

# **GREENHOUSE GAS IMPACT ANALYSIS**

**FOR**

## **CITY OF FOWLER GENERAL PLAN UPDATE**

**NOVEMBER 2022**

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## TABLE OF CONTENTS

INTRODUCTION .....	1
Proposed City of Fowler General Plan Update .....	1
Existing Setting .....	1
Sources of GHG Emissions .....	4
Short-Lived Climate Pollutants.....	5
Effects of Global Climate Change.....	5
Regulatory Framework.....	6
Federal .....	6
State.....	7
Regional .....	14
Environmental Impacts.....	16
Significance Threshold Criteria.....	16
Methodology.....	17
Impacts and Mitigation Measures.....	19
References.....	26

### List of Tables

Table 1. Global Warming Potential for Greenhouse Gases .....	4
Table 2. Annual Operational GHG Emissions at Buildout .....	20
Table 3. Consistency with the FCOG 2022 RTP/SCS.....	24

### List of Figures

Figure 1. Proposed General Plan Update Focus Areas .....	2
Figure 2. California GHG Emissions Inventory by Sector .....	5
Figure 3. California Black Carbon Emissions Inventory (Year 2013) .....	6

### Appendices

Appendix A: Emissions Modeling	
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## LIST OF COMMON TERMS & ACRONYMS

AB	Assembly Bill
ARB	California Air Resources Board
CAFE	Corporate Average Fuel Economy
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CBC	California Building Code
CCAA	California Clean Air Act
CCR	California Code of Regulation
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulation
CH <sub>4</sub>	Methane
CO <sub>2</sub>	Carbon Dioxide
CO <sub>2</sub> e	Carbon Dioxide Equivalent
DRRP	Diesel Risk Reduction Plan
EMFAC	Emission Factor
EO	Executive Order
FCAA	Federal Clean Air Act
FCOG	Fresno County of Governments
FIP	Federal Implementation Plan
GHG	Greenhouse Gases
GPU	General Plan Update
GWP	Global Warming Potential
HFC	Hydrofluorocarbons
MMTCO <sub>2</sub> e	Million Metric Tons of Carbon Dioxide Equivalents
NF <sub>3</sub>	Nitrogen trifluoride
N <sub>2</sub> O	Nitrous Oxide
PFC	Perfluorocarbons
SB	Senate Bill
SCS	Sustainable Communities Strategy
SF <sub>6</sub>	Sulfur hexafluoride
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SLCP	Short-Lived Climate Pollutants
SP	Service Population
U.S. EPA	United States Environmental Protection Agency

# INTRODUCTION

This report provides a summary of important laws, regulations, and guidance documents relevant to air greenhouse gases and land use planning in California and Fowler; an overview of existing climate change issues and conditions; a description of local and regional programs; and a summary of findings. The findings from this analysis will inform the development of goals and policies in the City's General Plan Update (GPU).

## PROPOSED CITY OF FOWLER GENERAL PLAN UPDATE

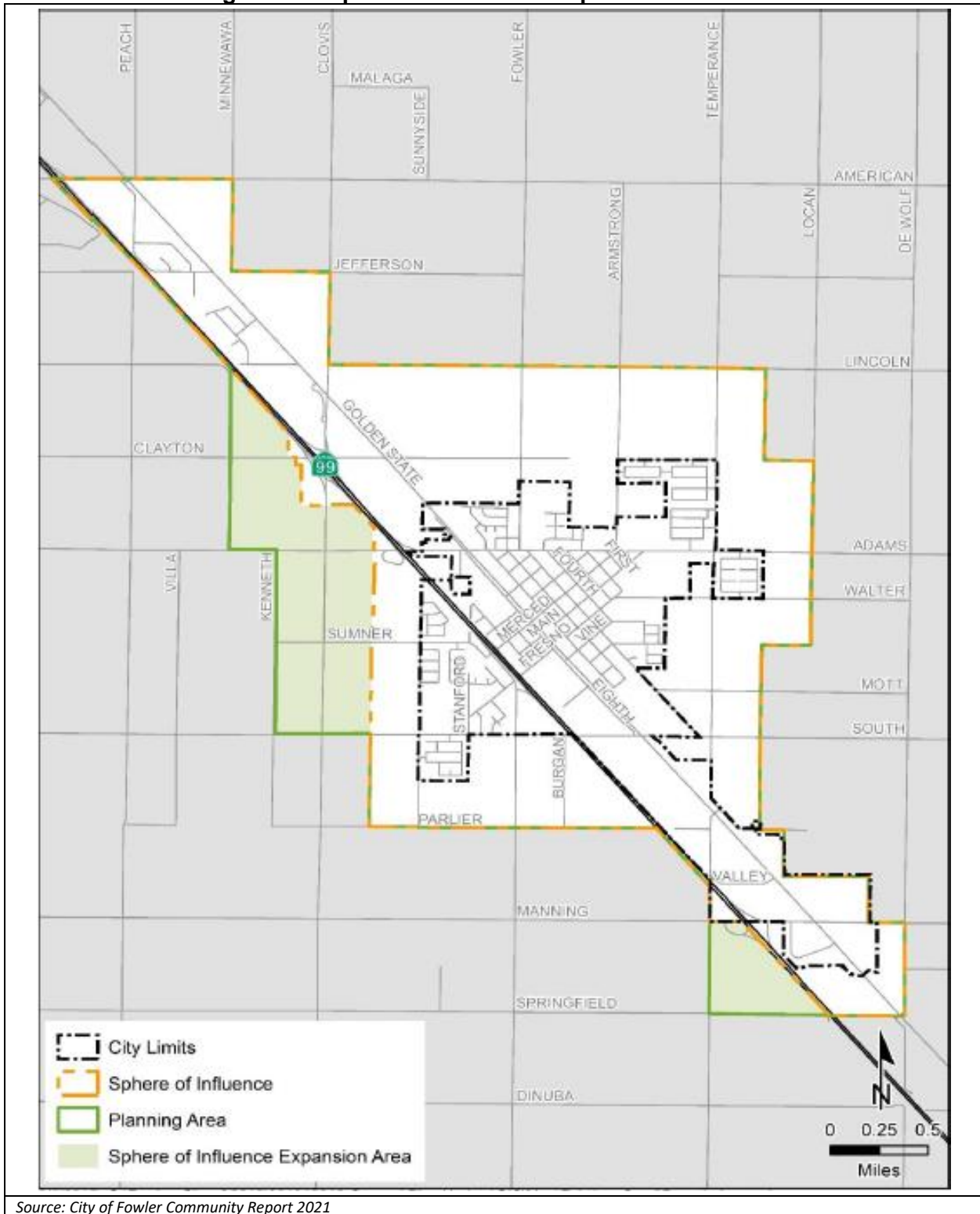
The City of Fowler adopted its first General Plan in 1976. The currently adopted General Plan was adopted in June 2004 and runs through 2025. Since its adoption, the General Plan has been revised and amended but has not been comprehensively updated. The proposed GPU will include updates to represent changes in community conditions, new legislation, new regulatory requirements and planning practices, and updates regarding new social and environmental issues. The GPU will be updated to provide a planning horizon year of 2042. The City of Fowler's city limits, sphere of influence, and planning area is depicted in Figure 1.

## 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<sub>2</sub>) is a colorless, odorless gas. CO<sub>2</sub> is emitted in a number of ways, both naturally and through human activities. The largest source of CO<sub>2</sub> emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, industrial facilities, and other sources. Several 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<sub>2</sub> emissions. The atmospheric lifetime of CO<sub>2</sub> is variable because it is so readily exchanged in the atmosphere (U.S. EPA 2018).

**Figure 1. Proposed General Plan Update Focus Areas**



- **Methane.** Methane (CH<sub>4</sub>) is a colorless, odorless gas that is not flammable under most circumstances. CH<sub>4</sub> is the major component of natural gas, about 87 percent by volume. It is also formed and released into 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 into 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<sub>2</sub>O) is a clear, colorless gas with a slightly sweet odor. N<sub>2</sub>O is produced by both natural and human-related sources. Primary human-related sources of N<sub>2</sub>O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, acid production, and nitric acid production. N<sub>2</sub>O 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<sub>2</sub>O 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 non-toxic. There are seven PFC gases: perfluoromethane (CF<sub>4</sub>), perfluoroethane (C<sub>2</sub>F<sub>6</sub>), perfluoropropane (C<sub>3</sub>F<sub>8</sub>), perfluorobutane (C<sub>4</sub>F<sub>10</sub>), perfluorocyclobutane (C<sub>4</sub>F<sub>8</sub>), perfluoropentane (C<sub>5</sub>F<sub>12</sub>), and perfluorohexane (C<sub>6</sub>F<sub>14</sub>). 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<sub>4</sub> and C<sub>2</sub>F<sub>6</sub> as byproducts. The estimated atmospheric lifetimes for PFCs range from 2,600 to 50,000 years (U.S. EPA 2018).
- **Nitrogen Trifluoride.** Nitrogen trifluoride (NF<sub>3</sub>) 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 equivalent (CO<sub>2</sub>e). While NF<sub>3</sub> may have a lower global warming potential than other chemical etchants, it is still a potent GHG. In 2009, NF<sub>3</sub> 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<sub>6</sub>) is an inorganic compound that is colorless, odorless, non-toxic, and generally non-flammable. SF<sub>6</sub> is primarily used as an electrical insulator in high-

voltage equipment. The electric power industry uses roughly 80 percent of all SF<sub>6</sub> produced worldwide. Leaks of SF<sub>6</sub> occur from aging equipment and during equipment maintenance and servicing. SF<sub>6</sub> 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) (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. Often, estimates of GHG emissions are presented in CO<sub>2</sub>e, which relates each gas by its global warming potential (GWP). Expressing GHG emissions in CO<sub>2</sub>e 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<sub>2</sub> 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, CH<sub>4</sub> traps over 25 times more heat per molecule than CO<sub>2</sub>, and N<sub>2</sub>O absorbs roughly 298 times more heat per molecule than CO<sub>2</sub>. Additional GHGs with high GWP include Nitrogen trifluoride, Sulfur hexafluoride, Perfluorocarbons, and black carbon.

**Table 1. Global Warming Potential for Greenhouse Gases**

Greenhouse Gas	Global Warming Potential (100-year)
Carbon Dioxide (CO <sub>2</sub> )	1
Methane (CH <sub>4</sub> )	25
Nitrous Dioxide (N <sub>2</sub> O)	298

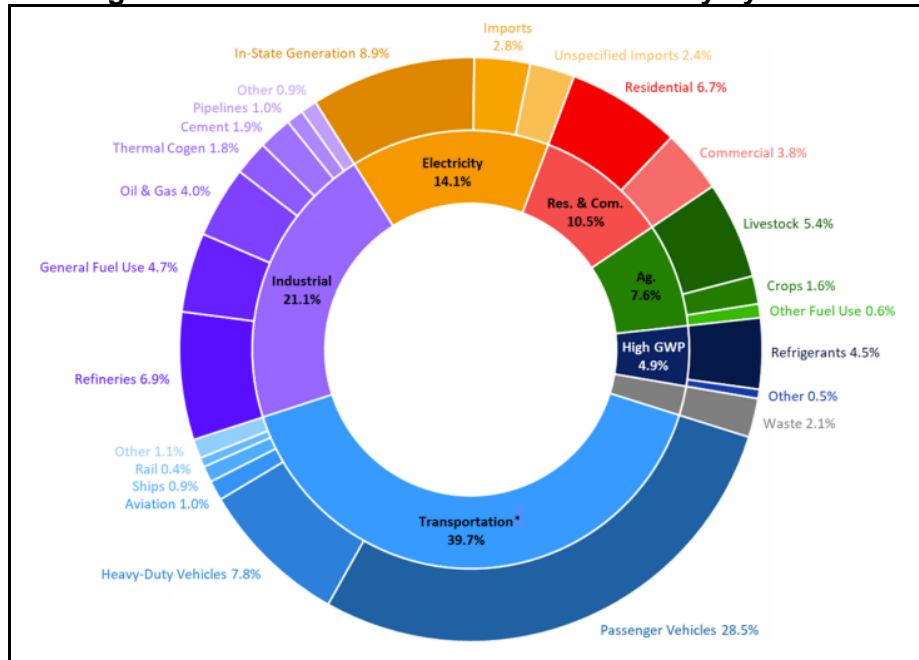
*\*Based on IPCC GWP values for 100-year time horizon  
Source: IPCC 2007*

## 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. Worldwide, 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 2018).

In 2019, GHG emissions within California totaled 418.2 million metric tons (MMT) of CO<sub>2</sub>e. GHG emissions, by sector, are summarized in Figure 2. Within California, the transportation sector is the largest contributor, accounting for approximately 40 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 14 percent (ARB 2022a).

**Figure 2. California GHG Emissions Inventory by Sector**



Source: ARB 2022a

### Short-Lived Climate Pollutants

Short-lived climate pollutants (SLCPs), such as black carbon, fluorinated gases, and CH<sub>4</sub> also have a dramatic effect on climate change. Though short-lived, these pollutants create a warming influence on the climate that is many times more potent than that of carbon dioxide.

