**1.4000e-003**	**0.0286**	**0.0344**	**6.0000e-005**	**0.0106**	**1.4200e-003**	**0.0120**	**5.8100e-003**	**1.4200e-003**	**7.2300e-003**						**5.0559**

3.2 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.1000e-004	7.0000e-005	6.8000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005						0.1805
Total	**1.1000e-004**	**7.0000e-005**	**6.8000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**						**0.1805**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0197	0.0000	0.0197	0.0101	0.0000	0.0101						0.0000
Off-Road	6.8700e-003	0.0742	0.0476	9.0000e-005		3.4800e-003	3.4800e-003		3.2000e-003	3.2000e-003						7.8793
Total	**6.8700e-003**	**0.0742**	**0.0476**	**9.0000e-005**	**0.0197**	**3.4800e-003**	**0.0231**	**0.0101**	**3.2000e-003**	**0.0133**						**7.8793**

3.3 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.8000e-004	1.1000e-004	1.1300e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004						0.3009
Total	**1.8000e-004**	**1.1000e-004**	**1.1300e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**						**0.3009**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.6700e-003	0.0000	7.6700e-003	3.9400e-003	0.0000	3.9400e-003						0.0000
Off-Road	2.1800e-003	0.0445	0.0570	9.0000e-005		2.2700e-003	2.2700e-003		2.2700e-003	2.2700e-003						7.8793
Total	**2.1800e-003**	**0.0445**	**0.0570**	**9.0000e-005**	**7.6700e-003**	**2.2700e-003**	**9.9400e-003**	**3.9400e-003**	**2.2700e-003**	**6.2100e-003**						**7.8793**

3.3 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.8000e-004	1.1000e-004	1.1300e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004						0.3009
Total	**1.8000e-004**	**1.1000e-004**	**1.1300e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**						**0.3009**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2091	1.9175	1.8233	2.9600e-003		0.1055	0.1055		0.0991	0.0991						256.3378
Total	**0.2091**	**1.9175**	**1.8233**	**2.9600e-003**		**0.1055**	**0.1055**		**0.0991**	**0.0991**						**256.3378**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	6.9800e-003	0.2600	0.0396	6.5000e-004	0.0153	7.0000e-004	0.0160	4.4200e-003	6.7000e-004	5.0900e-003						61.8969
Worker	0.0228	0.0139	0.1442	4.2000e-004	0.0457	2.8000e-004	0.0460	0.0122	2.6000e-004	0.0124						38.2462
Total	**0.0298**	**0.2740**	**0.1839**	**1.0700e-003**	**0.0610**	**9.8000e-004**	**0.0620**	**0.0166**	**9.3000e-004**	**0.0175**						**100.1431**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0741	1.5649	1.9661	2.9600e-003		0.0994	0.0994		0.0994	0.0994						256.3375
Total	**0.0741**	**1.5649**	**1.9661**	**2.9600e-003**		**0.0994**	**0.0994**		**0.0994**	**0.0994**						**256.3375**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	6.9800e-003	0.2600	0.0396	6.5000e-004	0.0153	7.0000e-004	0.0160	4.4200e-003	6.7000e-004	5.0900e-003						61.8969
Worker	0.0228	0.0139	0.1442	4.2000e-004	0.0457	2.8000e-004	0.0460	0.0122	2.6000e-004	0.0124						38.2462
Total	**0.0298**	**0.2740**	**0.1839**	**1.0700e-003**	**0.0610**	**9.8000e-004**	**0.0620**	**0.0166**	**9.3000e-004**	**0.0175**						**100.1431**

3.5 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2319					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	0.0131	0.0916	0.1091	1.8000e-004		5.6500e-003	5.6500e-003		5.6500e-003	5.6500e-003						15.3458
Total	**0.2450**	**0.0916**	**0.1091**	**1.8000e-004**		**5.6500e-003**	**5.6500e-003**		**5.6500e-003**	**5.6500e-003**						**15.3458**

3.5 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.3900e-003	1.4600e-003	0.0151	4.0000e-005	4.8000e-003	3.0000e-005	4.8300e-003	1.2700e-003	3.0000e-005	1.3000e-003						4.0118
Total	**2.3900e-003**	**1.4600e-003**	**0.0151**	**4.0000e-005**	**4.8000e-003**	**3.0000e-005**	**4.8300e-003**	**1.2700e-003**	**3.0000e-005**	**1.3000e-003**						**4.0118**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2319					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	3.5700e-003	0.0814	0.1099	1.8000e-004		5.7100e-003	5.7100e-003		5.7100e-003	5.7100e-003						15.3458
Total	**0.2354**	**0.0814**	**0.1099**	**1.8000e-004**		**5.7100e-003**	**5.7100e-003**		**5.7100e-003**	**5.7100e-003**						**15.3458**

3.5 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.3900e-003	1.4600e-003	0.0151	4.0000e-005	4.8000e-003	3.0000e-005	4.8300e-003	1.2700e-003	3.0000e-005	1.3000e-003						4.0118
Total	**2.3900e-003**	**1.4600e-003**	**0.0151**	**4.0000e-005**	**4.8000e-003**	**3.0000e-005**	**4.8300e-003**	**1.2700e-003**	**3.0000e-005**	**1.3000e-003**						**4.0118**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.4700e-003	0.0542	0.0613	9.0000e-005		2.8900e-003	2.8900e-003		2.6700e-003	2.6700e-003						8.2496
Paving	3.0100e-003					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**8.4800e-003**	**0.0542**	**0.0613**	**9.0000e-005**		**2.8900e-003**	**2.8900e-003**		**2.6700e-003**	**2.6700e-003**						**8.2496**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	4.0000e-004	2.4000e-004	2.5200e-003	1.0000e-005	8.0000e-004	0.0000	8.0000e-004	2.1000e-004	0.0000	2.2000e-004						0.6686
Total	**4.0000e-004**	**2.4000e-004**	**2.5200e-003**	**1.0000e-005**	**8.0000e-004**	**0.0000**	**8.0000e-004**	**2.1000e-004**	**0.0000**	**2.2000e-004**						**0.6686**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.1900e-003	0.0454	0.0677	9.0000e-005		2.6200e-003	2.6200e-003		2.6200e-003	2.6200e-003						8.2496
Paving	3.0100e-003					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**5.2000e-003**	**0.0454**	**0.0677**	**9.0000e-005**		**2.6200e-003**	**2.6200e-003**		**2.6200e-003**	**2.6200e-003**						**8.2496**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	4.0000e-004	2.4000e-004	2.5200e-003	1.0000e-005	8.0000e-004	0.0000	8.0000e-004	2.1000e-004	0.0000	2.2000e-004						0.6686
Total	**4.0000e-004**	**2.4000e-004**	**2.5200e-003**	**1.0000e-005**	**8.0000e-004**	**0.0000**	**8.0000e-004**	**2.1000e-004**	**0.0000**	**2.2000e-004**						**0.6686**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.2555	15.1477	8.1717	0.0396	1.7184	0.0310	1.7494	0.4632	0.0293	0.4925						3,717.932 1
Unmitigated	1.2555	15.1477	8.1717	0.0396	1.7184	0.0310	1.7494	0.4632	0.0293	0.4925						3,717.932 1

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	2,580.00	1,635.76	1335.04	1,216,166	1,216,166
Fast Food Restaurant with Drive Thru	1,507.04	2,310.50	1736.70	1,545,961	1,545,961
Parking Lot	0.00	0.00	0.00		
Regional Shopping Center	982.26	1,300.22	656.74	1,720,302	1,720,302
Total	5,069.30	5,246.48	3,728.49	4,482,430	4,482,430

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market With Gas	9.50	7.30	7.30	0.80	80.20	19.00	14	21	65
Fast Food Restaurant with Drive	9.50	7.30	7.30	2.20	78.80	19.00	29	21	50
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market With Gas Pumps	0.492212	0.031147	0.169820	0.116157	0.015815	0.004502	0.033398	0.126328	0.002363	0.001519	0.005062	0.001083	0.000594
Fast Food Restaurant with Drive Thru	0.492212	0.031147	0.169820	0.116157	0.015815	0.004502	0.033398	0.126328	0.002363	0.001519	0.005062	0.001083	0.000594
Parking Lot	0.492212	0.031147	0.169820	0.116157	0.015815	0.004502	0.033398	0.126328	0.002363	0.001519	0.005062	0.001083	0.000594
Regional Shopping Center	0.492212	0.031147	0.169820	0.116157	0.015815	0.004502	0.033398	0.126328	0.002363	0.001519	0.005062	0.001083	0.000594

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000						76.7428
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000						77.6219
NaturalGas Mitigated	5.1000e-003	0.0464	0.0390	2.8000e-004		3.5300e-003	3.5300e-003		3.5300e-003	3.5300e-003						50.8023
NaturalGas Unmitigated	5.2000e-003	0.0472	0.0397	2.8000e-004		3.5900e-003	3.5900e-003		3.5900e-003	3.5900e-003						51.7371

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market With Gas Pumps	12084.6	7.0000e-005	5.9000e-004	5.0000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005						0.6487
Fast Food Restaurant with Drive Thru	673344	3.6300e-003	0.0330	0.0277	2.0000e-004		2.5100e-003	2.5100e-003		2.5100e-003	2.5100e-003						36.1457
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Regional Shopping Center	278361	1.5000e-003	0.0137	0.0115	8.0000e-005		1.0400e-003	1.0400e-003		1.0400e-003	1.0400e-003						14.9427
Total		**5.2000e-003**	**0.0473**	**0.0397**	**2.8000e-004**		**3.6000e-003**	**3.6000e-003**		**3.6000e-003**	**3.6000e-003**						**51.7371**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market With Gas Pumps	11597.8	6.0000e-005	5.7000e-004	4.8000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005						0.6226
Fast Food Restaurant with Drive Thru	667629	3.6000e-003	0.0327	0.0275	2.0000e-004		2.4900e-003	2.4900e-003		2.4900e-003	2.4900e-003						35.8389
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Regional Shopping Center	267148	1.4400e-003	0.0131	0.0110	8.0000e-005		1.0000e-003	1.0000e-003		1.0000e-003	1.0000e-003						14.3408
Total		**5.1000e-003**	**0.0464**	**0.0390**	**2.8000e-004**		**3.5300e-003**	**3.5300e-003**		**3.5300e-003**	**3.5300e-003**						**50.8023**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	9204.61				2.0472
Fast Food Restaurant with Drive Thru	92704				20.6187
Parking Lot	35065.8				7.7991
Regional Shopping Center	212022				47.1568
Total					**77.6219**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	9083.76				2.0204
Fast Food Restaurant with Drive Thru	91656				20.3856
Parking Lot	35065.8				7.7991
Regional Shopping Center	209239				46.5377
Total					**76.7428**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1482	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						7.5000e-004
Unmitigated	0.1482	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						7.5000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0232					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.1250					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	3.0000e-005	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						7.5000e-004
Total	**0.1482**	**0.0000**	**3.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						**7.5000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0232					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.1250					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	3.0000e-005	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						7.5000e-004
Total	**0.1482**	**0.0000**	**3.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						**7.5000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated				7.0652
Unmitigated				8.6564

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.0836574 / 0.0512739				0.2545
Fast Food Restaurant with Drive Thru	0.971308 / 0.0619984				2.5393
Parking Lot	0 / 0				0.0000
Regional Shopping Center	1.92737 / 1.18129				5.8626
Total					**8.6564**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.0669259 / 0.0481462				0.2091
Fast Food Restaurant with Drive Thru	0.777046 / 0.0582165				2.0382
Parking Lot	0 / 0				0.0000
Regional Shopping Center	1.54189 / 1.10923				4.8179
Total					**7.0652**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated				12.5877
Unmitigated				32.2762

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant with Drive Thru	36.86				18.5370
Parking Lot	0				0.0000
Regional Shopping Center	27.32				13.7393
Total					**32.2762**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant with Drive Thru	14.3754				7.2294
Parking Lot	0				0.0000
Regional Shopping Center	10.6548				5.3583
Total					**12.5877**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	2.30	Acre	2.30	100,188.00	0
Fast Food Restaurant with Drive Thru	3.20	1000sqft	0.07	3,200.00	0
Convenience Market With Gas Pumps	8.00	Pump	0.03	1,129.40	0
Regional Shopping Center	26.02	1000sqft	0.60	26,015.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 45

Climate Zone 3 **Operational Year** 2030

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 364.4 **CH4 Intensity (lb/MWhr)** 0.016 **N2O Intensity (lb/MWhr)** 0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Includes RPS adjustment

Land Use - shopping center: 26.015ksf, market w/fp: 8fp, fast-food w/drivethru: 3.2ksf, 3.05 acres total, 2.3 acres paved

Construction Phase - Based on model defaults. Arch coating to begin approximately 5 months after initiation of building construction.

Off-road Equipment - Based on default equipment usage identified in the model.

Trips and VMT - Based on model defaults

Grading - No material imported/exported.

Architectural Coating - Based on model defaults.

Vehicle Trips - Weekday trips derived from the traffic analysis. Weekend trip rates based on model defaults.

Vehicle Emission Factors - .

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - Based on model defaults.

Energy Use -

Construction Off-road Equipment Mitigation - Assumes 61%CE for watering exposed areas, 50%CE for water onsite roads/travelways, 15 mph speed limit. Use of T3 equipment included for modeling purposes.

Area Mitigation - .

Energy Mitigation - Includes 5% reduction for nonresidential uses with compliance with current building standards.

Water Mitigation - Includes use of low-flow fixtures and water-efficient irrigation systems.

Waste Mitigation - Assumes 61% diversion rate per CalReycle's 2016 estimated equivalent. https://www.calrecycle.ca.gov/LGCentral/GoalMeasure/DisposalRate/MostRecent/

Fleet Mix - Based on SJVAPCD's residential fleet mix.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	10.00	120.00
tblLandUse	LandUseSquareFeet	26,020.00	26,015.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.016
tblProjectCharacteristics	CO2IntensityFactor	641.35	364.4
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004

tblVehicleTrips	WD_TR	542.60	322.50
tblVehicleTrips	WD_TR	496.12	470.95
tblVehicleTrips	WD_TR	42.70	37.75

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.5082	2.4741	2.2763	4.5100e-003	0.1140	0.1216	0.2355	0.0432	0.1145	0.1577						398.1734
Maximum	**0.5082**	**2.4741**	**2.2763**	**4.5100e-003**	**0.1140**	**0.1216**	**0.2355**	**0.0432**	**0.1145**	**0.1577**						**398.1734**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.3512	2.0407	2.4385	4.5100e-003	0.0855	0.1124	0.1979	0.0280	0.1124	0.1403						398.1731
Maximum	**0.3512**	**2.0407**	**2.4385**	**4.5100e-003**	**0.0855**	**0.1124**	**0.1979**	**0.0280**	**0.1124**	**0.1403**						**398.1731**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**30.89**	**17.52**	**-7.13**	**0.00**	**25.02**	**7.51**	**15.99**	**35.28**	**1.82**	**10.99**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2021**	**3-31-2021**	0.7651	0.5669
2	**4-1-2021**	**6-30-2021**	0.7523	0.6062
3	**7-1-2021**	**9-30-2021**	0.9122	0.7558
		Highest	0.9122	0.7558

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1482	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						7.5000e-004
Energy	5.2000e-003	0.0472	0.0397	2.8000e-004		3.5900e-003	3.5900e-003		3.5900e-003	3.5900e-003						109.6744
Mobile	0.7579	11.6617	4.8141	0.0341	1.7164	0.0140	1.7305	0.4623	0.0131	0.4754						3,211.1728
Waste						0.0000	0.0000		0.0000	0.0000						32.2762
Water						0.0000	0.0000		0.0000	0.0000						7.4906
Total	**0.9113**	**11.7090**	**4.8542**	**0.0344**	**1.7164**	**0.0176**	**1.7341**	**0.4623**	**0.0167**	**0.4790**						**3,360.6148**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1482	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						7.5000e-004
Energy	5.1000e-003	0.0464	0.0390	2.8000e-004		3.5300e-003	3.5300e-003		3.5300e-003	3.5300e-003						108.0835
Mobile	0.7579	11.6617	4.8141	0.0341	1.7164	0.0140	1.7305	0.4623	0.0131	0.4754						3,211.1728
Waste						0.0000	0.0000		0.0000	0.0000						12.5877
Water						0.0000	0.0000		0.0000	0.0000						6.0971
Total	**0.9112**	**11.7081**	**4.8535**	**0.0344**	**1.7164**	**0.0176**	**1.7340**	**0.4623**	**0.0167**	**0.4790**						**3,337.9418**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.01	0.01	0.01	0.00	0.00	0.34	0.00	0.00	0.36	0.01	0.00	0.00	0.00	0.00	0.00	0.67