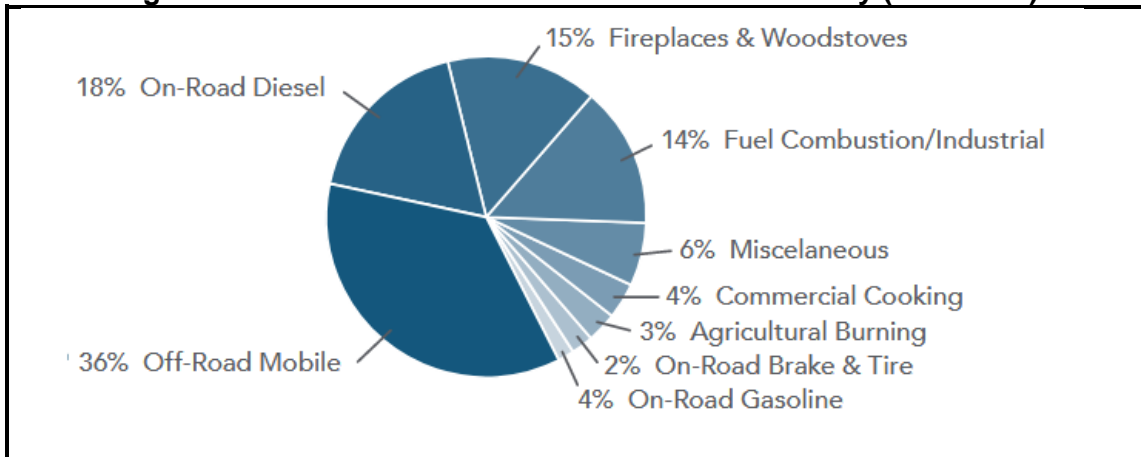
As part of the ARB’s efforts to address SLCPs, the ARB has developed a statewide emission inventory for black carbon. The black carbon inventory will help support the implementation of the SLCP Strategy, but it is not part of the State’s GHG Inventory that tracks progress toward the State’s climate targets. 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 2022b).

### Effects of Global Climate Change

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



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



Source: ARB 2022b

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 the precipitation. For instance, historical records are depicting an increasing trend toward earlier snowmelt in the Sierra Nevada. This snowpack is a principal supply of water for the state, providing roughly 50 percent of the 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. Earlier snowmelt would also impact the State’s energy resources. Currently, approximately 20 percent of California’s electricity comes from hydropower. Early exhaustion of the Sierra snowpack may force electricity producers to switch to more costly or non-renewable forms of electricity generation during the spring and summer months. A changing climate may also impact agricultural crop yields, coastal structures, and biodiversity. As a result, changes in climate will likely have detrimental effects on some of California’s largest industries, including agriculture, wine, tourism, skiing, recreational and commercial fishing, and forestry.

## **REGULATORY FRAMEWORK**

### **Federal**

#### ***Executive Order 13514***

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

On April 2, 2007, in *Massachusetts v. U.S. EPA*, 549 U.S. 497, 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<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, and SF<sub>6</sub>) in the atmosphere threaten 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 GHG pollution which threatens public health and welfare.

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

The 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<sub>2</sub> per mile (the equivalent to 35.5 miles per gallon if the automobile industry were to meet this CO<sub>2</sub> 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.

### ***U.S. EPA Strategic Plan***

The EPA's *Fiscal Year (FY) 2022-2026 Strategic Plan (Strategic Plan)* provides a roadmap to achieve EPA's and the Biden-Harris Administration's environmental priorities over the next four years. The *Strategic Plan* furthers the agency's commitment to protecting human health and the environment for all people, with an emphasis on historically overburdened and underserved communities. For the first time, EPA's *Strategic Plan* includes a strategic goal focused exclusively on addressing climate change, with three primary objectives: 1) Reduce Emissions that Cause Climate Change; 2) Accelerate Resilience and Adaptation to Climate Change Impacts; and 3) Advance International and Subnational Climate Efforts.

## **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<sub>2</sub>. 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 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 progress reports. 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.

#### ***Executive Order B-30-15***

In 2015, Governor Brown signed Executive Order B-30-15, which establishes a California GHG-reduction target of 40 percent below 1990 levels by 2030.

#### ***Executive Order B-55-18***

In 2018, Governor Brown signed Executive Order B-55-18, which set a target of statewide carbon neutrality by 2045.

### ***Executive Order No. N-19-19***

Executive Order N-19-19 (State of California) calls for actions from multiple state agencies to reduce GHG emissions and mitigate the impacts of climate change. This includes a direct acknowledgment of the role the transportation sector must play in tackling climate change.

This executive order empowers the California State Transportation Agency (CalSTA) to leverage more than \$5 billion in discretionary state transportation funds to reduce GHG emissions in the transportation sector and adapt to climate change. Accordingly, CalSTA will work to align transportation spending with the state's Climate Change Scoping Plan where feasible; direct investments to strategically support smart growth to increase infill housing production; reduce congestion through strategies that encourage a reduction in driving, and invest further in walking, biking, and transit; and ensure that overall transportation costs for low-income Californians do not increase as a result of these policies.

### ***Executive Order N-79-20***

Executive Order N-79-20 (State of California) calls to accelerate the transition away from fossil fuels by requiring all new cars sold in California to be zero-emission by 2035, all new commercial trucks sold in the state to be zero-emission by 2045 for all operations where feasible, and all new off-road vehicles and equipment sold to be zero-emission by 2035 where feasible. EO N-79-20 reaffirms the state's commitment to implementing EO N-19-19.

Executive Order N-79-20 reiterates the message of EO N-19-19 by highlighting three strategies to expand clean transportation options from the Climate Action Plan for Transportation Infrastructure, while also emphasizing the importance of CAPTI and the urgency of climate change. Executive Order N-79-20 furthers the state's climate goals by explicitly pointing to the critical role of transit, passenger rail, active transportation, Complete Streets, and micro-mobility as tools to expand mobility options, encourage mode shift, and reduce overall vehicle miles traveled (VMT).

### ***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<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, NF<sub>3</sub>, and SF<sub>6</sub>. 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***

The ARB's Climate Change Scoping Plan is the State's plan to achieve GHG reductions in California as initially required by AB 32. This Scoping Plan contains the main strategies to be implemented in order to achieve the State's target GHG-reduction goals. 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 Executive Order B-30-15, while substantially advancing toward the State's goal of achieving an 80 percent reduction below 1990 levels by year 2050. Most notably, the *2017 Climate Change Scoping Plan* encourages zero net increases in GHG emissions. However, the *2017 Climate Change Scoping Plan* recognizes that achieving carbon neutrality increases in GHG emissions may not be feasible or appropriate for all projects and that the inability of a project to mitigate its GHG emissions to zero would not imply the project results in a substantial contribution to the cumulatively significant environmental impact of climate change under the California Environmental Quality Act (CEQA). Under the *2017 Climate Change Scoping Plan*, the ARB recommends local plan-level emissions efficiency targets of 6.0 MTCO<sub>2e</sub> per capita by 2030 and no more than 2.0 MTCO<sub>2e</sub> per capita by 2050. 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.

It is important to note that the Scoping Plan is currently being updated. In addition to the State's year 2030 and 2050 GHG-reduction goals, the updated *Draft 2022 Climate Change Scoping Plan* will also address the State's GHG-reduction target of achieving carbon neutrality by 2045, per Executive Order B-55-18. This *Draft 2022 Climate Change Scoping Plan* is the most comprehensive and far-reaching Scoping Plan developed to date. It identifies a technologically feasible and cost-effective path to achieve carbon neutrality by 2045 while also assessing the progress California is making toward meeting the State's year 2030 GHG-reduction goals. The 2030 target is an important but interim step toward achieving the State's future year 2050 GHG-reduction goals. The *Draft 2022 Climate Change Scoping Plan* is anticipated to be adopted by the end of this year (ARB 2022e).

### ***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 of 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 to 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. The State's Clean Energy Standards, adopted in 2018, require the state's utilities to generate 100 percent clean electricity by 2045 and to increase the State's RPS requirements to 60 percent by 2030.

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 directed the ARB to update the Climate Change Scoping Plan to address this interim 2030 emission-reduction target, which has since been incorporated into the *2017 Climate Change Scoping Plan*.

### ***Senate Bill 97***

SB 97 was enacted in 2007. SB 97 required the Office of Planning and Research 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 conclude 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.

**Senate Bill 100**

SB 100 was signed by Governor Jerry Brown on September 10, 2018. SB 100 sets a goal of phasing out all fossil fuels from the state’s electricity sector by 2045. SB 100 increases to 60 percent, from 50 percent, how much of California’s electricity portfolio must come from renewables by 2030. It establishes a further goal to have an electric grid that is entirely powered by clean energy by 2045, which could include other carbon-free sources, like nuclear power, that are not renewable.

**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. In 2018, ARB adopted updated SB 375 targets.

**California Building Code**

The California Building Code (CBC) contains standards that regulate the method of use, properties, performance, or types of materials used in the construction, alteration, improvement, repair, or rehabilitation of a building or other improvements 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 building 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 mandated 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<sub>2e</sub> by 2020.

The 2019 Building Energy Efficiency Standards focused on four key areas: smart residential photovoltaic systems, updated thermal envelope standards (preventing heat transfer from the interior to the exterior and vice versa), residential and nonresidential ventilation requirements, and nonresidential lighting requirements. The ventilation measures improve indoor air quality, protecting homeowners from air pollution originating from outdoor and indoor sources. Under the newly adopted standards, nonresidential buildings will use about 30 percent less energy due mainly to lighting upgrades. The recently updated 2019 Building Energy Efficiency Standards also require new homes three stories or less that are built after January 1, 2020, to be equipped with solar photovoltaic (PV) systems. The solar PV systems are to be sized based on the building's annual electricity demand, the building square footage, and the climate zone within which the home is located. However, under the 2019 Building Energy Efficiency Standards, homes may still rely on other energy sources, such as natural gas. Compliance with the 2019 Building Energy Efficiency Standards, including the solar PV system mandate, residential dwellings will use approximately 50 to 53 percent less energy than those under the 2016 standards. Actual reduction will vary depending on various factors (e.g., building orientation, and sun exposure). Non-residential buildings will use about 30 percent less energy due mainly to lighting upgrades (CEC 2019).

The recently updated 2022 Building Energy Efficiency Standards (2022 Standards), which were approved in December 2021, encourage efficient electric heat pumps, establish electric-ready requirements when natural gas is installed, support the future installation of battery storage, and further expand solar photovoltaic and battery storage standards. The 2022 Standards extend solar PV system requirements, as well as battery storage capabilities for select land uses, including high-rise multi-family and non-residential land uses, such as office buildings, schools, restaurants, warehouses, theaters, grocery stores, and more. Depending on the land use and other factors, solar systems should be sized to meet targets of up to 60 percent of the structure's loads. These new solar requirements will become effective on January 1, 2023 and contribute to California's goal of reaching a carbon neutrality footprint by 2045 (CEC 2022).

### ***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; 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 HFC emissions at national and international levels, in addition to State-level action that



includes an incentive program to encourage the use of low-GWP refrigerants, and limitations on the use of high-GWP refrigerants in new refrigeration and air-conditioning equipment (ARB 2020).

### ***Advanced Clean Cars II***

In August 2022, ARB approved the Advanced Clean Cars II program. The rule establishes a year-by-year roadmap so that by 2035 100% of new cars and light trucks sold in California will be zero-emission vehicles, including plug-in hybrid electric vehicles. Beginning in model year 2026 automakers sales of new vehicles will be required to be made up of 35% ZEVs and PHEVs. The regulation applies to automakers and covers only new vehicle sales. It does not impact existing vehicles on the road today, which will still be legal to own and drive (ARB 2022d).

### ***Small Off-Road Engines***

In December 2021, ARB approved the Small Off-Road Engines regulation. This will require most newly manufactured small off-road engines such as those found in leaf blowers, lawn mowers and other equipment be zero emission starting in 2024. Portable generators, including those in recreational vehicles, would be required to meet more stringent standards in 2024 and meet zero-emission standards starting in 2028. Despite their small size, these engines are highly polluting. The volume of smog-forming emissions from this type of equipment has surpassed emissions from light-duty passenger cars and is projected to be nearly twice those of passenger cars by 2031. Older equipment can continue to be used and resold as this rule only impacts new equipment (ARB 2021).

## **Regional**

### ***SJVAPCD Climate Change Action Plan (2008)***

On August 21, 2008, the San Joaquin Valley Air Pollution Control District (SJVAPCD) Governing Board approved the SJVAPCD's *Climate Change Action Plan* with the following goals and actions:

#### Goals:

- Assist local land-use agencies with 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 an 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 the 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 areas.

***SJVAPCD CEQA Greenhouse Gas Guidance (2009).***

On December 17, 2009, the SJVAPCD Governing Board adopted “Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA” and the policy, “District Policy—Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency.” The SJVAPCD concluded that the existing science is inadequate to support quantification of the impacts that project-specific GHG emissions have on global climatic change. The SJVAPCD found the effects of project-specific emissions to be cumulative, and without mitigation, 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 GHG emissions, whether through project design elements or mitigation.

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

For stationary source permitting projects, best performance standards are “the most stringent of the identified alternatives for control of GHG emissions, including the 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 BPS to help in the determination of whether a proposed project has reduced its GHG emissions by 29 percent.

It is important to note that the SJVAPCD’s Climate Change Action Plan and CEQA GHG Guidance were based on the State’s year 2020 GHG-reduction targets, per AB 32. The SJVAPCD has not released an updated plan or updated CEQA guidance addressing the State’s currently identified future year GHG-reduction targets, such as the State’s year 2030 GHG-reduction target, as outlined in SB 32.

## ***Fresno County Regional Transportation Plan/Sustainable Communities Strategy***

The Fresno Council of Governments (FCOGs) 2022 Regional Transportation Plan (RTP) comprehensively assesses all forms of transportation available in Fresno County, as well as travel and goods movement needs through 2042. The County's first RTP was adopted in 1975. Updated editions have been published every four years per federal statutes refinements of the original and subsequent plans, making this the 19th edition. Federal and state legislation mandates that these long-range transportation plans extend at least 20 years into the future. As the federally designated MPO and state-designated Regional Transportation Planning Agency, FCOG has developed the 2022 RTP update through a continuous, comprehensive, and cooperative framework. This process has involved the region's 15 cities, the County of Fresno, staff from related local public agencies, the San Joaquin Valley Air Pollution Control District (SJVAPCD), Caltrans, other state and federal agencies, and the public. The RTP is made up of a variety of different elements or chapters, including an element that establishes the Sustainable Communities Strategies (SCS) for the County. The SCS aligns transportation, housing, and land use decisions toward achieving GHG emissions reduction targets set by the ARB in support of the State's overall GHG-reduction targets established under AB 32 and SB 32.

### ***Rule 4901***

On June 20, 2019, the SJVAPCD adopted amendments to Rule 4901 to reduce the public's exposure to harmful particulates from wood smoke. Residential wood burning is one of the largest sources of PM<sup>2.5</sup> in the San Joaquin Valley during the winter season. Under the rule installation of new wood burning fireplaces and heaters is restricted at elevations below 3,000 ft. The rule also requires any modifications made to an existing fireplace or chimney must install an EPA certified, gas fueled or electric device (SJVAPCD 2021).

## **ENVIRONMENTAL IMPACTS**

### **SIGNIFICANCE THRESHOLD CRITERIA**

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

- GHG-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
- GHG-2: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

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

As of August 2022, the SJVAPCD has not adopted a recommended GHG significance threshold based on achieving future year (e.g., SB 32) GHG-reduction targets. However, as previously discussed, the State's

*2017 Climate Change Scoping Plan* recommends application of local plan-level GHG emissions efficiency targets of 6.0 MTCO<sub>2e</sub> per capita by 2030 and no more than 2.0 MTCO<sub>2e</sub> per capita by 2050. Based on a linear interpolation of these two GHG reduction goals, the efficiency significance threshold for the proposed 2042 GPU would be 3.6 MTCO<sub>2e</sub> per capita (ARB 2017).

Accordingly, the proposed GPU would be considered to have a potentially significant impact if annual net increases of GHG emissions would exceed the threshold of 3.6 MTCO<sub>2e</sub>/Capita. It is important to note that the GHG threshold of 3.6 MTCO<sub>2e</sub>/capita is based on the thresholds identified in the currently adopted *2017 Climate Change Scoping Plan*, which does not address the State's GHG-reduction target of achieving carbon neutrality by 2045, per Executive Order B-55-18. To achieve carbon neutrality by 2045, it is recommended that future development include measures to support building decarbonization, including the replacement of natural gas service with other alternatives, such as use of electrically-powered equipment (ARB 2022e, CEC 2021). Based on recent GHG threshold updates and supportive documentation prepared by the Bay Area Air Quality Management District (BAAQMD) and Sacramento Metropolitan Air Quality Management District (SMAQMD), it is recommended that future development prohibit the installation of natural gas infrastructure/use of natural-gas fired appliances, to the maximum extent possible, and incorporate electric-vehicle charging stations beyond what is required by current building standards in order to contribute its "fair share" of what would be required for the State to achieve its carbon neutrality goal (BAAQMD 2022, SMAQMD 2020). As a result, in addition to the GHG threshold of 3.6 MTCO<sub>2e</sub>/capita noted above, project-generated GHG emissions would also be considered to have a potentially significant impact if future development would not prohibit the installation of natural gas fired appliances/equipment, to the maximum extent possible, or prohibit the installation of electric-vehicle charging stations beyond what is required by current building standards.

The City of Fowler has not adopted an applicable plan, policy, or regulation for the purpose of reducing the emissions of GHGs. Therefore, the significance of the project's consistency with an applicable plan was evaluated in comparison to the GHG-reduction strategies contained in the 2022 Fresno County RTP/SCS; as well as, State's currently adopted *2017 Climate Change Scoping Plan*.

## **Methodology**

Short-term GHG emissions associated with construction activities are largely dependent on the type of development proposed, off-road equipment and on-road vehicles required, and construction schedules. Because much of this information for specific future development projects is unknown at this time, construction-related impacts were qualitatively discussed.

Long-term operational increases in GHG emissions were calculated using the California Emissions Estimator Model (CalEEMod) (CAPCOA 2020) for land uses while vehicle emissions were calculated using ARB's Emission Factor 2021 (EMFAC2021) v1.0.2 (ARB 2022c). Modeling was conducted for the proposed GPU based on projected increases in land use types and trip-generation rates identified in the traffic analysis prepared for this project. Emissions modeling files are provided in Appendix A.

## **Relevant Proposed GPU Goals and Policies**

The 2042 General Plan includes a number of goals and policies that would reduce air contaminant emissions. Some of the most relevant of these goals and policies include the following:

## **Goals**

- LU-1** Growth occurs logically and efficiently.
- LU-2** A wide range of housing types are available to accommodate all housing needs in the community.
- LU-3** Thriving commercial centers are located throughout the City.
- CH-1** Opportunities for physical activity, such as walking and biking, are integrated into the built environment.
- CH-2** Impacts from pollution are minimized through thoughtful and deliberate land use planning.
- MOB-1** Fowler's streets are a safe and enjoyable environment for pedestrians, cyclists, motorists, and people of all ages and abilities.
- MOB-2** The circulation system is safe, connected, and well-integrated with public transit and neighboring jurisdictions.
- MOB-3** Goods movement throughout the planning area is efficient and safe.
- MOB-4** The circulation system is adequately maintained.
- MOB-5** Safe, well-designed, multi-modal connections exist across SR 99, Golden State Boulevard, and the Union Pacific Railroad.

## **Policies**

- LU-13** Planned unit developments may include any combination of single family and multifamily dwellings. Planned unit developments larger than 10 acres in size may also include related office and commercial uses. (Land Use Element, Policy 4.3.4)
  - Action Item LU-13a.* Review and revise the Zoning Ordinance, as necessary, to reflect increased density allowances for planned unit developments at the City's discretion. Granting of additional density (not to exceed 25%) will depend on the developer's demonstration of the quality of design in such areas as access, circulation, building placement, parking, provision of open space, and architectural design and compatibility with the surrounding area. (Land Use Element, Policy 4.3.3)
- LU-18** Residential uses shall be permitted in the Community Commercial designation in support of mixed-use development. (Land Use Element, Policy 4.3.7)
- LU-19** Support neighborhood-serving commercial uses located near residential development with strong connectivity through walkable infrastructure.
- LU-21** Encourage large, employment-generating developments to provide services such as cafeterias, childcare, and business support services that reduce the need for vehicle trips. (Land Use Element, Policy 4.6.5)
- CDES-16** Locate parking areas within commercial projects in a manner that promotes pedestrian activity.
- CDES-18** New commercial projects are designed in such a way that they enhance Fowler's character. Action Item CDES-18a includes adoption of commercial standards in consideration of design principles that support the design of commercial sites with human scale and pedestrian amenities.
- CDES-31** Electric vehicle charging facilities shall be permitted in accordance with the most recent state regulations.
- CH-1** Implement an active transportation network that links residential uses with schools, shopping, entertainment, recreation, and employment centers.
- CH-2** Promote walking and bicycling and reduce vehicle miles traveled by allowing complementary land uses in close proximity to one another.

- CH-3** Consider pedestrian and bicyclist safety and comfort in the design and development of streets, parks, and public spaces.
- CH-4** Require Street trees or other shade coverage along key pedestrian and bicycle routes and near transit stops.
- CH-6** Evaluate land use decisions for consistency with siting recommendations as outlined in ARB’s Land Use Compatibility Handbook.
- OS-10** The City shall implement the community trail network.
- OS-11** Neighborhood trails should be planned as part of a connected, City-wide open space network which connects neighborhoods, parks, community trails, and other destinations including the downtown and shopping districts.
- OS-12** Placement of neighborhood trails should be constructed along the most direct alignment possible to close network gaps in the trail system. Neighborhood trails may be required to be constructed as part a new development in order to accommodate that connection.
- MOB-4** Support the creation of a transportation network that provides for efficient movement of people and goods while accounting for environmental effects.
  
- MOB-9** New development may be required to provide off-site pedestrian and/or bicycle facilities to address gaps in the active transportation network.
- MOB-10** Develop a multi-purpose recreational bikeway network and support facilities.
- MOB-11** Ensure street and road projects are adequately designed to accommodate safe and convenient pedestrian and bicyclist access.
- MOB-12** Require traffic calming techniques in the design of new local streets where such techniques will manage traffic flow and improve safety for pedestrian and bicyclist users.
- MOB-13** Coordinate with Caltrans, FCOG, Fresno County Rural Transit Agency (FCRTA), and other responsible agencies to identify the need for additional mobility infrastructure and/or services along major commuter travel corridors.
- MOB-14** Identify opportunities for a multi-modal transit hub within the City.
- MOB-15** Support the development of paratransit service programs.
- MOB-16** Support transit operator efforts to maximize return for short- and long-range transit needs.
- MOB-17** Incorporate the potential for public transit service expansion throughout the City.
- MOB-18** Improve route options and access for public transit City-wide, specifically west of SR 99.

## **IMPACTS AND MITIGATION MEASURES**

***Impact GHG-1: Would the General Plan generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?***

Annual operational emissions associated with existing (year 2019) conditions and future year 2042 GPU buildout conditions are summarized in Table 2. As noted, estimated GHG emissions total approximately 81,162 MTCO<sub>2e</sub>/year for existing conditions and would increase to approximately 263,687 MTCO<sub>2e</sub>/year under future proposed GPU buildout conditions. Estimated increases in GHG emissions would be largely associated with increases in motor vehicle use, and energy consumption. To a somewhat lesser extent, waste generation, water use, and area sources would also contribute to overall increases in projected future community wide GHG emissions.

**Table 2. Annual Operational GHG Emissions at Buildout**

Source	2019 Emissions (MTCO <sub>2</sub> e)	2042 Emissions (MTCO <sub>2</sub> e)
Area <sup>1,2</sup>	1,445	7,045
Energy Use <sup>1</sup>	19,522	50,203
Mobile <sup>3</sup>	50,847	173,818
Waste <sup>1</sup>	5,933	23,143
Water <sup>1</sup>	3,415	9,478
Total:	81,162	263,687
Population:	6,808	48,404
MTCO <sub>2</sub> e/Capita:	11.9	5.4
Significance Threshold (MTCO <sub>2</sub> e/Capita):	NA	3.6
<ol style="list-style-type: none"> <li>1. Emissions were quantified using the CalEEMod computer program based on projected future development associated with implementation of the General Plan Update.</li> <li>2. Emissions exclude wood burning hearths but allow for natural gas hearths as per rule 4901.</li> <li>3. Trip-generation rates derived from the traffic analysis prepared for this project and emissions were calculated using EMFAC data.</li> </ol> <p>Totals may not sum due to rounding. Refer to Appendix A for emissions modeling assumptions and results.</p>		

As noted in Table 2, GHG emissions per capita are projected to decrease substantially in future year, from approximately 11.9 MTCO<sub>2</sub>e/capita in 2019 to 5.4 MTCO<sub>2</sub>e/capita in 2042. However, per capita GHG emissions in year 2042 with GPU buildout, would still be projected to exceed the significance threshold of 3.6 MTCO<sub>2</sub>e/capita. It is important to note that estimated year 2042 GHG emissions are conservative and do not fully account for future GHG reductions associated with existing and future building standards and regulations, such as the Advanced Clean Car II rule and the recently adopted Small Off-Road Engine regulation. Nonetheless, predicted future year GHG emissions would still be anticipated to exceed the GHG significance threshold. It is important to reiterate that the GHG threshold of 3.6 MTCO<sub>2</sub>e/capita is based on the thresholds identified in the currently adopted *2017 Climate Change Scoping Plan*, which does not address the States GHG-reduction target of achieving carbon neutrality by 2045. To achieve carbon neutrality by 2045, it is recommended that future development not include natural gas service and that alternatives, such as use of electrically-powered equipment be used (ARB 2022e, CEC 2021). As previously discussed, it is recommended that future development prohibit the installation of natural gas infrastructure/use of natural-gas fired appliances, to the maximum extent possible, and incorporate electric-vehicle charging stations beyond what is required by current building standards in order to contribute its “fair share” of what would be required to achieve the State’s future year 2045 carbon neutrality goal. Implementation of the proposed GPU does not identify policies that would prohibit the installation of natural gas appliances for future development nor promote the installation of electric vehicle charging stations beyond that required under current regulatory requirements. For these reasons and given that future GHG emissions associated with implementation of the GPU would exceed the GHG threshold of 3.6 MTCO<sub>2</sub>e/capita, this impact would be considered **potentially significant**.

*Proposed GPU Policies that Provide Mitigation*

The proposed GPU includes a number of goals and policies that would reduce GHG emissions, primarily by promoting alternatives to personal vehicle use. Some of the more relevant goals include GPU goals: LU-1, LU-2, LU-3, CH-1, CH-2, MOB-1, MOB-2, MOB-3, MOB-4, MOB-5. Some of the more relevant GPU policies include LU-13, LU-18, LU-19, LU-21, CDES-16, CDES-18, CDES-31, CH-1, CH-2, CH-3, CH-4, CH-6, OS-10, OS-11, OS-12, MOB-4, MOB-9, MOB-10, MOB-11, MOB-12, MOB-13, MOB-14, MOB-15, MOB-16, MOB-17, MOB-18. These goals and policies would promote the implementation of the Transportation Control Measures and would help to reduce project-generated emissions.