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2021	1/5/2021	5	3	
2	Grading	Grading	1/6/2021	1/13/2021	5	6	
3	Building Construction	Building Construction	1/14/2021	11/17/2021	5	220	
4	Architectural Coating	Architectural Coating	6/14/2021	11/26/2021	5	120	
5	Paving	Paving	11/18/2021	12/1/2021	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3

Acres of Paving: 2.3

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 45,517; Non-Residential Outdoor: 15,172; Striped Parking Area: 6,011 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

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

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	52.00	21.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0271	0.0000	0.0271	0.0149	0.0000	0.0149						0.0000
Off-Road	5.8300e-003	0.0608	0.0317	6.0000e-005		3.0700e-003	3.0700e-003		2.8200e-003	2.8200e-003						5.0559
Total	**5.8300e-003**	**0.0608**	**0.0317**	**6.0000e-005**	**0.0271**	**3.0700e-003**	**0.0302**	**0.0149**	**2.8200e-003**	**0.0177**						**5.0559**

3.2 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.1000e-004	7.0000e-005	6.8000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005						0.1805
Total	**1.1000e-004**	**7.0000e-005**	**6.8000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**						**0.1805**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0106	0.0000	0.0106	5.8100e-003	0.0000	5.8100e-003						0.0000
Off-Road	1.4000e-003	0.0286	0.0344	6.0000e-005		1.4200e-003	1.4200e-003		1.4200e-003	1.4200e-003						5.0559
Total	**1.4000e-003**	**0.0286**	**0.0344**	**6.0000e-005**	**0.0106**	**1.4200e-003**	**0.0120**	**5.8100e-003**	**1.4200e-003**	**7.2300e-003**						**5.0559**

3.2 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.1000e-004	7.0000e-005	6.8000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005						0.1805
Total	**1.1000e-004**	**7.0000e-005**	**6.8000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**						**0.1805**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0197	0.0000	0.0197	0.0101	0.0000	0.0101						0.0000
Off-Road	6.8700e-003	0.0742	0.0476	9.0000e-005		3.4800e-003	3.4800e-003		3.2000e-003	3.2000e-003						7.8793
Total	**6.8700e-003**	**0.0742**	**0.0476**	**9.0000e-005**	**0.0197**	**3.4800e-003**	**0.0231**	**0.0101**	**3.2000e-003**	**0.0133**						**7.8793**

3.3 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.8000e-004	1.1000e-004	1.1300e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004						0.3009
Total	**1.8000e-004**	**1.1000e-004**	**1.1300e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**						**0.3009**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.6700e-003	0.0000	7.6700e-003	3.9400e-003	0.0000	3.9400e-003						0.0000
Off-Road	2.1800e-003	0.0445	0.0570	9.0000e-005		2.2700e-003	2.2700e-003		2.2700e-003	2.2700e-003						7.8793
Total	**2.1800e-003**	**0.0445**	**0.0570**	**9.0000e-005**	**7.6700e-003**	**2.2700e-003**	**9.9400e-003**	**3.9400e-003**	**2.2700e-003**	**6.2100e-003**						**7.8793**

3.3 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.8000e-004	1.1000e-004	1.1300e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004						0.3009
Total	**1.8000e-004**	**1.1000e-004**	**1.1300e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**						**0.3009**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2091	1.9175	1.8233	2.9600e-003		0.1055	0.1055		0.0991	0.0991						256.3378
Total	**0.2091**	**1.9175**	**1.8233**	**2.9600e-003**		**0.1055**	**0.1055**		**0.0991**	**0.0991**						**256.3378**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	6.9800e-003	0.2600	0.0396	6.5000e-004	0.0153	7.0000e-004	0.0160	4.4200e-003	6.7000e-004	5.0900e-003						61.8969
Worker	0.0228	0.0139	0.1442	4.2000e-004	0.0457	2.8000e-004	0.0460	0.0122	2.6000e-004	0.0124						38.2462
Total	**0.0298**	**0.2740**	**0.1839**	**1.0700e-003**	**0.0610**	**9.8000e-004**	**0.0620**	**0.0166**	**9.3000e-004**	**0.0175**						**100.1431**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0741	1.5649	1.9661	2.9600e-003		0.0994	0.0994		0.0994	0.0994						256.3375
Total	**0.0741**	**1.5649**	**1.9661**	**2.9600e-003**		**0.0994**	**0.0994**		**0.0994**	**0.0994**						**256.3375**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	6.9800e-003	0.2600	0.0396	6.5000e-004	0.0153	7.0000e-004	0.0160	4.4200e-003	6.7000e-004	5.0900e-003						61.8969
Worker	0.0228	0.0139	0.1442	4.2000e-004	0.0457	2.8000e-004	0.0460	0.0122	2.6000e-004	0.0124						38.2462
Total	**0.0298**	**0.2740**	**0.1839**	**1.0700e-003**	**0.0610**	**9.8000e-004**	**0.0620**	**0.0166**	**9.3000e-004**	**0.0175**						**100.1431**

3.5 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2319					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	0.0131	0.0916	0.1091	1.8000e-004		5.6500e-003	5.6500e-003		5.6500e-003	5.6500e-003						15.3458
Total	**0.2450**	**0.0916**	**0.1091**	**1.8000e-004**		**5.6500e-003**	**5.6500e-003**		**5.6500e-003**	**5.6500e-003**						**15.3458**

3.5 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.3900e-003	1.4600e-003	0.0151	4.0000e-005	4.8000e-003	3.0000e-005	4.8300e-003	1.2700e-003	3.0000e-005	1.3000e-003						4.0118
Total	**2.3900e-003**	**1.4600e-003**	**0.0151**	**4.0000e-005**	**4.8000e-003**	**3.0000e-005**	**4.8300e-003**	**1.2700e-003**	**3.0000e-005**	**1.3000e-003**						**4.0118**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2319					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	3.5700e-003	0.0814	0.1099	1.8000e-004		5.7100e-003	5.7100e-003		5.7100e-003	5.7100e-003						15.3458
Total	**0.2354**	**0.0814**	**0.1099**	**1.8000e-004**		**5.7100e-003**	**5.7100e-003**		**5.7100e-003**	**5.7100e-003**						**15.3458**

3.5 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.3900e-003	1.4600e-003	0.0151	4.0000e-005	4.8000e-003	3.0000e-005	4.8300e-003	1.2700e-003	3.0000e-005	1.3000e-003						4.0118
Total	**2.3900e-003**	**1.4600e-003**	**0.0151**	**4.0000e-005**	**4.8000e-003**	**3.0000e-005**	**4.8300e-003**	**1.2700e-003**	**3.0000e-005**	**1.3000e-003**						**4.0118**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.4700e-003	0.0542	0.0613	9.0000e-005		2.8900e-003	2.8900e-003		2.6700e-003	2.6700e-003						8.2496
Paving	3.0100e-003					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**8.4800e-003**	**0.0542**	**0.0613**	**9.0000e-005**		**2.8900e-003**	**2.8900e-003**		**2.6700e-003**	**2.6700e-003**						**8.2496**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	4.0000e-004	2.4000e-004	2.5200e-003	1.0000e-005	8.0000e-004	0.0000	8.0000e-004	2.1000e-004	0.0000	2.2000e-004						0.6686
Total	**4.0000e-004**	**2.4000e-004**	**2.5200e-003**	**1.0000e-005**	**8.0000e-004**	**0.0000**	**8.0000e-004**	**2.1000e-004**	**0.0000**	**2.2000e-004**						**0.6686**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.1900e-003	0.0454	0.0677	9.0000e-005		2.6200e-003	2.6200e-003		2.6200e-003	2.6200e-003						8.2496
Paving	3.0100e-003					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**5.2000e-003**	**0.0454**	**0.0677**	**9.0000e-005**		**2.6200e-003**	**2.6200e-003**		**2.6200e-003**	**2.6200e-003**						**8.2496**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	4.0000e-004	2.4000e-004	2.5200e-003	1.0000e-005	8.0000e-004	0.0000	8.0000e-004	2.1000e-004	0.0000	2.2000e-004						0.6686
Total	**4.0000e-004**	**2.4000e-004**	**2.5200e-003**	**1.0000e-005**	**8.0000e-004**	**0.0000**	**8.0000e-004**	**2.1000e-004**	**0.0000**	**2.2000e-004**						**0.6686**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7579	11.6617	4.8141	0.0341	1.7164	0.0140	1.7305	0.4623	0.0131	0.4754						3,211.172 8
Unmitigated	0.7579	11.6617	4.8141	0.0341	1.7164	0.0140	1.7305	0.4623	0.0131	0.4754						3,211.172 8