*Proposed Mitigation Measure*

In addition to Air Quality Mitigation Measures AQ-1 and AQ-2, the following measures shall be implemented to reduce project-generated emissions of GHGs:

**MM GHG-1:** The City shall develop a Climate Action Plan to identify ways to reduce GHG emissions and limit climate change impacts on the residents of the city of Fowler. The Climate Action Plan shall integrate the state’s future GHG-reduction goals, including the State’s goal of attaining carbon neutrality by 2045.

**MM GHG-2:** Until the City adopts a qualified Climate Action Plan consistent with Mitigation Measure GHG-1 the following measures shall be applied to new land use development projects:

- a. Land use development projects shall be constructed with electrically-powered appliances and building mechanical equipment in place of natural-gas fueled equipment.
- b. Land use development projects shall, to the maximum extent possible, exceed the California Green Building Standard Code Tier 2 requirements for electric vehicle charging infrastructure.

*Significance After Mitigation*

For land use plans, the analysis of GHG emissions is typically conducted based on per capita emission rates. For the City of Fowler, the estimated existing year 2019 population was 6,808. Under proposed GPU buildout conditions, the population would increase approximately 41,596, to a total of approximately 48,404 individuals (Kittelson & Associates 2022). Based on these population estimates and the estimated community-wide GHG emissions noted in Table 2, estimated emissions would total approximately 11.9 MTCO<sub>2</sub>e/Capita under existing conditions and approximately 5.4 MTCO<sub>2</sub>e/Capita under future proposed GPU buildout conditions. Estimated GHG emissions would exceed the GHG significance threshold of 3.6 MTCO<sub>2</sub>e/Capita for year 2042. While implementation of the GPU policies and proposed mitigation measures would reduce GHG emissions, it may not be possible to reduce the GHG emissions from build out to below the recommended threshold given uncertainties in the timing and effectiveness of these measures. Therefore, this impact would be considered **significant and unavoidable**.

***Impact GHG-2: Would the General Plan conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?***

The County of Fresno and the City of Fowler have not adopted an applicable plan, policy, or regulation for the purpose of reducing the emissions of GHGs. Therefore, the significance of the project’s consistency with an applicable plan was evaluated in comparison to the GHG-reduction strategies contained in the 2022 Fresno County RTP/SCS; as well as, State’s 2017 Climate Change Scoping Plan.

Climate Change Scoping Plan

The *2017 Climate Change Scoping Plan* was released in November 2017. The *2017 Climate Change Scoping Plan* includes measures to reduce GHG emissions associated with transportation, electricity consumption, natural gas usage, water conservation, green buildings, and recycling and waste management. The *2017*



*Climate Change Scoping Plan* incorporates strategies for achieving the 2030 GHG-reduction target established in SB 32 and Executive Order B-30-15, while substantially advancing toward the State’s goal of achieving an 80 percent reduction below 1990 levels by year 2050. As mentioned earlier, the *2017 Climate Change Scoping Plan*, recommends local plan-level targets of no more than 6.0 MTCO<sub>2e</sub> per capita by 2030 and no more than 2.0 MT MTCO<sub>2e</sub> per capita by 2050. Based on a linear interpolation of these two GHG reduction goals, the proposed target for the proposed project would be no more than 3.6 MTCO<sub>2e</sub> per capita by 2042. As shown in Table 2, the City is projected to emit 5.4 MTCO<sub>2e</sub>/Capita in future year 2042 GPU buildout conditions, which is above the threshold of 3.6 MTCO<sub>2e</sub>/Capita. As a result, projected GHG emissions associated with implementation of the proposed GPU would not be consistent with the recommended plan-level GHG-reduction targets specified in the State’s *2017 Climate Change Scoping Plan*. Therefore, development facilitated by the proposed GPU would conflict with the currently adopted *2017 Climate Change Scoping Plan*.

It is important to note that the State’s Climate Change Scoping Plan is currently being updated. In addition to the State’s year 2030 and 2050 GHG-reduction goals addressed in the currently adopted *2017 Climate Change Scoping Plan*, the updated *Draft 2022 Climate Change Scoping Plan* will also address the State’s GHG-reduction target of achieving carbon neutrality by 2045, per Executive Order B-55-18. This *Draft 2022 Climate Change Scoping Plan* is the most comprehensive and far-reaching Scoping Plan developed to date. It identifies a technologically feasible and cost-effective path to achieve carbon neutrality by 2045 while also assessing the progress California is making toward meeting the State’s year 2030 GHG-reduction goals. The 2030 target is an important but interim step toward achieving the State’s future year 2050 GHG-reduction goals. The *Draft 2022 Climate Change Scoping Plan* is anticipated to be adopted by the end of this year (ARB 2022e). As noted in Impact GHG-1, it is recommended that future development prohibit the installation of natural gas infrastructure/use of natural-gas fired appliances, to the maximum extent possible, and incorporate electric-vehicle charging stations beyond what is required by current building standards in order to contribute its “fair share” of what would be required to achieve the State’s future year 2045 carbon neutrality goal. This impact would be considered **potentially significant**.

#### FCOG RTP/SCS

In 2022, FCOG adopted the *2022 Fresno County RTP/SCS*. The SCS component provides goals and policies needed for the FCOG region to meet the GHG-reduction targets set by the ARB.

The proposed GPU’s consistency with the goals and policies contained in the 2022 Fresno County RTP/SCS needed to meet the GHG-reduction strategies set forth by the ARB is summarized in Table 3. Proposed GPU policies that correspond to the sustainability strategies identified in the SCS are also identified. As shown, the proposed GPU would be consistent with the goals identified in the Fresno County 2022 RTP/SCS. In addition, based on the traffic analysis prepared for the project, the proposed GPU would decrease the VMT per capita by 39% and the VMT per employee 53% in comparison to existing conditions. Both metrics, VMT per capita and VMT per employee were found to result in an impact that was less than significant (Kittleson 2022). For these reasons, the proposed GPU would not conflict with the Fresno County 2022 RTP/SCS.

#### *Proposed GPU Policies that Provide Mitigation*

The proposed GPU includes a number of goals and policies that would reduce GHG emissions, primarily by promoting alternatives to personal vehicle use. Some of the more relevant goals include GPU goals: LU-1, LU-2, LU-3, CH-1, CH-2, MOB-1, MOB-2, MOB-3, MOB-4, MOB-5. Some of the more relevant GPU

policies include LU-13, LU-18, LU-19, LU-21, CDES-16, CDES-18, CDES-31, CH-1, CH-2, CH-3, CH-4, CH-6, OS-10, OS-11, OS-12, MOB-4, MOB-9, MOB-10, MOB-11, MOB-12, MOB-13, MOB-14, MOB-15, MOB-16, MOB-17, MOB-18. These goals and policies would promote the implementation of the Transportation Control Measures and would help to reduce project-generated emissions.

*Proposed Mitigation Measure*

The Mitigation Measures AQ-1, AQ-2, GHG-1, and GHG-2 would help to reduce the GHG emissions of the proposed GPU.

*Significance After Mitigation*

The future development facilitated by the proposed GPU would not conflict with the FCOG’s 2022 RTP/SCS. Implementation of Mitigation Measure GHG-1 would require the City to develop a Climate Action Plan to incorporate measures to reduce GHG emissions associated with future development. Mitigation Measure GHG-2 would require implementation of additional measures for land use development projects in order to contribute its “fair share” of what would be required to achieve the State’s future year 2045 carbon neutrality goal. However, while policies contained in the GPU, proposed Mitigation Measures, and implementation of future regulatory requirements would reduce the GHG emissions at buildout, the extent of GHG reductions attributable to these measures cannot be accurately quantified at this time and projected future year GHG emissions could potentially exceed applicable thresholds given uncertainties in the timing and effectiveness of these measures. Therefore, this impact would be considered **significant and unavoidable**.

**Table 3. Consistency with the FCOG 2022 RTP/SCS**

SCS Goals	Project Consistency
<p><b>Goal 1:</b> Improve mobility and accessibility for all.</p> <p>-Policy 1: Encourage and prioritize full, fair, and equitable participation by all affected communities in transportation decision-making and planning processes.</p> <p>- Policy 2: Actively work to ensure equitable distribution of the benefits and burdens of transportation projects.</p> <p>-Policy 3: Promote the improvement and expansion of accessible transportation options to serve the needs of all residents, especially those who have historically faced disproportionate transportation burdens.</p>	<p><b>Consistent:</b> The proposed GPU includes policies that would directly or indirectly improve mobility for all and promote transit-oriented development. The proposed GPU policies that demonstrate consistency with this strategy include, but are not limited to, the following: LU-18, LU-19, LU-21, CDES-16, CDES-18, CH-1, CH-2, CH-3, CH-4, MOB-9, MOB-10, MOB-11, MOB-12, MOB-13, MOB-14, MOB-15, MOB-16, MOB-16, MOB-17, and MOB-18.</p>
<p><b>Goal 2:</b> Vibrant communities that are accessible by sustainable transportation options.</p> <p>-Policy 4: Encourage alternatives to single-occupancy vehicles that reduce vehicle miles traveled (VMT) and greenhouse gas emissions.</p> <p>-Policy 5: Support investment in and promotion of active transportation and transit to improve public health and mobility, especially in historically underinvested areas.</p> <p>-Policy 6: Encourage sustainable development that focuses on growth near activity centers and mobility options that achieve greater location efficiency.</p> <p>-Policy 7: Support local jurisdictions’ efforts to minimize the loss of farmland, environmentally sensitive areas, and natural resources.</p> <p>-Policy 8: Support local jurisdictions’ efforts to facilitate the development of diverse housing choices for all income groups.</p> <p>-Policy 9: Facilitate and promote interagency coordination and consistency across planning efforts.</p> <p>-Policy 10: Incentivize and support efforts to improve air quality and minimize pollutants from transportation.</p>	<p><b>Consistent:</b> The proposed GPU includes policies that would directly or indirectly support expanding sustainable transit options. The proposed GPU policies that demonstrate consistency with this strategy include, but are not limited to, the following: LU-1, LU-2, LU-13, LU-18, LU-19, LU-21, CDES-16, CDES-18, CDES-31, CH-1, CH-2, CH-3, CH-4, CH-6, CH-7, OS-10, OS-11, OS-12, OS-13, MOB-1, MOB-2, MOB-3, MOB-4, MOB-7, MOB-9, MOB-10, MOB-11, MOB-12, MOB-13, MOB-14, MOB-15, MOB-16, MOB-17, MOB-18, MOB-19, MOB-20, MOB-21, and MOB-22.</p>

**Table 3 Continued. Consistency with the FCOG 2022 RTP/SCS**

SCS Goals	Project Consistency
<p><b>Goal 3:</b> A safe, well-maintained, efficient, and climate-resilient multimodal transportation network.</p> <p>-Policy 11: Prioritize investment in and promote multimodal safety measures to reduce traffic fatalities and incidents in the region.</p> <p>-Policy 12: Promote enhanced Transportation Systems Management (TSM) and Transportation Demand Management (TDM) strategies to reduce congestion and vehicle miles traveled.</p> <p>-Policy 13: Encourage improvements in travel connections across all modes to create an integrated, accessible, and seamless transportation network.</p> <p>-Policy 14: Maximize the cost-effectiveness of transportation improvements.</p> <p>-Policy 15: Encourage investments that increase the system’s resilience to extreme weather events, natural disasters, and pandemics.</p> <p>-Policy 16: Preserve and maintain existing multimodal transportation assets in a state of good repair.</p>	<p><b>Consistent:</b> The proposed GPU includes policies that would directly or indirectly support transit-oriented development. The GPU policies that demonstrate consistency with this strategy include, but are not limited to, the following: LU-1, LU-2, LU-13, LU-18, LU-19, LU-21, CDES-16, CDES-18, CDES-31, CH-1, CH-2, CH-3, CH-4, CH-6, CH-7, OS-10, OS-11, OS-12, OS-13, MOB-1, MOB-2, MOB-3, MOB-4, MOB-7, MOB-9, MOB-10, MOB-11, MOB-12, MOB-13, MOB-14, MOB-15, MOB-16, MOB-17, MOB-18, MOB-19, MOB-20, MOB-21, and MOB-22.</p>
<p><b>Goal 4:</b> A transportation network that supports a sustainable and vibrant economy.</p> <p>-Policy 17: Support local and regional economic development by leveraging planning and transportation funds that foster public and private investment.</p> <p>-Policy 18: Facilitate efficient, reliable, resilient, and sustainable goods movement.</p>	<p><b>Consistent:</b> The proposed GPU date includes policies that would directly or indirectly support transit-oriented development. The proposed GPU policies that demonstrate consistency with this strategy include, but are not limited to, the following: LU-1, LU-2, LU-13, LU-18, LU-19, LU-21, CDES-16, CDES-18, CDES-31, CH-1, CH-2, CH-3, CH-4, CH-6, CH-7, OS-10, OS-11, OS-12, OS-13, MOB-1, MOB-2, MOB-3, MOB-4, MOB-7, MOB-9, MOB-10, MOB-11, MOB-12, MOB-13, MOB-14, MOB-15, MOB-16, MOB-17, MOB-18, MOB-19, MOB-20, MOB-21, and MOB-22.</p>
<p><b>Goal 5:</b> A region embracing clean transportation, technology, and innovation.</p> <p>-Policy 19: Support innovative mobility solutions that are accessible, affordable, reduce greenhouse gas emissions, and improve air quality.</p> <p>-Policy 20: Support efforts to expand broadband access throughout the region.</p>	<p><b>Consistent:</b> The proposed GPU includes policies that would directly or indirectly support transit-oriented development. The proposed GPU policies that demonstrate consistency with this strategy include, but are not limited to, the following: LU-1, LU-2, LU-13, LU-18, LU-19, LU-21, CDES-16, CDES-18, CDES-31, CH-1, CH-2, CH-3, CH-4, CH-6, CH-7, OS-10, OS-11, OS-12, OS-13, MOB-1, MOB-2, MOB-3, MOB-4, MOB-7, MOB-9, MOB-10, MOB-11, MOB-12, MOB-13, MOB-14, MOB-15, MOB-16, MOB-17, MOB-18, MOB-19, MOB-20, MOB-21, and MOB-22.</p>
<p>Source: FCOG 2022</p>	