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	2,580.00	1,635.76	1335.04	1,216,166	1,216,166
Fast Food Restaurant with Drive Thru	1,507.04	2,310.50	1736.70	1,545,961	1,545,961
Parking Lot	0.00	0.00	0.00		
Regional Shopping Center	982.26	1,300.22	656.74	1,720,302	1,720,302
Total	5,069.30	5,246.48	3,728.49	4,482,430	4,482,430

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market With Gas	9.50	7.30	7.30	0.80	80.20	19.00	14	21	65
Fast Food Restaurant with Drive	9.50	7.30	7.30	2.20	78.80	19.00	29	21	50
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market With Gas Pumps	0.517186	0.028486	0.175263	0.093589	0.009700	0.003404	0.033644	0.129242	0.002306	0.001185	0.004563	0.000998	0.000436
Fast Food Restaurant with Drive Thru	0.517186	0.028486	0.175263	0.093589	0.009700	0.003404	0.033644	0.129242	0.002306	0.001185	0.004563	0.000998	0.000436
Parking Lot	0.517186	0.028486	0.175263	0.093589	0.009700	0.003404	0.033644	0.129242	0.002306	0.001185	0.004563	0.000998	0.000436
Regional Shopping Center	0.517186	0.028486	0.175263	0.093589	0.009700	0.003404	0.033644	0.129242	0.002306	0.001185	0.004563	0.000998	0.000436

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000						57.2812
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000						57.9374
NaturalGas Mitigated	5.1000e-003	0.0464	0.0390	2.8000e-004		3.5300e-003	3.5300e-003		3.5300e-003	3.5300e-003						50.8023
NaturalGas Unmitigated	5.2000e-003	0.0472	0.0397	2.8000e-004		3.5900e-003	3.5900e-003		3.5900e-003	3.5900e-003						51.7371

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market With Gas Pumps	12084.6	7.0000e-005	5.9000e-004	5.0000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005						0.6487
Fast Food Restaurant with Drive Thru	673344	3.6300e-003	0.0330	0.0277	2.0000e-004		2.5100e-003	2.5100e-003		2.5100e-003	2.5100e-003						36.1457
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Regional Shopping Center	278361	1.5000e-003	0.0137	0.0115	8.0000e-005		1.0400e-003	1.0400e-003		1.0400e-003	1.0400e-003						14.9427
Total		**5.2000e-003**	**0.0473**	**0.0397**	**2.8000e-004**		**3.6000e-003**	**3.6000e-003**		**3.6000e-003**	**3.6000e-003**						**51.7371**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market With Gas Pumps	11597.8	6.0000e-005	5.7000e-004	4.8000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005						0.6226
Fast Food Restaurant with Drive Thru	667629	3.6000e-003	0.0327	0.0275	2.0000e-004		2.4900e-003	2.4900e-003		2.4900e-003	2.4900e-003						35.8389
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Regional Shopping Center	267148	1.4400e-003	0.0131	0.0110	8.0000e-005		1.0000e-003	1.0000e-003		1.0000e-003	1.0000e-003						14.3408
Total		**5.1000e-003**	**0.0464**	**0.0390**	**2.8000e-004**		**3.5300e-003**	**3.5300e-003**		**3.5300e-003**	**3.5300e-003**						**50.8023**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	9204.61				1.5281
Fast Food Restaurant with Drive Thru	92704				15.3899
Parking Lot	35065.8				5.8213
Regional Shopping Center	212022				35.1981
Total					**57.9373**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	9083.76				1.5080
Fast Food Restaurant with Drive Thru	91656				15.2159
Parking Lot	35065.8				5.8213
Regional Shopping Center	209239				34.7360
Total					**57.2812**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1482	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						7.5000e-004
Unmitigated	0.1482	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						7.5000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0232					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.1250					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	3.0000e-005	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						7.5000e-004
Total	**0.1482**	**0.0000**	**3.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						**7.5000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0232					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.1250					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	3.0000e-005	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						7.5000e-004
Total	**0.1482**	**0.0000**	**3.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						**7.5000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated				6.0971
Unmitigated				7.4906

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.0836574 / 0.0512739				0.2188
Fast Food Restaurant with Drive Thru	0.971308 / 0.0619984				2.2306
Parking Lot	0 / 0				0.0000
Regional Shopping Center	1.92737 / 1.18129				5.0412
Total					**7.4906**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.0669259 / 0.0481462				0.1792
Fast Food Restaurant with Drive Thru	0.777046 / 0.0582165				1.7895
Parking Lot	0 / 0				0.0000
Regional Shopping Center	1.54189 / 1.10923				4.1283
Total					**6.0970**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated				12.5877
Unmitigated				32.2762

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant with Drive Thru	36.86				18.5370
Parking Lot	0				0.0000
Regional Shopping Center	27.32				13.7393
Total					**32.2762**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant with Drive Thru	14.3754				7.2294
Parking Lot	0				0.0000
Regional Shopping Center	10.6548				5.3583
Total					**12.5877**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	64.00	Dwelling Unit	3.20	64,000.00	183
Parking Lot	1.00	Acre	1.00	43,560.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	488.3	**CH4 Intensity (lb/MWhr)**	0.022	**N2O Intensity (lb/MWhr)**	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Includes RPS adjustment

Land Use - 64 MFR, 4.2 acres total, 1 acre paved

Construction Phase - Based on model defaults. Arch coating to begin approximately 5 months after initiation of building construction.

Off-road Equipment - Based on default equipment usage identified in the model.

Trips and VMT - Based on model defaults

Grading - No material imported/exported.

Vehicle Trips - Weekday trips based on 7.32 trips/day derived from the traffic analysis. Weekend trip rates based on model defaults.

Energy Use -

Vehicle Emission Factors - .

Vehicle Emission Factors -

Vehicle Emission Factors -

Fleet Mix - Based on SJVAPCD's residential fleet mix.

Woodstoves - Based on model defaults.

Construction Off-road Equipment Mitigation - Assumes 61%CE for watering exposed areas, 50%CE for water onsite roads/travelways, 15 mph speed limit. Use of T3 equipment included for modeling purposes.

Area Mitigation - Only natural gas hearths included as mitigation.

Energy Mitigation - Includes installation of energy-efficient appliances (e.g., dishwashers and fans). Includes 28% improvement in energy efficiency with compliance with current building standards.
https://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2016_Building_Energy_Efficiency_Standards_FAQ.pdf

Water Mitigation - Includes use of low-flow fixtures and water-efficient irrigation systems.

Waste Mitigation - Assumes 61% diversion rate per CalReycle's 2016 estimated equivalent.
https://www.calrecycle.ca.gov/LGCentral/GoalMeasure/DisposalRate/MostRecent/

Architectural Coating - Based on model defaults.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	18.00	130.00
tblConstructionPhase	PhaseEndDate	1/26/2022	12/17/2021
tblConstructionPhase	PhaseStartDate	1/1/2022	6/20/2021
tblFleetMix	HHD	0.13	0.02

tblFleetMix	LDA	0.49	0.53
tblFleetMix	LDT1	0.03	0.20
tblFleetMix	LDT2	0.17	0.17
tblFleetMix	LHD1	0.02	1.3000e-003
tblFleetMix	LHD2	4.5020e-003	9.0000e-004
tblFleetMix	MCY	5.0620e-003	2.5000e-003
tblFleetMix	MDV	0.12	0.05
tblFleetMix	MH	5.9400e-004	1.8000e-003
tblFleetMix	MHD	0.03	8.6000e-003
tblFleetMix	OBUS	2.3630e-003	0.00
tblFleetMix	SBUS	1.0830e-003	7.0000e-004
tblFleetMix	UBUS	1.5190e-003	4.4000e-003
tblLandUse	LotAcreage	4.00	3.20
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	488.3
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblVehicleTrips	WD_TR	6.59	7.32

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.9114	2.6036	2.4927	4.7500e-003	0.1499	0.1322	0.2822	0.0594	0.1244	0.1838						418.3035
Maximum	**0.9114**	**2.6036**	**2.4927**	**4.7500e-003**	**0.1499**	**0.1322**	**0.2822**	**0.0594**	**0.1244**	**0.1838**						**418.3035**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.7404	2.1149	2.6715	4.7500e-003	0.1064	0.1211	0.2275	0.0361	0.1211	0.1571						418.3031
Maximum	**0.7404**	**2.1149**	**2.6715**	**4.7500e-003**	**0.1064**	**0.1211**	**0.2275**	**0.0361**	**0.1211**	**0.1571**						**418.3031**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**18.76**	**18.77**	**-7.17**	**0.00**	**29.04**	**8.41**	**19.37**	**39.31**	**2.69**	**14.53**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2021	3-31-2021	0.7699	0.5474
2	4-1-2021	6-30-2021	0.7385	0.5931
3	7-1-2021	9-30-2021	1.0706	0.9141
		Highest	1.0706	0.9141

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3961	0.0391	1.0782	2.1100e-003		0.1012	0.1012		0.1012	0.1012						43.1336
Energy	4.8800e-003	0.0417	0.0177	2.7000e-004		3.3700e-003	3.3700e-003		3.3700e-003	3.3700e-003						118.5401
Mobile	0.1444	0.5268	1.6284	5.2300e-003	0.5006	4.5600e-003	0.5051	0.1340	4.2600e-003	0.1382						481.3319
Waste						0.0000	0.0000		0.0000	0.0000						14.8054
Water						0.0000	0.0000		0.0000	0.0000						12.7406
Total	**0.5454**	**0.6076**	**2.7243**	**7.6100e-003**	**0.5006**	**0.1091**	**0.6097**	**0.1340**	**0.1088**	**0.2428**						**670.5517**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3309	0.0294	0.4859	1.8000e-004		4.5600e-003	4.5600e-003		4.5600e-003	4.5600e-003						28.6850
Energy	3.8700e-003	0.0331	0.0141	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003						105.6924
Mobile	0.1444	0.5268	1.6284	5.2300e-003	0.5006	4.5600e-003	0.5051	0.1340	4.2600e-003	0.1382						481.3319
Waste						0.0000	0.0000		0.0000	0.0000						5.7741
Water						0.0000	0.0000		0.0000	0.0000						10.4770
Total	**0.4792**	**0.5894**	**2.1284**	**5.6200e-003**	**0.5006**	**0.0118**	**0.5124**	**0.1340**	**0.0115**	**0.1455**						**631.9603**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**12.14**	**3.01**	**21.87**	**26.15**	**0.00**	**89.19**	**15.96**	**0.00**	**89.43**	**40.08**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**5.76**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2021	1/7/2021	5	5	
2	Grading	Grading	1/8/2021	1/19/2021	5	8	
3	Building Construction	Building Construction	1/20/2021	12/7/2021	5	230	
4	Paving	Paving	12/8/2021	12/31/2021	5	18	
5	Architectural Coating	Architectural Coating	6/20/2021	12/17/2021	5	130	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 1

Residential Indoor: 129,600; Residential Outdoor: 43,200; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 2,614 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

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

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	64.00	14.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248						0.0000
Off-Road	9.7200e-003	0.1012	0.0529	1.0000e-004		5.1100e-003	5.1100e-003		4.7000e-003	4.7000e-003						8.4265
Total	**9.7200e-003**	**0.1012**	**0.0529**	**1.0000e-004**	**0.0452**	**5.1100e-003**	**0.0503**	**0.0248**	**4.7000e-003**	**0.0295**						**8.4265**

3.2 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.8000e-004	1.1000e-004	1.1300e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004						0.3009
Total	**1.8000e-004**	**1.1000e-004**	**1.1300e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**						**0.3009**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0176	0.0000	0.0176	9.6800e-003	0.0000	9.6800e-003						0.0000
Off-Road	2.3300e-003	0.0477	0.0574	1.0000e-004		2.3700e-003	2.3700e-003		2.3700e-003	2.3700e-003						8.4265
Total	**2.3300e-003**	**0.0477**	**0.0574**	**1.0000e-004**	**0.0176**	**2.3700e-003**	**0.0200**	**9.6800e-003**	**2.3700e-003**	**0.0121**						**8.4265**

3.2 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.8000e-004	1.1000e-004	1.1300e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004						0.3009
Total	**1.8000e-004**	**1.1000e-004**	**1.1300e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**						**0.3009**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0262	0.0000	0.0262	0.0135	0.0000	0.0135						0.0000
Off-Road	9.1600e-003	0.0990	0.0634	1.2000e-004		4.6400e-003	4.6400e-003		4.2700e-003	4.2700e-003						10.5057
Total	**9.1600e-003**	**0.0990**	**0.0634**	**1.2000e-004**	**0.0262**	**4.6400e-003**	**0.0309**	**0.0135**	**4.2700e-003**	**0.0177**						**10.5057**

3.3 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.4000e-004	1.5000e-004	1.5100e-003	0.0000	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004						0.4012
Total	**2.4000e-004**	**1.5000e-004**	**1.5100e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**4.8000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**						**0.4012**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0102	0.0000	0.0102	5.2500e-003	0.0000	5.2500e-003						0.0000
Off-Road	2.9100e-003	0.0594	0.0760	1.2000e-004		3.0200e-003	3.0200e-003		3.0200e-003	3.0200e-003						10.5057
Total	**2.9100e-003**	**0.0594**	**0.0760**	**1.2000e-004**	**0.0102**	**3.0200e-003**	**0.0132**	**5.2500e-003**	**3.0200e-003**	**8.2700e-003**						**10.5057**

3.3 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.4000e-004	1.5000e-004	1.5100e-003	0.0000	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004						0.4012
Total	**2.4000e-004**	**1.5000e-004**	**1.5100e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**4.8000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**						**0.4012**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2186	2.0047	1.9062	3.1000e-003		0.1102	0.1102		0.1037	0.1037						267.9895
Total	**0.2186**	**2.0047**	**1.9062**	**3.1000e-003**		**0.1102**	**0.1102**		**0.1037**	**0.1037**						**267.9895**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	4.8600e-003	0.1812	0.0276	4.5000e-004	0.0107	4.9000e-004	0.0112	3.0800e-003	4.7000e-004	3.5500e-003						43.1403
Worker	0.0294	0.0179	0.1856	5.4000e-004	0.0588	3.7000e-004	0.0592	0.0156	3.4000e-004	0.0160						49.2119
Total	**0.0342**	**0.1992**	**0.2132**	**9.9000e-004**	**0.0695**	**8.6000e-004**	**0.0704**	**0.0187**	**8.1000e-004**	**0.0195**						**92.3522**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0775	1.6360	2.0555	3.1000e-003		0.1039	0.1039		0.1039	0.1039						267.9892
Total	**0.0775**	**1.6360**	**2.0555**	**3.1000e-003**		**0.1039**	**0.1039**		**0.1039**	**0.1039**						**267.9892**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	4.8600e-003	0.1812	0.0276	4.5000e-004	0.0107	4.9000e-004	0.0112	3.0800e-003	4.7000e-004	3.5500e-003						43.1403
Worker	0.0294	0.0179	0.1856	5.4000e-004	0.0588	3.7000e-004	0.0592	0.0156	3.4000e-004	0.0160						49.2119
Total	**0.0342**	**0.1992**	**0.2132**	**9.9000e-004**	**0.0695**	**8.6000e-004**	**0.0704**	**0.0187**	**8.1000e-004**	**0.0195**						**92.3522**