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## **APPENDIX A**

### **Emissions Modeling**

Emissions - Year 2019

LAND USE	Total Annual VMT *Per Day*
Fowler GP Per Capita 2019	247,894
Fowler GP Per Employee 2019	
Total	247,894

	VMT	Gallons/Mile*	Gallons	BTU/gallon**	BTU	MMBTU	Emissions (Tons/Day/Vehicle Type)								
							ROG	TOG	CO	Nox	PM 10	PM 2.5	CO2	CH4	N2O
Diesel	28305	0.14045320	3975.46364365	137381	546153171	546	0.0058666	0.0066786	0.0277245	0.1366769	0.0057296	0.0034836	44.5433711	0.0000000	0.0009848
Gasoline	216396	0.04654314	10071.75245011	120286	1211490815	1211	0.0599337	0.0648003	0.5216062	0.0506681	0.0043522	0.0015845	94.0741932	0.0000000	0.0001798
Plug-in Hybrid	2056	0.01763230	36.25124929	120286	4360518	4	0.0000803	0.0000849	0.0007959	0.0000299	0.0000287	0.0000097	0.3434475	0.0000000	0.0000001
Electric	1137	0.00000000	0.00000000	0	0	0	0	0	0	0	0.0000155	0.0000044	0	0	0
<b>Total Emissions (lbs per Day)</b>							131.7611628	143.1276731	1100.2531916	374.7496196	20.2520181	10.1643799	277922.0236703	0.0000051	2.3294299
<b>Total Emissions (Tons per Day)</b>							0.0658806	0.0715638	0.5501266	0.1873748	0.0101260	0.0050822	138.9610118	0.0000000	0.0011647
<b>Total Emissions (lbs per Year)</b>							48092.82442	52241.60068	401592.4149	136783.6112	7391.986622	3709.998662	101441538.6	0.001877882	850.2419185
<b>Total Emissions (Tons per Year)</b>							24.04641221	26.12080034	200.7962075	68.39180558	3.695993311	1.854999331	50720.76932	9.38941E-07	0.425120959

\*Gallons per mile based on year 2019 conditions for Fresno County. Derived from Emfac2021 (v1.0.2) Emissions Inventory.

\*\*Energy coefficient derived from US EIA.

[https://www.eia.gov/energyexplained/index.php?page=about\\_energy\\_units](https://www.eia.gov/energyexplained/index.php?page=about_energy_units)



MTCO2e			
GHG	Tons/year	GWP	MTCO2e
CO2	50720.77	1	50720.7693
CH4	9.39E-07	25	2.3474E-05
N2O	0.425121	298	126.686046
Total			50847.4554

Emissions - Year 2042

LAND USE	Total Annual VMT *Per Day*
Fowler GP Per Capita 2042	1,240,395
Fowler GP Per Employee 2042	
Total	1,240,395

	VMT	Gallons/Mile*	Gallons	BTU/gallon**	BTU	MMBTU	Emissions (Tons/Day/Vehicle Type)								
							ROG	TOG	CO	Nox	PM 10	PM 2.5	CO2	CH4	N2O
Diesel	130628	0.12344265	16125.01240872	137381	2215270330	2215	0.0082866	0.0094336	0.0936796	0.2603830	0.0190400	0.0083505	180.5114062	0.0000000	0.0035107
Gasoline	954456	0.03204408	30584.67220509	120286	3678907881	3679	0.1077523	0.1122208	0.8787340	0.0533963	0.0169174	0.0054642	290.0430024	0.0000000	0.0002433
Plug-in Hybrid	35304	0.01355968	478.71346452	120286	57582528	58	0.0021133	0.0021988	0.0124261	0.0005756	0.0004703	0.0001401	4.5397737	0.0000000	0.0000013
Electric	120007	0.00000000	0.00000000	0	0	0	0	0	0	0	0.0035298	0.0010843	0	0	0
<b>Total Emissions (lbs per Day)</b>							236.3044104	247.7064094	1969.6793920	628.7098193	79.9153079	30.0782044	950188.3646237	0.0000013	7.5105822
<b>Total Emissions (Tons per Day)</b>							0.1181522	0.1238532	0.9848397	0.3143549	0.0399577	0.0150391	475.0941823	0.0000000	0.0037553
<b>Total Emissions (lbs per Year)</b>							86251.10979	90412.83944	718932.9781	229479.084	29169.08739	10978.54459	346818753.1	0.000488043	2741.362513
<b>Total Emissions (Tons per Year)</b>							43.12555489	45.20641972	359.466489	114.739542	14.58454369	5.489272295	173409.3765	2.44022E-07	1.370681256

\*Gallons per mile based on year 2042 conditions for Fresno County. Derived from Emfac2021 (v1.0.2) Emissions Inventory.

\*\*Energy coefficient derived from US EIA.

[https://www.eia.gov/energyexplained/index.php?page=about\\_energy\\_units](https://www.eia.gov/energyexplained/index.php?page=about_energy_units)

MTCO2e			
GHG	Tons/year	GWP	MTCO2e
CO2	173409.3765	1	173409.3765
CH4	2.44022E-07	25	6.10054E-06
N2O	1.370681256	298	408.4630144
Total			173817.8396

Fowler 2019 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Fowler 2019  
Fresno County, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Government Office Building	869.37	1000sqft	19.96	869,370.00	0
Elementary School	381.98	1000sqft	8.77	381,978.00	0
General Heavy Industry	4,374.12	1000sqft	100.42	4,374,121.00	0
General Light Industry	1,438.00	1000sqft	33.01	1,438,003.00	0
City Park	15.80	Acre	15.80	688,248.00	0
Apartments Low Rise	983.00	Dwelling Unit	61.44	983,000.00	2811
Single Family Housing	2,241.00	Dwelling Unit	727.60	4,033,800.00	6409
Regional Shopping Center	415.53	1000sqft	9.54	415,528.00	0
Strip Mall	83.11	1000sqft	1.91	83,112.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	45
<b>Climate Zone</b>	3			<b>Operational Year</b>	2019
<b>Utility Company</b>	Pacific Gas and Electric Company				
<b>CO2 Intensity (lb/MW hr)</b>	203.98	<b>CH4 Intensity (lb/MW hr)</b>	0.033	<b>N2O Intensity (lb/MW hr)</b>	0.004

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

Project Characteristics -  
 Land Use - ..  
 Construction Phase - No Construction  
 Grading - No Construction

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Architectural Coating - No construction

Vehicle Trips - Mobile calculated separately

Woodstoves -

Area Coating -

Water And Wastewater -

Solid Waste -

Area Mitigation - Natural gas hearths only as per SJVAPCD

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	3,781,056.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	11,343,168.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	3,386,340.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Interior	10,159,020.00	0.00
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	1,100.00	0.00
tblConstructionPhase	NumDays	15,500.00	0.00
tblConstructionPhase	NumDays	1,000.00	0.00
tblConstructionPhase	NumDays	1,550.00	0.00
tblConstructionPhase	NumDays	1,100.00	0.00
tblConstructionPhase	NumDays	600.00	0.00
tblLandUse	LandUseSquareFeet	381,980.00	381,978.00
tblLandUse	LandUseSquareFeet	4,374,120.00	4,374,121.00
tblLandUse	LandUseSquareFeet	1,438,000.00	1,438,003.00
tblLandUse	LandUseSquareFeet	415,530.00	415,528.00
tblLandUse	LandUseSquareFeet	83,110.00	83,112.00
tblSolidWaste	SolidWasteGenerationRate	1.36	1.48
tblTripsAndVMT	VendorTripNumber	1,697.00	1,479.00
tblTripsAndVMT	WorkerTripNumber	4,843.00	4,285.00
tblTripsAndVMT	WorkerTripNumber	969.00	857.00

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

tblVehicleTrips	HO_TL	7.50	0.00
tblVehicleTrips	HO_TL	7.50	0.00
tblVehicleTrips	HS_TL	7.30	0.00
tblVehicleTrips	HS_TL	7.30	0.00
tblVehicleTrips	HW_TL	10.80	0.00
tblVehicleTrips	HW_TL	10.80	0.00
tblVehicleTrips	ST_TR	8.14	0.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	6.42	0.00
tblVehicleTrips	ST_TR	1.99	0.00
tblVehicleTrips	ST_TR	46.12	0.00
tblVehicleTrips	ST_TR	9.54	0.00
tblVehicleTrips	ST_TR	42.04	0.00
tblVehicleTrips	SU_TR	6.28	0.00
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	5.09	0.00
tblVehicleTrips	SU_TR	5.00	0.00
tblVehicleTrips	SU_TR	21.10	0.00
tblVehicleTrips	SU_TR	8.55	0.00
tblVehicleTrips	SU_TR	20.43	0.00
tblVehicleTrips	WD_TR	7.32	0.00
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	19.52	0.00
tblVehicleTrips	WD_TR	3.93	0.00
tblVehicleTrips	WD_TR	4.96	0.00
tblVehicleTrips	WD_TR	22.59	0.00
tblVehicleTrips	WD_TR	37.75	0.00
tblVehicleTrips	WD_TR	9.44	0.00
tblVehicleTrips	WD_TR	44.32	0.00

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

tblWater	OutdoorWaterUseRate	18,825,405.32	20,505,394.03
tblWoodstoves	NumberCatalytic	61.44	0.00
tblWoodstoves	NumberCatalytic	727.60	0.00
tblWoodstoves	NumberNoncatalytic	61.44	0.00
tblWoodstoves	NumberNoncatalytic	727.60	0.00

**2.0 Emissions Summary**

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Fowler 2019 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**2.1 Overall Construction**

**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Maximum</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Maximum</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

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

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



Fowler 2019 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

		Highest	
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**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	59.9839	1.4853	24.6406	8.9700e-003		0.2296	0.2296		0.2296	0.2296	0.0000	1,435.8993	1,435.8993	0.0655	0.0256	1,445.1677
Energy	1.1519	10.2737	7.3449	0.0628		0.7958	0.7958		0.7958	0.7958	0.0000	19,375.5958	19,375.5958	1.5089	0.3654	19,522.2063
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	2,394.6012	0.0000	2,394.6012	141.5169	0.0000	5,932.5230
Water						0.0000	0.0000		0.0000	0.0000	563.0716	988.9195	1,551.9911	57.9928	1.3850	3,414.5278
<b>Total</b>	<b>61.1358</b>	<b>11.7590</b>	<b>31.9856</b>	<b>0.0718</b>	<b>0.0000</b>	<b>1.0254</b>	<b>1.0254</b>	<b>0.0000</b>	<b>1.0254</b>	<b>1.0254</b>	<b>2,957.6728</b>	<b>21,800.4146</b>	<b>24,758.0873</b>	<b>201.0841</b>	<b>1.7760</b>	<b>30,314.4248</b>

Fowler 2019 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	59.9839	1.4853	24.6406	8.9700e-003		0.2296	0.2296		0.2296	0.2296	0.0000	1,435.8993	1,435.8993	0.0655	0.0256	1,445.1677
Energy	1.1519	10.2737	7.3449	0.0628		0.7958	0.7958		0.7958	0.7958	0.0000	19,375.5958	19,375.5958	1.5089	0.3654	19,522.2063
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	2,394.6012	0.0000	2,394.6012	141.5169	0.0000	5,932.5230
Water						0.0000	0.0000		0.0000	0.0000	563.0716	988.9195	1,551.9911	57.9928	1.3850	3,414.5278
<b>Total</b>	<b>61.1358</b>	<b>11.7590</b>	<b>31.9856</b>	<b>0.0718</b>	<b>0.0000</b>	<b>1.0254</b>	<b>1.0254</b>	<b>0.0000</b>	<b>1.0254</b>	<b>1.0254</b>	<b>2,957.6728</b>	<b>21,800.4146</b>	<b>24,758.0873</b>	<b>201.0841</b>	<b>1.7760</b>	<b>30,314.4248</b>

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

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	8/22/2022	8/21/2022	5	0	
2	Site Preparation	Site Preparation	8/23/2022	8/22/2022	5	0	
3	Grading	Grading	8/24/2022	8/23/2022	5	0	

Fowler 2019 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

4	Building Construction	Building Construction	8/25/2022	8/24/2022	5	0
5	Paving	Paving	8/26/2022	8/25/2022	5	0
6	Architectural Coating	Architectural Coating	8/27/2022	8/26/2022	5	0

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

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

**Acres of Paving: 0**

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

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
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



























Fowler 2019 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.7 Architectural Coating - 2022**

**Mitigated Construction Off-Site**

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

**4.0 Operational Detail - Mobile**

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**4.1 Mitigation Measures Mobile**



Fowler 2019 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

**4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	0.00	0.00	0.00		
City Park	0.00	0.00	0.00		
Elementary School	0.00	0.00	0.00		
General Heavy Industry	0.00	0.00	0.00		
General Light Industry	0.00	0.00	0.00		
Government Office Building	0.00	0.00	0.00		
Regional Shopping Center	0.00	0.00	0.00		
Single Family Housing	0.00	0.00	0.00		
Strip Mall	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

**4.3 Trip Type Information**

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	0.00	0.00	0.00	48.40	15.90	35.70	86	11	3
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Elementary School	9.50	7.30	7.30	65.00	30.00	5.00	63	25	12

Fowler 2019 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Government Office Building	9.50	7.30	7.30	33.00	62.00	5.00	50	34	16
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11
Single Family Housing	0.00	0.00	0.00	48.40	15.90	35.70	86	11	3
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

**4.4 Fleet Mix**

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.482772	0.053013	0.177201	0.181386	0.030694	0.007689	0.014311	0.021176	0.000804	0.000296	0.025348	0.001685	0.003625
City Park	0.482772	0.053013	0.177201	0.181386	0.030694	0.007689	0.014311	0.021176	0.000804	0.000296	0.025348	0.001685	0.003625
Elementary School	0.482772	0.053013	0.177201	0.181386	0.030694	0.007689	0.014311	0.021176	0.000804	0.000296	0.025348	0.001685	0.003625
General Heavy Industry	0.482772	0.053013	0.177201	0.181386	0.030694	0.007689	0.014311	0.021176	0.000804	0.000296	0.025348	0.001685	0.003625
General Light Industry	0.482772	0.053013	0.177201	0.181386	0.030694	0.007689	0.014311	0.021176	0.000804	0.000296	0.025348	0.001685	0.003625
Government Office Building	0.482772	0.053013	0.177201	0.181386	0.030694	0.007689	0.014311	0.021176	0.000804	0.000296	0.025348	0.001685	0.003625
Regional Shopping Center	0.482772	0.053013	0.177201	0.181386	0.030694	0.007689	0.014311	0.021176	0.000804	0.000296	0.025348	0.001685	0.003625
Single Family Housing	0.482772	0.053013	0.177201	0.181386	0.030694	0.007689	0.014311	0.021176	0.000804	0.000296	0.025348	0.001685	0.003625
Strip Mall	0.482772	0.053013	0.177201	0.181386	0.030694	0.007689	0.014311	0.021176	0.000804	0.000296	0.025348	0.001685	0.003625

**5.0 Energy Detail**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

Fowler 2019 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	7,975.9881	7,975.9881	1.2904	0.1564	8,054.8565
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	7,975.9881	7,975.9881	1.2904	0.1564	8,054.8565
NaturalGas Mitigated	1.1519	10.2737	7.3449	0.0628		0.7958	0.7958		0.7958	0.7958	0.0000	11,399.6077	11,399.6077	0.2185	0.2090	11,467.3499
NaturalGas Unmitigated	1.1519	10.2737	7.3449	0.0628		0.7958	0.7958		0.7958	0.7958	0.0000	11,399.6077	11,399.6077	0.2185	0.2090	11,467.3499

Fowler 2019 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**5.2 Energy by Land Use - NaturalGas**

**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	1.3415e+007	0.0723	0.6181	0.2630	3.9500e-003		0.0500	0.0500		0.0500	0.0500	0.0000	715.8766	715.8766	0.0137	0.0131	720.1307
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	9.50361e+006	0.0512	0.4659	0.3913	2.8000e-003		0.0354	0.0354		0.0354	0.0354	0.0000	507.1490	507.1490	9.7200e-003	9.3000e-003	510.1627
General Heavy Industry	9.05443e+007	0.4882	4.4385	3.7283	0.0266		0.3373	0.3373		0.3373	0.3373	0.0000	4,831.7889	4,831.7889	0.0926	0.0886	4,860.5018
General Light Industry	2.97667e+007	0.1605	1.4592	1.2257	8.7500e-003		0.1109	0.1109		0.1109	0.1109	0.0000	1,588.4625	1,588.4625	0.0305	0.0291	1,597.9019
Government Office Building	1.12323e+007	0.0606	0.5506	0.4625	3.3000e-003		0.0419	0.0419		0.0419	0.0419	0.0000	599.3962	599.3962	0.0115	0.0110	602.9581
Regional Shopping Center	4.40875e+006	0.0238	0.2161	0.1815	1.3000e-003		0.0164	0.0164		0.0164	0.0164	0.0000	235.2678	235.2678	4.5100e-003	4.3100e-003	236.6659
Single Family Housing	5.38681e+007	0.2905	2.4822	1.0562	0.0158		0.2007	0.2007		0.2007	0.2007	0.0000	2,874.6096	2,874.6096	0.0551	0.0527	2,891.6920
Strip Mall	881818	4.7500e-003	0.0432	0.0363	2.6000e-004		3.2900e-003	3.2900e-003		3.2900e-003	3.2900e-003	0.0000	47.0572	47.0572	9.0000e-004	8.6000e-004	47.3368
<b>Total</b>		<b>1.1519</b>	<b>10.2737</b>	<b>7.3449</b>	<b>0.0628</b>		<b>0.7959</b>	<b>0.7959</b>		<b>0.7959</b>	<b>0.7959</b>	<b>0.0000</b>	<b>11,399.6077</b>	<b>11,399.6077</b>	<b>0.2185</b>	<b>0.2090</b>	<b>11,467.3499</b>

Fowler 2019 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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					
Apartments Low Rise	1.3415e+007	0.0723	0.6181	0.2630	3.9500e-003		0.0500	0.0500		0.0500	0.0500	0.0000	715.8766	715.8766	0.0137	0.0131	720.1307
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	9.50361e+006	0.0512	0.4659	0.3913	2.8000e-003		0.0354	0.0354		0.0354	0.0354	0.0000	507.1490	507.1490	9.7200e-003	9.3000e-003	510.1627
General Heavy Industry	9.05443e+007	0.4882	4.4385	3.7283	0.0266		0.3373	0.3373		0.3373	0.3373	0.0000	4,831.7889	4,831.7889	0.0926	0.0886	4,860.5018
General Light Industry	2.97667e+007	0.1605	1.4592	1.2257	8.7500e-003		0.1109	0.1109		0.1109	0.1109	0.0000	1,588.4625	1,588.4625	0.0305	0.0291	1,597.9019
Government Office Building	1.12323e+007	0.0606	0.5506	0.4625	3.3000e-003		0.0419	0.0419		0.0419	0.0419	0.0000	599.3962	599.3962	0.0115	0.0110	602.9581
Regional Shopping Center	4.40875e+006	0.0238	0.2161	0.1815	1.3000e-003		0.0164	0.0164		0.0164	0.0164	0.0000	235.2678	235.2678	4.5100e-003	4.3100e-003	236.6659
Single Family Housing	5.38681e+007	0.2905	2.4822	1.0562	0.0158		0.2007	0.2007		0.2007	0.2007	0.0000	2,874.6096	2,874.6096	0.0551	0.0527	2,891.6920
Strip Mall	881818	4.7500e-003	0.0432	0.0363	2.6000e-004		3.2900e-003	3.2900e-003		3.2900e-003	3.2900e-003	0.0000	47.0572	47.0572	9.0000e-004	8.6000e-004	47.3368
<b>Total</b>		<b>1.1519</b>	<b>10.2737</b>	<b>7.3449</b>	<b>0.0628</b>		<b>0.7959</b>	<b>0.7959</b>		<b>0.7959</b>	<b>0.7959</b>	<b>0.0000</b>	<b>11,399.6077</b>	<b>11,399.6077</b>	<b>0.2185</b>	<b>0.2090</b>	<b>11,467.3499</b>

Fowler 2019 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

Land Use	Electricity Use kWh/yr	Total CO2 MT/yr	CH4 MT/yr	N2O MT/yr	CO2e MT/yr
Apartments Low Rise	4.0608e+006	375.7208	0.0608	7.3700e-003	379.4360
City Park	0	0.0000	0.0000	0.0000	0.0000
Elementary School	2.59745e+006	240.3259	0.0389	4.7100e-003	242.7023
General Heavy Industry	3.76612e+007	3,484.5546	0.5637	0.0683	3,519.0106
General Light Industry	1.23812e+007	1,145.5559	0.1853	0.0225	1,156.8834
Government Office Building	7.68523e+006	711.0665	0.1150	0.0139	718.0977
Regional Shopping Center	3.29098e+006	304.4940	0.0493	5.9700e-003	307.5050
Single Family Housing	1.78696e+007	1,653.3669	0.2675	0.0324	1,669.7158
Strip Mall	658247	60.9035	9.8500e-003	1.1900e-003	61.5057
<b>Total</b>		<b>7,975.9881</b>	<b>1.2904</b>	<b>0.1564</b>	<b>8,054.8564</b>

Fowler 2019 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**5.3 Energy by Land Use - Electricity**

**Mitigated**

Land Use	Electricity Use kWh/yr	Total CO2 MT/yr	CH4 MT/yr	N2O MT/yr	CO2e MT/yr
Apartments Low Rise	4.0608e+006	375.7208	0.0608	7.3700e-003	379.4360
City Park	0	0.0000	0.0000	0.0000	0.0000
Elementary School	2.59745e+006	240.3259	0.0389	4.7100e-003	242.7023
General Heavy Industry	3.76612e+007	3,484.5546	0.5637	0.0683	3,519.0106
General Light Industry	1.23812e+007	1,145.5559	0.1853	0.0225	1,156.8834
Government Office Building	7.68523e+006	711.0665	0.1150	0.0139	718.0977
Regional Shopping Center	3.29098e+006	304.4940	0.0493	5.9700e-003	307.5050
Single Family Housing	1.78696e+007	1,653.3669	0.2675	0.0324	1,669.7158
Strip Mall	658247	60.9035	9.8500e-003	1.1900e-003	61.5057
<b>Total</b>		<b>7,975.9881</b>	<b>1.2904</b>	<b>0.1564</b>	<b>8,054.8564</b>

**6.0 Area Detail**

**6.1 Mitigation Measures Area**

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Fowler 2019 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Use Low VOC Paint - Non-Residential Exterior

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	59.9839	1.4853	24.6406	8.9700e-003		0.2296	0.2296		0.2296	0.2296	0.0000	1,435.8993	1,435.8993	0.0655	0.0256	1,445.1677
Unmitigated	59.9839	1.4853	24.6406	8.9700e-003		0.2296	0.2296		0.2296	0.2296	0.0000	1,435.8993	1,435.8993	0.0655	0.0256	1,445.1677



Fowler 2019 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	9.9663					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	49.1334					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1411	1.2060	0.5132	7.7000e-003		0.0975	0.0975		0.0975	0.0975	0.0000	1,396.6606	1,396.6606	0.0268	0.0256	1,404.9603
Landscaping	0.7431	0.2793	24.1274	1.2700e-003		0.1321	0.1321		0.1321	0.1321	0.0000	39.2386	39.2386	0.0388	0.0000	40.2074
<b>Total</b>	<b>59.9839</b>	<b>1.4853</b>	<b>24.6406</b>	<b>8.9700e-003</b>		<b>0.2296</b>	<b>0.2296</b>		<b>0.2296</b>	<b>0.2296</b>	<b>0.0000</b>	<b>1,435.8993</b>	<b>1,435.8993</b>	<b>0.0655</b>	<b>0.0256</b>	<b>1,445.1677</b>

Fowler 2019 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	9.9663					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	49.1334					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1411	1.2060	0.5132	7.7000e-003		0.0975	0.0975		0.0975	0.0975	0.0000	1,396.6606	1,396.6606	0.0268	0.0256	1,404.9603
Landscaping	0.7431	0.2793	24.1274	1.2700e-003		0.1321	0.1321		0.1321	0.1321	0.0000	39.2386	39.2386	0.0388	0.0000	40.2074
<b>Total</b>	<b>59.9839</b>	<b>1.4853</b>	<b>24.6406</b>	<b>8.9700e-003</b>		<b>0.2296</b>	<b>0.2296</b>		<b>0.2296</b>	<b>0.2296</b>	<b>0.0000</b>	<b>1,435.8993</b>	<b>1,435.8993</b>	<b>0.0655</b>	<b>0.0256</b>	<b>1,445.1677</b>

**7.0 Water Detail**

**7.1 Mitigation Measures Water**

Fowler 2019 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1,551.991 1	57.9928	1.3850	3,414.527 8
Unmitigated	1,551.991 1	57.9928	1.3850	3,414.527 8

Fowler 2019 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	64.0464 / 40.3771	65.4590	2.0943	0.0502	132.7639
City Park	0 / 20.5054	6.6403	1.0700e-003	1.3000e-004	6.7060
Elementary School	11.0762 / 28.4818	18.2826	0.3633	8.8100e-003	29.9912
General Heavy Industry	1011.52 / 0	827.3183	33.0422	0.7882	1,888.2541
General Light Industry	332.538 / 0	271.9824	10.8627	0.2591	620.7670
Government Office Building	172.709 / 105.854	175.5375	5.6473	0.1353	357.0234
Regional Shopping Center	30.7794 / 18.8648	31.2835	1.0064	0.0241	63.6271
Single Family Housing	146.01 / 92.0499	149.2305	4.7744	0.1144	302.6692
Strip Mall	6.15617 / 3.77313	6.2570	0.2013	4.8200e-003	12.7260
<b>Total</b>		<b>1,551.9911</b>	<b>57.9929</b>	<b>1.3849</b>	<b>3,414.5278</b>

Fowler 2019 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**7.2 Water by Land Use**