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8500e-003	0.0976	0.1103	1.7000e-004		5.2100e-003	5.2100e-003		4.8100e-003	4.8100e-003						14.8493
Paving	1.3100e-003					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**0.0112**	**0.0976**	**0.1103**	**1.7000e-004**		**5.2100e-003**	**5.2100e-003**		**4.8100e-003**	**4.8100e-003**						**14.8493**

3.5 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	7.2000e-004	4.4000e-004	4.5400e-003	1.0000e-005	1.4400e-003	1.0000e-005	1.4500e-003	3.8000e-004	1.0000e-005	3.9000e-004						1.2036
Total	**7.2000e-004**	**4.4000e-004**	**4.5400e-003**	**1.0000e-005**	**1.4400e-003**	**1.0000e-005**	**1.4500e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**						**1.2036**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.9500e-003	0.0818	0.1218	1.7000e-004		4.7200e-003	4.7200e-003		4.7200e-003	4.7200e-003						14.8493
Paving	1.3100e-003					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**5.2600e-003**	**0.0818**	**0.1218**	**1.7000e-004**		**4.7200e-003**	**4.7200e-003**		**4.7200e-003**	**4.7200e-003**						**14.8493**

3.5 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	7.2000e-004	4.4000e-004	4.5400e-003	1.0000e-005	1.4400e-003	1.0000e-005	1.4500e-003	3.8000e-004	1.0000e-005	3.9000e-004						1.2036
Total	**7.2000e-004**	**4.4000e-004**	**4.5400e-003**	**1.0000e-005**	**1.4400e-003**	**1.0000e-005**	**1.4500e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**						**1.2036**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6098					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	0.0142	0.0992	0.1181	1.9000e-004		6.1200e-003	6.1200e-003		6.1200e-003	6.1200e-003						16.6246
Total	**0.6240**	**0.0992**	**0.1181**	**1.9000e-004**		**6.1200e-003**	**6.1200e-003**		**6.1200e-003**	**6.1200e-003**						**16.6246**

3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	3.3700e-003	2.0600e-003	0.0213	6.0000e-005	6.7600e-003	4.0000e-005	6.8000e-003	1.8000e-003	4.0000e-005	1.8300e-003						5.6500
Total	**3.3700e-003**	**2.0600e-003**	**0.0213**	**6.0000e-005**	**6.7600e-003**	**4.0000e-005**	**6.8000e-003**	**1.8000e-003**	**4.0000e-005**	**1.8300e-003**						**5.6500**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6098					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	3.8600e-003	0.0882	0.1191	1.9000e-004		6.1800e-003	6.1800e-003		6.1800e-003	6.1800e-003						16.6246
Total	**0.6136**	**0.0882**	**0.1191**	**1.9000e-004**		**6.1800e-003**	**6.1800e-003**		**6.1800e-003**	**6.1800e-003**						**16.6246**

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	3.3700e-003	2.0600e-003	0.0213	6.0000e-005	6.7600e-003	4.0000e-005	6.8000e-003	1.8000e-003	4.0000e-005	1.8300e-003						5.6500
Total	**3.3700e-003**	**2.0600e-003**	**0.0213**	**6.0000e-005**	**6.7600e-003**	**4.0000e-005**	**6.8000e-003**	**1.8000e-003**	**4.0000e-005**	**1.8300e-003**						**5.6500**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1444	0.5268	1.6284	5.2300e-003	0.5006	4.5600e-003	0.5051	0.1340	4.2600e-003	0.1382						481.3319
Unmitigated	0.1444	0.5268	1.6284	5.2300e-003	0.5006	4.5600e-003	0.5051	0.1340	4.2600e-003	0.1382						481.3319

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	468.48	458.24	388.48	1,334,724	1,334,724
Parking Lot	0.00	0.00	0.00		
Total	468.48	458.24	388.48	1,334,724	1,334,724

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	10.80	7.30	7.50	48.40	15.90	35.70	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.534300	0.203000	0.167300	0.054500	0.001300	0.000900	0.008600	0.020700	0.000000	0.004400	0.002500	0.000700	0.001800
Parking Lot	0.492212	0.031147	0.169820	0.116157	0.015815	0.004502	0.033398	0.126328	0.002363	0.001519	0.005062	0.001083	0.000594

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000						67.1428
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000						69.9732
NaturalGas Mitigated	3.8700e-003	0.0331	0.0141	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003						38.5496
NaturalGas Unmitigated	4.8800e-003	0.0417	0.0177	2.7000e-004		3.3700e-003	3.3700e-003		3.3700e-003	3.3700e-003						48.5669

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	904733	4.8800e-003	0.0417	0.0177	2.7000e-004		3.3700e-003	3.3700e-003		3.3700e-003	3.3700e-003						48.5669
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total		**4.8800e-003**	**0.0417**	**0.0177**	**2.7000e-004**		**3.3700e-003**	**3.3700e-003**		**3.3700e-003**	**3.3700e-003**						**48.5669**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	718124	3.8700e-003	0.0331	0.0141	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003						38.5496
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total		**3.8700e-003**	**0.0331**	**0.0141**	**2.1000e-004**		**2.6800e-003**	**2.6800e-003**		**2.6800e-003**	**2.6800e-003**						**38.5496**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	299361				66.5823
Parking Lot	15246				3.3909
Total					**69.9732**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	286635				63.7519
Parking Lot	15246				3.3909
Total					**67.1428**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3309	0.0294	0.4859	1.8000e-004		4.5600e-003	4.5600e-003		4.5600e-003	4.5600e-003						28.6850
Unmitigated	0.3961	0.0391	1.0782	2.1100e-003		0.1012	0.1012		0.1012	0.1012						43.1336

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0610					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.2528					0.0000	0.0000		0.0000	0.0000						0.0000
Hearth	0.0680	0.0336	0.6024	2.0900e-003		0.0986	0.0986		0.0986	0.0986						42.3387
Landscaping	0.0144	5.4900e-003	0.4757	3.0000e-005		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003						0.7950
Total	**0.3961**	**0.0391**	**1.0782**	**2.1200e-003**		**0.1012**	**0.1012**		**0.1012**	**0.1012**						**43.1336**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0610					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.2528					0.0000	0.0000		0.0000	0.0000						0.0000
Hearth	2.8000e-003	0.0239	0.0102	1.5000e-004		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003						27.8900
Landscaping	0.0144	5.4900e-003	0.4757	3.0000e-005		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003						0.7950
Total	**0.3309**	**0.0294**	**0.4859**	**1.8000e-004**		**4.5700e-003**	**4.5700e-003**		**4.5700e-003**	**4.5700e-003**						**28.6850**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated				10.4770
Unmitigated				12.7406

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	4.16986 / 2.62882				12.7406
Parking Lot	0 / 0				0.0000
Total					**12.7406**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	3.33589 / 2.46847				10.4770
Parking Lot	0 / 0				0.0000
Total					**10.4770**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated				5.7741
Unmitigated				14.8054

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	29.44				14.8054
Parking Lot	0				0.0000
Total					**14.8054**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	11.4816				5.7741
Parking Lot	0				0.0000
Total					**5.7741**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

TSM 6236 - 64 Unit MFR for Operational Year 2030

Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	1.00	Acre	1.00	43,560.00	0
Apartments Low Rise	64.00	Dwelling Unit	3.20	64,000.00	183

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2030
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	364.4	**CH4 Intensity (lb/MWhr)**	0.016	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

TSM 6236 - 64 Unit MFR for Operational Year 2030 - Fresno County, Annual

Project Characteristics - Includes RPS adjustment

Land Use - 64 MFR, 4.2 acres total, 1 acre paved

Construction Phase - Based on model defaults. Arch coating to begin approximately 5 months after initiation of building construction.

Off-road Equipment - Based on default equipment usage identified in the model.

Trips and VMT - Based on model defaults

Grading - No material imported/exported.

Architectural Coating - Based on model defaults.

Vehicle Trips - Weekday trips based on 7.32 trips/day derived from the traffic analysis. Weekend trip rates based on model defaults.

Vehicle Emission Factors - .