**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	64.0464 / 40.3771	65.4590	2.0943	0.0502	132.7639
City Park	0 / 20.5054	6.6403	1.0700e-003	1.3000e-004	6.7060
Elementary School	11.0762 / 28.4818	18.2826	0.3633	8.8100e-003	29.9912
General Heavy Industry	1011.52 / 0	827.3183	33.0422	0.7882	1,888.2541
General Light Industry	332.538 / 0	271.9824	10.8627	0.2591	620.7670
Government Office Building	172.709 / 105.854	175.5375	5.6473	0.1353	357.0234
Regional Shopping Center	30.7794 / 18.8648	31.2835	1.0064	0.0241	63.6271
Single Family Housing	146.01 / 92.0499	149.2305	4.7744	0.1144	302.6692
Strip Mall	6.15617 / 3.77313	6.2570	0.2013	4.8200e-003	12.7260
<b>Total</b>		<b>1,551.9911</b>	<b>57.9929</b>	<b>1.3849</b>	<b>3,414.5278</b>

**8.0 Waste Detail**

**8.1 Mitigation Measures Waste**

Fowler 2019 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2,394.601 2	141.5169	0.0000	5,932.523 0
Unmitigated	2,394.601 2	141.5169	0.0000	5,932.523 0

Fowler 2019 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**8.2 Waste by Land Use**

**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	452.18	91.7885	5.4245	0.0000	227.4020
City Park	1.48	0.3004	0.0178	0.0000	0.7443
Elementary School	496.57	100.7992	5.9571	0.0000	249.7258
General Heavy Industry	5423.91	1,101.0047	65.0675	0.0000	2,727.6926
General Light Industry	1783.12	361.9573	21.3911	0.0000	896.7338
Government Office Building	808.51	164.1202	9.6992	0.0000	406.6009
Regional Shopping Center	436.31	88.5670	5.2342	0.0000	219.4210
Single Family Housing	2307.24	468.3489	27.6786	0.0000	1,160.3145
Strip Mall	87.27	17.7150	1.0469	0.0000	43.8882
<b>Total</b>		<b>2,394.6012</b>	<b>141.5169</b>	<b>0.0000</b>	<b>5,932.5230</b>

Fowler 2019 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**8.2 Waste by Land Use**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	452.18	91.7885	5.4245	0.0000	227.4020
City Park	1.48	0.3004	0.0178	0.0000	0.7443
Elementary School	496.57	100.7992	5.9571	0.0000	249.7258
General Heavy Industry	5423.91	1,101.0047	65.0675	0.0000	2,727.6926
General Light Industry	1783.12	361.9573	21.3911	0.0000	896.7338
Government Office Building	808.51	164.1202	9.6992	0.0000	406.6009
Regional Shopping Center	436.31	88.5670	5.2342	0.0000	219.4210
Single Family Housing	2307.24	468.3489	27.6786	0.0000	1,160.3145
Strip Mall	87.27	17.7150	1.0469	0.0000	43.8882
<b>Total</b>		<b>2,394.6012</b>	<b>141.5169</b>	<b>0.0000</b>	<b>5,932.5230</b>

**9.0 Operational Offroad**

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



Fowler 2019 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Fire Pumps and Emergency Generators**

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

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

Equipment Type	Number
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**11.0 Vegetation**

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Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Fowler GP 2042  
Fresno County, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Government Office Building	1,826.21	1000sqft	41.92	1,826,209.00	0
Elementary School	537.09	1000sqft	12.33	537,090.00	0
General Heavy Industry	14,442.10	1000sqft	331.54	14,442,100.00	0
General Light Industry	7,784.08	1000sqft	178.70	7,784,084.00	0
City Park	55.03	Acre	55.03	2,397,106.00	0
Apartments Low Rise	2,376.00	Dwelling Unit	148.50	2,376,000.00	6795
Single Family Housing	13,342.00	Dwelling Unit	4,331.82	24,015,600.00	38158
Regional Shopping Center	926.00	1000sqft	21.26	925,998.00	0
Strip Mall	247.25	1000sqft	5.68	247,246.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	45
<b>Climate Zone</b>	3			<b>Operational Year</b>	2040
<b>Utility Company</b>	Pacific Gas and Electric Company				
<b>CO2 Intensity (lb/MW hr)</b>	25.42	<b>CH4 Intensity (lb/MW hr)</b>	0.004	<b>N2O Intensity (lb/MW hr)</b>	0

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

Project Characteristics - Intensity Factors adjusted based on RPS

Land Use - Full 2042 buildout

Construction Phase - No construction

Trips and VMT - No construction

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Grading - No construction

Architectural Coating - No construction

Vehicle Trips - Mobile calculated separately

Woodstoves -

Area Coating -

Water And Wastewater -

Solid Waste -

Area Mitigation - NAtural Gas Hearths only as per SJVAPCD

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	12,881,364.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	38,644,091.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	17,814,330.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Interior	53,442,990.00	0.00
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	11,000.00	1.00
tblConstructionPhase	NumDays	155,000.00	1.00
tblConstructionPhase	NumDays	10,000.00	1.00
tblConstructionPhase	NumDays	15,500.00	1.00
tblConstructionPhase	NumDays	11,000.00	1.00
tblConstructionPhase	NumDays	6,000.00	1.00
tblGrading	AcresOfGrading	3.00	0.00
tblGrading	AcresOfGrading	1.50	0.00
tblLandUse	LandUseSquareFeet	1,826,210.00	1,826,209.00
tblLandUse	LandUseSquareFeet	7,784,080.00	7,784,084.00
tblLandUse	LandUseSquareFeet	2,397,106.80	2,397,106.00
tblLandUse	LandUseSquareFeet	926,000.00	925,998.00
tblLandUse	LandUseSquareFeet	247,250.00	247,246.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0.004

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

tblProjectCharacteristics	CO2IntensityFactor	203.98	25.42
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblSolidWaste	SolidWasteGenerationRate	4.73	0.12
tblTripsAndVMT	VendorTripNumber	6,296.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	18,041.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	3,608.00	0.00
tblVehicleTrips	HO_TL	7.50	0.00
tblVehicleTrips	HO_TL	7.50	0.00
tblVehicleTrips	HS_TL	7.30	0.00
tblVehicleTrips	HS_TL	7.30	0.00
tblVehicleTrips	HW_TL	10.80	0.00
tblVehicleTrips	HW_TL	10.80	0.00
tblVehicleTrips	ST_TR	8.14	0.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	6.42	0.00
tblVehicleTrips	ST_TR	1.99	0.00
tblVehicleTrips	ST_TR	46.12	0.00
tblVehicleTrips	ST_TR	9.54	0.00
tblVehicleTrips	ST_TR	42.04	0.00
tblVehicleTrips	SU_TR	6.28	0.00
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	5.09	0.00
tblVehicleTrips	SU_TR	5.00	0.00
tblVehicleTrips	SU_TR	21.10	0.00
tblVehicleTrips	SU_TR	8.55	0.00

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

tblVehicleTrips	SU_TR	20.43	0.00
tblVehicleTrips	WD_TR	7.32	0.00
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	19.52	0.00
tblVehicleTrips	WD_TR	3.93	0.00
tblVehicleTrips	WD_TR	4.96	0.00
tblVehicleTrips	WD_TR	22.59	0.00
tblVehicleTrips	WD_TR	37.75	0.00
tblVehicleTrips	WD_TR	9.44	0.00
tblVehicleTrips	WD_TR	44.32	0.00
tblWater	OutdoorWaterUseRate	65,567,218.67	1,644,244.26
tblWoodstoves	NumberCatalytic	148.50	0.00
tblWoodstoves	NumberCatalytic	4,331.82	0.00
tblWoodstoves	NumberNoncatalytic	148.50	0.00
tblWoodstoves	NumberNoncatalytic	4,331.82	0.00

**2.0 Emissions Summary**

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Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	8-22-2022	9-30-2022	0.0505	0.0505
		Highest	0.0505	0.0505

**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	250.5785	7.2229	118.9329	0.0437		1.1234	1.1234		1.1234	1.1234	0.0000	7,000.2556	7,000.2556	0.3132	0.1248	7,045.2851
Energy	4.6514	41.2468	27.9031	0.2537		3.2137	3.2137		3.2137	3.2137	0.0000	49,914.5767	49,914.5767	1.4931	0.8439	50,203.3971
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	9,341.4269	0.0000	9,341.4269	552.0625	0.0000	23,142.9898
Water						0.0000	0.0000		0.0000	0.0000	2,103.1295	452.4579	2,555.5874	216.0828	5.1005	9,477.6057
<b>Total</b>	<b>255.2299</b>	<b>48.4696</b>	<b>146.8360</b>	<b>0.2974</b>	<b>0.0000</b>	<b>4.3371</b>	<b>4.3371</b>	<b>0.0000</b>	<b>4.3371</b>	<b>4.3371</b>	<b>11,444.5564</b>	<b>57,367.2901</b>	<b>68,811.8465</b>	<b>769.9516</b>	<b>6.0693</b>	<b>89,869.2778</b>

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	250.5785	7.2229	118.9329	0.0437		1.1234	1.1234		1.1234	1.1234	0.0000	7,000.2556	7,000.2556	0.3132	0.1248	7,045.2851
Energy	4.6514	41.2468	27.9031	0.2537		3.2137	3.2137		3.2137	3.2137	0.0000	49,914.5767	49,914.5767	1.4931	0.8439	50,203.3971
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	9,341.4269	0.0000	9,341.4269	552.0625	0.0000	23,142.9898
Water						0.0000	0.0000		0.0000	0.0000	2,103.1295	452.4579	2,555.5874	216.0828	5.1005	9,477.6057
<b>Total</b>	<b>255.2299</b>	<b>48.4696</b>	<b>146.8360</b>	<b>0.2974</b>	<b>0.0000</b>	<b>4.3371</b>	<b>4.3371</b>	<b>0.0000</b>	<b>4.3371</b>	<b>4.3371</b>	<b>11,444.5564</b>	<b>57,367.2901</b>	<b>68,811.8465</b>	<b>769.9516</b>	<b>6.0693</b>	<b>89,869.2778</b>

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

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	8/22/2022	8/22/2022	5	1	
2	Site Preparation	Site Preparation	8/23/2022	8/23/2022	5	1	
3	Grading	Grading	8/24/2022	8/24/2022	5	1	



Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

4	Building Construction	Building Construction	8/25/2022	8/25/2022	5	1
5	Paving	Paving	8/26/2022	8/26/2022	5	1
6	Architectural Coating	Architectural Coating	8/27/2022	8/29/2022	5	1

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

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

**Acres of Paving: 0**

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

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
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

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

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
Demolition	6	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

**3.2 Demolition - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.3200e-003	0.0129	0.0103	2.0000e-005		6.2000e-004	6.2000e-004		5.8000e-004	5.8000e-004	0.0000	1.6995	1.6995	4.8000e-004	0.0000	1.7115
<b>Total</b>	<b>1.3200e-003</b>	<b>0.0129</b>	<b>0.0103</b>	<b>2.0000e-005</b>		<b>6.2000e-004</b>	<b>6.2000e-004</b>		<b>5.8000e-004</b>	<b>5.8000e-004</b>	<b>0.0000</b>	<b>1.6995</b>	<b>1.6995</b>	<b>4.8000e-004</b>	<b>0.0000</b>	<b>1.7115</b>

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 Demolition - 2022**

**Unmitigated Construction Off-Site**

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

**Mitigated Construction 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	1.3200e-003	0.0129	0.0103	2.0000e-005		6.2000e-004	6.2000e-004		5.8000e-004	5.8000e-004	0.0000	1.6995	1.6995	4.8000e-004	0.0000	1.7114
<b>Total</b>	<b>1.3200e-003</b>	<b>0.0129</b>	<b>0.0103</b>	<b>2.0000e-005</b>		<b>6.2000e-004</b>	<b>6.2000e-004</b>		<b>5.8000e-004</b>	<b>5.8000e-004</b>	<b>0.0000</b>	<b>1.6995</b>	<b>1.6995</b>	<b>4.8000e-004</b>	<b>0.0000</b>	<b>1.7114</b>

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 Demolition - 2022**

**Mitigated Construction Off-Site**

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

**3.3 Site Preparation - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.0300e-003	0.0000	9.0300e-003	4.9700e-003	0.0000	4.9700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5900e-003	0.0165	9.8500e-003	2.0000e-005		8.1000e-004	8.1000e-004		7.4000e-004	7.4000e-004	0.0000	1.6720	1.6720	5.4000e-004	0.0000	1.6855
<b>Total</b>	<b>1.5900e-003</b>	<b>0.0165</b>	<b>9.8500e-003</b>	<b>2.0000e-005</b>	<b>9.0300e-003</b>	<b>8.1000e-004</b>	<b>9.8400e-003</b>	<b>4.9700e-003</b>	<b>7.4000e-004</b>	<b>5.7100e-003</b>	<b>0.0000</b>	<b>1.6720</b>	<b>1.6720</b>	<b>5.4000e-004</b>	<b>0.0000</b>	<b>1.6855</b>

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.3 Site Preparation - 2022**

**Unmitigated Construction Off-Site**

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

**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					9.0300e-003	0.0000	9.0300e-003	4.9700e-003	0.0000	4.9700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5900e-003	0.0165	9.8500e-003	2.0000e-005		8.1000e-004	8.1000e-004		7.4000e-004	7.4000e-004	0.0000	1.6720	1.6720	5.4000e-004	0.0000	1.6855
<b>Total</b>	<b>1.5900e-003</b>	<b>0.0165</b>	<b>9.8500e-003</b>	<b>2.0000e-005</b>	<b>9.0300e-003</b>	<b>8.1000e-004</b>	<b>9.8400e-003</b>	<b>4.9700e-003</b>	<b>7.4000e-004</b>	<b>5.7100e-003</b>	<b>0.0000</b>	<b>1.6720</b>	<b>1.6720</b>	<b>5.4000e-004</b>	<b>0.0000</b>	<b>1.6855</b>

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.3 Site Preparation - 2022**