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - Based on model defaults.

Energy Use -

Construction Off-road Equipment Mitigation - Assumes 61%CE for watering exposed areas, 50%CE for water onsite roads/travelways, 15 mph speed limit. Use of T3 equipment included for modeling purposes.

Area Mitigation - Only natural gas hearths included as mitigation.

Fleet Mix - Based on SJVAPCD's recommended residential fleet mix

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	18.00	130.00
tblFleetMix	HHD	0.13	0.02
tblFleetMix	LDA	0.52	0.53
tblFleetMix	LDT1	0.03	0.20
tblFleetMix	LDT2	0.18	0.17
tblFleetMix	LHD1	9.7000e-003	1.3000e-003
tblFleetMix	LHD2	3.4040e-003	9.0000e-004
tblFleetMix	MCY	4.5630e-003	2.5000e-003

tblFleetMix	MDV	0.09	0.05
tblFleetMix	MH	4.3600e-004	1.8000e-003
tblFleetMix	MHD	0.03	8.6000e-003
tblFleetMix	OBUS	2.3060e-003	0.00
tblFleetMix	SBUS	9.9800e-004	7.0000e-004
tblFleetMix	UBUS	1.1850e-003	4.4000e-003
tblLandUse	LotAcreage	4.00	3.20
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.016
tblProjectCharacteristics	CO2IntensityFactor	641.35	364.4
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblVehicleTrips	WD_TR	6.59	7.32

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.9114	2.6036	2.4927	4.7500e-003	0.1499	0.1322	0.2822	0.0594	0.1244	0.1838						418.3035
Maximum	**0.9114**	**2.6036**	**2.4927**	**4.7500e-003**	**0.1499**	**0.1322**	**0.2822**	**0.0594**	**0.1244**	**0.1838**						**418.3035**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.7404	2.1149	2.6715	4.7500e-003	0.1064	0.1211	0.2275	0.0361	0.1211	0.1571						418.3031
Maximum	**0.7404**	**2.1149**	**2.6715**	**4.7500e-003**	**0.1064**	**0.1211**	**0.2275**	**0.0361**	**0.1211**	**0.1571**						**418.3031**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**18.76**	**18.77**	**-7.17**	**0.00**	**29.04**	**8.41**	**19.37**	**39.31**	**2.69**	**14.53**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2021	3-31-2021	0.7699	0.5474
2	4-1-2021	6-30-2021	0.7385	0.5931
3	7-1-2021	9-30-2021	1.0706	0.9141
		Highest	1.0706	0.9141

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3959	0.0391	1.0764	2.1100e-003		0.1012	0.1012		0.1012	0.1012						43.1334
Energy	4.8800e-003	0.0417	0.0177	2.7000e-004		3.3700e-003	3.3700e-003		3.3700e-003	3.3700e-003						100.7953
Mobile	0.0825	0.3295	0.9341	4.1300e-003	0.5004	2.7400e-003	0.5031	0.1339	2.5400e-003	0.1364						382.3664
Waste						0.0000	0.0000		0.0000	0.0000						14.8054
Water						0.0000	0.0000		0.0000	0.0000						10.9490
Total	**0.4833**	**0.4102**	**2.0283**	**6.5100e-003**	**0.5004**	**0.1073**	**0.6077**	**0.1339**	**0.1071**	**0.2410**						**552.0495**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3307	0.0294	0.4842	1.8000e-004		4.5700e-003	4.5700e-003		4.5700e-003	4.5700e-003						28.6848
Energy	3.8700e-003	0.0331	0.0141	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003						88.6653
Mobile	0.0825	0.3295	0.9341	4.1300e-003	0.5004	2.7400e-003	0.5031	0.1339	2.5400e-003	0.1364						382.3664
Waste						0.0000	0.0000		0.0000	0.0000						5.7741
Water						0.0000	0.0000		0.0000	0.0000						8.9715
Total	**0.4171**	**0.3920**	**1.4324**	**4.5200e-003**	**0.5004**	**9.9900e-003**	**0.5103**	**0.1339**	**9.7900e-003**	**0.1437**						**514.4621**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**13.70**	**4.45**	**29.38**	**30.57**	**0.00**	**90.69**	**16.01**	**0.00**	**90.86**	**40.38**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**6.81**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2021	1/7/2021	5	5	
2	Grading	Grading	1/8/2021	1/19/2021	5	8	
3	Building Construction	Building Construction	1/20/2021	12/7/2021	5	230	
4	Architectural Coating	Architectural Coating	6/20/2021	12/17/2021	5	130	
5	Paving	Paving	12/8/2021	12/31/2021	5	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 1

Residential Indoor: 129,600; Residential Outdoor: 43,200; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 2,614 (Architectural Coating – sqft)

OffRoad Equipment

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

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	64.00	14.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248						0.0000
Off-Road	9.7200e-003	0.1012	0.0529	1.0000e-004		5.1100e-003	5.1100e-003		4.7000e-003	4.7000e-003						8.4265
Total	**9.7200e-003**	**0.1012**	**0.0529**	**1.0000e-004**	**0.0452**	**5.1100e-003**	**0.0503**	**0.0248**	**4.7000e-003**	**0.0295**						**8.4265**

3.2 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.8000e-004	1.1000e-004	1.1300e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004						0.3009
Total	**1.8000e-004**	**1.1000e-004**	**1.1300e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**						**0.3009**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0176	0.0000	0.0176	9.6800e-003	0.0000	9.6800e-003						0.0000
Off-Road	2.3300e-003	0.0477	0.0574	1.0000e-004		2.3700e-003	2.3700e-003		2.3700e-003	2.3700e-003						8.4265
Total	**2.3300e-003**	**0.0477**	**0.0574**	**1.0000e-004**	**0.0176**	**2.3700e-003**	**0.0200**	**9.6800e-003**	**2.3700e-003**	**0.0121**						**8.4265**

3.2 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.8000e-004	1.1000e-004	1.1300e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004						0.3009
Total	**1.8000e-004**	**1.1000e-004**	**1.1300e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**						**0.3009**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0262	0.0000	0.0262	0.0135	0.0000	0.0135						0.0000
Off-Road	9.1600e-003	0.0990	0.0634	1.2000e-004		4.6400e-003	4.6400e-003		4.2700e-003	4.2700e-003						10.5057
Total	**9.1600e-003**	**0.0990**	**0.0634**	**1.2000e-004**	**0.0262**	**4.6400e-003**	**0.0309**	**0.0135**	**4.2700e-003**	**0.0177**						**10.5057**

3.3 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.4000e-004	1.5000e-004	1.5100e-003	0.0000	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004						0.4012
Total	**2.4000e-004**	**1.5000e-004**	**1.5100e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**4.8000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**						**0.4012**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0102	0.0000	0.0102	5.2500e-003	0.0000	5.2500e-003						0.0000
Off-Road	2.9100e-003	0.0594	0.0760	1.2000e-004		3.0200e-003	3.0200e-003		3.0200e-003	3.0200e-003						10.5057
Total	**2.9100e-003**	**0.0594**	**0.0760**	**1.2000e-004**	**0.0102**	**3.0200e-003**	**0.0132**	**5.2500e-003**	**3.0200e-003**	**8.2700e-003**						**10.5057**

3.3 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.4000e-004	1.5000e-004	1.5100e-003	0.0000	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004						0.4012
Total	**2.4000e-004**	**1.5000e-004**	**1.5100e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**4.8000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**						**0.4012**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2186	2.0047	1.9062	3.1000e-003		0.1102	0.1102		0.1037	0.1037						267.9895
Total	**0.2186**	**2.0047**	**1.9062**	**3.1000e-003**		**0.1102**	**0.1102**		**0.1037**	**0.1037**						**267.9895**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	4.8600e-003	0.1812	0.0276	4.5000e-004	0.0107	4.9000e-004	0.0112	3.0800e-003	4.7000e-004	3.5500e-003						43.1403
Worker	0.0294	0.0179	0.1856	5.4000e-004	0.0588	3.7000e-004	0.0592	0.0156	3.4000e-004	0.0160						49.2119
Total	**0.0342**	**0.1992**	**0.2132**	**9.9000e-004**	**0.0695**	**8.6000e-004**	**0.0704**	**0.0187**	**8.1000e-004**	**0.0195**						**92.3522**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0775	1.6360	2.0555	3.1000e-003		0.1039	0.1039		0.1039	0.1039						267.9892
Total	**0.0775**	**1.6360**	**2.0555**	**3.1000e-003**		**0.1039**	**0.1039**		**0.1039**	**0.1039**						**267.9892**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	4.8600e-003	0.1812	0.0276	4.5000e-004	0.0107	4.9000e-004	0.0112	3.0800e-003	4.7000e-004	3.5500e-003						43.1403
Worker	0.0294	0.0179	0.1856	5.4000e-004	0.0588	3.7000e-004	0.0592	0.0156	3.4000e-004	0.0160						49.2119
Total	**0.0342**	**0.1992**	**0.2132**	**9.9000e-004**	**0.0695**	**8.6000e-004**	**0.0704**	**0.0187**	**8.1000e-004**	**0.0195**						**92.3522**