**Mitigated Construction Off-Site**

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

**3.4 Grading - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.0100e-003	0.0000	3.0100e-003	1.6600e-003	0.0000	1.6600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0194	0.0145	3.0000e-005		8.2000e-004	8.2000e-004		7.5000e-004	7.5000e-004	0.0000	2.7267	2.7267	8.8000e-004	0.0000	2.7488
<b>Total</b>	<b>1.8100e-003</b>	<b>0.0194</b>	<b>0.0145</b>	<b>3.0000e-005</b>	<b>3.0100e-003</b>	<b>8.2000e-004</b>	<b>3.8300e-003</b>	<b>1.6600e-003</b>	<b>7.5000e-004</b>	<b>2.4100e-003</b>	<b>0.0000</b>	<b>2.7267</b>	<b>2.7267</b>	<b>8.8000e-004</b>	<b>0.0000</b>	<b>2.7488</b>

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.4 Grading - 2022**

**Unmitigated Construction Off-Site**

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

**Mitigated Construction 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					3.0100e-003	0.0000	3.0100e-003	1.6600e-003	0.0000	1.6600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0194	0.0145	3.0000e-005		8.2000e-004	8.2000e-004		7.5000e-004	7.5000e-004	0.0000	2.7267	2.7267	8.8000e-004	0.0000	2.7488
<b>Total</b>	<b>1.8100e-003</b>	<b>0.0194</b>	<b>0.0145</b>	<b>3.0000e-005</b>	<b>3.0100e-003</b>	<b>8.2000e-004</b>	<b>3.8300e-003</b>	<b>1.6600e-003</b>	<b>7.5000e-004</b>	<b>2.4100e-003</b>	<b>0.0000</b>	<b>2.7267</b>	<b>2.7267</b>	<b>8.8000e-004</b>	<b>0.0000</b>	<b>2.7488</b>

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.4 Grading - 2022**

**Mitigated Construction Off-Site**

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

**3.5 Building Construction - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.5000e-004	7.8100e-003	8.1800e-003	1.0000e-005		4.0000e-004	4.0000e-004		3.8000e-004	3.8000e-004	0.0000	1.1586	1.1586	2.8000e-004	0.0000	1.1656
<b>Total</b>	<b>8.5000e-004</b>	<b>7.8100e-003</b>	<b>8.1800e-003</b>	<b>1.0000e-005</b>		<b>4.0000e-004</b>	<b>4.0000e-004</b>		<b>3.8000e-004</b>	<b>3.8000e-004</b>	<b>0.0000</b>	<b>1.1586</b>	<b>1.1586</b>	<b>2.8000e-004</b>	<b>0.0000</b>	<b>1.1656</b>



Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.5 Building Construction - 2022**

**Unmitigated Construction Off-Site**

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

**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	8.5000e-004	7.8100e-003	8.1800e-003	1.0000e-005		4.0000e-004	4.0000e-004		3.8000e-004	3.8000e-004	0.0000	1.1586	1.1586	2.8000e-004	0.0000	1.1656
<b>Total</b>	<b>8.5000e-004</b>	<b>7.8100e-003</b>	<b>8.1800e-003</b>	<b>1.0000e-005</b>		<b>4.0000e-004</b>	<b>4.0000e-004</b>		<b>3.8000e-004</b>	<b>3.8000e-004</b>	<b>0.0000</b>	<b>1.1586</b>	<b>1.1586</b>	<b>2.8000e-004</b>	<b>0.0000</b>	<b>1.1656</b>

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.5 Building Construction - 2022**

**Mitigated Construction Off-Site**

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

**3.6 Paving - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.5000e-004	5.5600e-003	7.2900e-003	1.0000e-005		2.8000e-004	2.8000e-004		2.6000e-004	2.6000e-004	0.0000	1.0014	1.0014	3.2000e-004	0.0000	1.0095
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>5.5000e-004</b>	<b>5.5600e-003</b>	<b>7.2900e-003</b>	<b>1.0000e-005</b>		<b>2.8000e-004</b>	<b>2.8000e-004</b>		<b>2.6000e-004</b>	<b>2.6000e-004</b>	<b>0.0000</b>	<b>1.0014</b>	<b>1.0014</b>	<b>3.2000e-004</b>	<b>0.0000</b>	<b>1.0095</b>

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.6 Paving - 2022**

**Unmitigated Construction Off-Site**

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

**Mitigated Construction 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	5.5000e-004	5.5600e-003	7.2900e-003	1.0000e-005		2.8000e-004	2.8000e-004		2.6000e-004	2.6000e-004	0.0000	1.0014	1.0014	3.2000e-004	0.0000	1.0095
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>5.5000e-004</b>	<b>5.5600e-003</b>	<b>7.2900e-003</b>	<b>1.0000e-005</b>		<b>2.8000e-004</b>	<b>2.8000e-004</b>		<b>2.6000e-004</b>	<b>2.6000e-004</b>	<b>0.0000</b>	<b>1.0014</b>	<b>1.0014</b>	<b>3.2000e-004</b>	<b>0.0000</b>	<b>1.0095</b>

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.6 Paving - 2022**

Mitigated Construction Off-Site

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

**3.7 Architectural Coating - 2022**

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0000e-004	7.0000e-004	9.1000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.1277	0.1277	1.0000e-005	0.0000	0.1279
<b>Total</b>	<b>1.0000e-004</b>	<b>7.0000e-004</b>	<b>9.1000e-004</b>	<b>0.0000</b>		<b>4.0000e-005</b>	<b>4.0000e-005</b>		<b>4.0000e-005</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.1277</b>	<b>0.1277</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.1279</b>

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.7 Architectural Coating - 2022**

**Unmitigated Construction Off-Site**

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

**Mitigated Construction 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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0000e-004	7.0000e-004	9.1000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.1277	0.1277	1.0000e-005	0.0000	0.1279
<b>Total</b>	<b>1.0000e-004</b>	<b>7.0000e-004</b>	<b>9.1000e-004</b>	<b>0.0000</b>		<b>4.0000e-005</b>	<b>4.0000e-005</b>		<b>4.0000e-005</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.1277</b>	<b>0.1277</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.1279</b>

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.7 Architectural Coating - 2022**

**Mitigated Construction Off-Site**

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

**4.0 Operational Detail - Mobile**

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**4.1 Mitigation Measures Mobile**

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

**4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	0.00	0.00	0.00		
City Park	0.00	0.00	0.00		
Elementary School	0.00	0.00	0.00		
General Heavy Industry	0.00	0.00	0.00		
General Light Industry	0.00	0.00	0.00		
Government Office Building	0.00	0.00	0.00		
Regional Shopping Center	0.00	0.00	0.00		
Single Family Housing	0.00	0.00	0.00		
Strip Mall	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

**4.3 Trip Type Information**

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	0.00	0.00	0.00	48.40	15.90	35.70	86	11	3
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Elementary School	9.50	7.30	7.30	65.00	30.00	5.00	63	25	12

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Government Office Building	9.50	7.30	7.30	33.00	62.00	5.00	50	34	16
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11
Single Family Housing	0.00	0.00	0.00	48.40	15.90	35.70	86	11	3
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

**4.4 Fleet Mix**

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.558400	0.056984	0.177680	0.121787	0.018699	0.005186	0.014995	0.021540	0.000643	0.000266	0.020696	0.000992	0.002131
City Park	0.558400	0.056984	0.177680	0.121787	0.018699	0.005186	0.014995	0.021540	0.000643	0.000266	0.020696	0.000992	0.002131
Elementary School	0.558400	0.056984	0.177680	0.121787	0.018699	0.005186	0.014995	0.021540	0.000643	0.000266	0.020696	0.000992	0.002131
General Heavy Industry	0.558400	0.056984	0.177680	0.121787	0.018699	0.005186	0.014995	0.021540	0.000643	0.000266	0.020696	0.000992	0.002131
General Light Industry	0.558400	0.056984	0.177680	0.121787	0.018699	0.005186	0.014995	0.021540	0.000643	0.000266	0.020696	0.000992	0.002131
Government Office Building	0.558400	0.056984	0.177680	0.121787	0.018699	0.005186	0.014995	0.021540	0.000643	0.000266	0.020696	0.000992	0.002131
Regional Shopping Center	0.558400	0.056984	0.177680	0.121787	0.018699	0.005186	0.014995	0.021540	0.000643	0.000266	0.020696	0.000992	0.002131
Single Family Housing	0.558400	0.056984	0.177680	0.121787	0.018699	0.005186	0.014995	0.021540	0.000643	0.000266	0.020696	0.000992	0.002131
Strip Mall	0.558400	0.056984	0.177680	0.121787	0.018699	0.005186	0.014995	0.021540	0.000643	0.000266	0.020696	0.000992	0.002131

**5.0 Energy Detail**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**



Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3,881.7892	3,881.7892	0.6108	0.0000	3,897.0599
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3,881.7892	3,881.7892	0.6108	0.0000	3,897.0599
NaturalGas Mitigated	4.6514	41.2468	27.9031	0.2537		3.2137	3.2137		3.2137	3.2137	0.0000	46,032.7875	46,032.7875	0.8823	0.8439	46,306.3373
NaturalGas Unmitigated	4.6514	41.2468	27.9031	0.2537		3.2137	3.2137		3.2137	3.2137	0.0000	46,032.7875	46,032.7875	0.8823	0.8439	46,306.3373

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	3.24253e+007	0.1748	1.4941	0.6358	9.5400e-003		0.1208	0.1208		0.1208	0.1208	0.0000	1,730.3385	1,730.3385	0.0332	0.0317	1,740.6211
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	1.33628e+007	0.0721	0.6550	0.5502	3.9300e-003		0.0498	0.0498		0.0498	0.0498	0.0000	713.0899	713.0899	0.0137	0.0131	717.3274
General Heavy Industry	2.98951e+008	1.6120	14.6545	12.3098	0.0879		1.1137	1.1137		1.1137	1.1137	0.0000	15,953.1889	15,953.1889	0.3058	0.2925	16,047.9907
General Light Industry	1.61131e+008	0.8688	7.8986	6.6348	0.0474		0.6003	0.6003		0.6003	0.6003	0.0000	8,598.5392	8,598.5392	0.1648	0.1576	8,649.6360
Government Office Building	2.35946e+007	0.1272	1.1566	0.9715	6.9400e-003		0.0879	0.0879		0.0879	0.0879	0.0000	1,259.0988	1,259.0988	0.0241	0.0231	1,266.5810
Regional Shopping Center	9.82484e+006	0.0530	0.4816	0.4046	2.8900e-003		0.0366	0.0366		0.0366	0.0366	0.0000	524.2908	524.2908	0.0101	9.6100e-003	527.4064
Single Family Housing	3.20709e+008	1.7293	14.7778	6.2884	0.0943		1.1948	1.1948		1.1948	1.1948	0.0000	17,114.2532	17,114.2532	0.3280	0.3138	17,215.9546
Strip Mall	2.62328e+006	0.0142	0.1286	0.1080	7.7000e-004		9.7700e-003	9.7700e-003		9.7700e-003	9.7700e-003	0.0000	139.9882	139.9882	2.6800e-003	2.5700e-003	140.8201
<b>Total</b>		<b>4.6514</b>	<b>41.2468</b>	<b>27.9031</b>	<b>0.2537</b>		<b>3.2137</b>	<b>3.2137</b>		<b>3.2137</b>	<b>3.2137</b>	<b>0.0000</b>	<b>46,032.7874</b>	<b>46,032.7874</b>	<b>0.8823</b>	<b>0.8439</b>	<b>46,306.3373</b>

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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					
Apartments Low Rise	3.24253e+007	0.1748	1.4941	0.6358	9.5400e-003		0.1208	0.1208		0.1208	0.1208	0.0000	1,730.3385	1,730.3385	0.0332	0.0317	1,740.6211
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	1.33628e+007	0.0721	0.6550	0.5502	3.9300e-003		0.0498	0.0498		0.0498	0.0498	0.0000	713.0899	713.0899	0.0137	0.0131	717.3274
General Heavy Industry	2.98951e+008	1.6120	14.6545	12.3098	0.0879		1.1137	1.1137		1.1137	1.1137	0.0000	15,953.1889	15,953.1889	0.3058	0.2925	16,047.9907
General Light Industry	1.61131e+008	0.8688	7.8986	6.6348	0.0474		0.6003	0.6003		0.6003	0.6003	0.0000	8,598.5392	8,598.5392	0.1648	0.1576	8,649.6360
Government Office Building	2.35946e+007	0.1272	1.1566	0.9715	6.9400e-003		0.0879	0.0879		0.0879	0.0879	0.0000	1,259.0988	1,259.0988	0.0241	0.0231	1,266.5810
Regional Shopping Center	9.82484e+006	0.0530	0.4816	0.4046	2.8900e-003		0.0366	0.0366		0.0366	0.0366	0.0000	524.2908	524.2908	0.0101	9.6100e-003	527.4064
Single Family Housing	3.20709e+008	1.7293	14.7778	6.2884	0.0943		1.1948	1.1948		1.1948	1.1948	0.0000	17,114.2532	17,114.2532	0.3280	0.3138	17,215.9546
Strip Mall	2.62328e+006	0.0142	0.1286	0.1080	7.7000e-004		9.7700e-003	9.7700e-003		9.7700e-003	9.7700e-003	0.0000	139.9882	139.9882	2.6800e-003	2.5700e-003	140.8201
<b>Total</b>		<b>4.6514</b>	<b>41.2468</b>	<b>27.9031</b>	<b>0.2537</b>		<b>3.2137</b>	<b>3.2137</b>		<b>3.2137</b>	<b>3.2137</b>	<b>0.0000</b>	<b