3.5 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6098					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	0.0142	0.0992	0.1181	1.9000e-004		6.1200e-003	6.1200e-003		6.1200e-003	6.1200e-003						16.6246
Total	**0.6240**	**0.0992**	**0.1181**	**1.9000e-004**		**6.1200e-003**	**6.1200e-003**		**6.1200e-003**	**6.1200e-003**						**16.6246**

3.5 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	3.3700e-003	2.0600e-003	0.0213	6.0000e-005	6.7600e-003	4.0000e-005	6.8000e-003	1.8000e-003	4.0000e-005	1.8300e-003						5.6500
Total	**3.3700e-003**	**2.0600e-003**	**0.0213**	**6.0000e-005**	**6.7600e-003**	**4.0000e-005**	**6.8000e-003**	**1.8000e-003**	**4.0000e-005**	**1.8300e-003**						**5.6500**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6098					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	3.8600e-003	0.0882	0.1191	1.9000e-004		6.1800e-003	6.1800e-003		6.1800e-003	6.1800e-003						16.6246
Total	**0.6136**	**0.0882**	**0.1191**	**1.9000e-004**		**6.1800e-003**	**6.1800e-003**		**6.1800e-003**	**6.1800e-003**						**16.6246**

3.5 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	3.3700e-003	2.0600e-003	0.0213	6.0000e-005	6.7600e-003	4.0000e-005	6.8000e-003	1.8000e-003	4.0000e-005	1.8300e-003						5.6500
Total	**3.3700e-003**	**2.0600e-003**	**0.0213**	**6.0000e-005**	**6.7600e-003**	**4.0000e-005**	**6.8000e-003**	**1.8000e-003**	**4.0000e-005**	**1.8300e-003**						**5.6500**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8500e-003	0.0976	0.1103	1.7000e-004		5.2100e-003	5.2100e-003		4.8100e-003	4.8100e-003						14.8493
Paving	1.3100e-003					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**0.0112**	**0.0976**	**0.1103**	**1.7000e-004**		**5.2100e-003**	**5.2100e-003**		**4.8100e-003**	**4.8100e-003**						**14.8493**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	7.2000e-004	4.4000e-004	4.5400e-003	1.0000e-005	1.4400e-003	1.0000e-005	1.4500e-003	3.8000e-004	1.0000e-005	3.9000e-004						1.2036
Total	**7.2000e-004**	**4.4000e-004**	**4.5400e-003**	**1.0000e-005**	**1.4400e-003**	**1.0000e-005**	**1.4500e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**						**1.2036**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.9500e-003	0.0818	0.1218	1.7000e-004		4.7200e-003	4.7200e-003		4.7200e-003	4.7200e-003						14.8493
Paving	1.3100e-003					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**5.2600e-003**	**0.0818**	**0.1218**	**1.7000e-004**		**4.7200e-003**	**4.7200e-003**		**4.7200e-003**	**4.7200e-003**						**14.8493**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	7.2000e-004	4.4000e-004	4.5400e-003	1.0000e-005	1.4400e-003	1.0000e-005	1.4500e-003	3.8000e-004	1.0000e-005	3.9000e-004						1.2036
Total	**7.2000e-004**	**4.4000e-004**	**4.5400e-003**	**1.0000e-005**	**1.4400e-003**	**1.0000e-005**	**1.4500e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**						**1.2036**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0825	0.3295	0.9341	4.1300e-003	0.5004	2.7400e-003	0.5031	0.1339	2.5400e-003	0.1364						382.3664
Unmitigated	0.0825	0.3295	0.9341	4.1300e-003	0.5004	2.7400e-003	0.5031	0.1339	2.5400e-003	0.1364						382.3664

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	468.48	458.24	388.48	1,334,724	1,334,724
Parking Lot	0.00	0.00	0.00		
Total	468.48	458.24	388.48	1,334,724	1,334,724

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	10.80	7.30	7.50	48.40	15.90	35.70	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.534300	0.203000	0.167300	0.054500	0.001300	0.000900	0.008600	0.020700	0.000000	0.004400	0.002500	0.000700	0.001800
Parking Lot	0.517186	0.028486	0.175263	0.093589	0.009700	0.003404	0.033644	0.129242	0.002306	0.001185	0.004563	0.000998	0.000436

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000						50.1157
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000						52.2283
NaturalGas Mitigated	3.8700e-003	0.0331	0.0141	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003						38.5496
NaturalGas Unmitigated	4.8800e-003	0.0417	0.0177	2.7000e-004		3.3700e-003	3.3700e-003		3.3700e-003	3.3700e-003						48.5669

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	904733	4.8800e-003	0.0417	0.0177	2.7000e-004		3.3700e-003	3.3700e-003		3.3700e-003	3.3700e-003						48.5669
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total		**4.8800e-003**	**0.0417**	**0.0177**	**2.7000e-004**		**3.3700e-003**	**3.3700e-003**		**3.3700e-003**	**3.3700e-003**						**48.5669**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	718124	3.8700e-003	0.0331	0.0141	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003						38.5496
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total		**3.8700e-003**	**0.0331**	**0.0141**	**2.1000e-004**		**2.6800e-003**	**2.6800e-003**		**2.6800e-003**	**2.6800e-003**						**38.5496**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	299361				49.6973
Parking Lot	15246				2.5310
Total					**52.2283**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	286635				47.5847
Parking Lot	15246				2.5310
Total					**50.1157**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3307	0.0294	0.4842	1.8000e-004		4.5700e-003	4.5700e-003		4.5700e-003	4.5700e-003						28.6848
Unmitigated	0.3959	0.0391	1.0764	2.1100e-003		0.1012	0.1012		0.1012	0.1012						43.1334

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0610					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.2528					0.0000	0.0000		0.0000	0.0000						0.0000
Hearth	0.0680	0.0336	0.6024	2.0900e-003		0.0986	0.0986		0.0986	0.0986						42.3387
Landscaping	0.0142	5.4600e-003	0.4740	3.0000e-005		2.6400e-003	2.6400e-003		2.6400e-003	2.6400e-003						0.7948
Total	**0.3960**	**0.0391**	**1.0764**	**2.1200e-003**		**0.1012**	**0.1012**		**0.1012**	**0.1012**						**43.1334**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0610					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.2528					0.0000	0.0000		0.0000	0.0000						0.0000
Hearth	2.8000e-003	0.0239	0.0102	1.5000e-004		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003						27.8900
Landscaping	0.0142	5.4600e-003	0.4740	3.0000e-005		2.6400e-003	2.6400e-003		2.6400e-003	2.6400e-003						0.7948
Total	**0.3307**	**0.0294**	**0.4842**	**1.8000e-004**		**4.5800e-003**	**4.5800e-003**		**4.5800e-003**	**4.5800e-003**						**28.6848**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated				8.9715
Unmitigated				10.9490

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	4.16986 / 2.62882				10.9490
Parking Lot	0 / 0				0.0000
Total					**10.9490**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	3.33589 / 2.46847				8.9715
Parking Lot	0 / 0				0.0000
Total					**8.9715**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated				5.7741
Unmitigated				14.8054

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	29.44				14.8054
Parking Lot	0				0.0000
Total					**14.8054**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	11.4816				5.7741
Parking Lot	0				0.0000
Total					**5.7741**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation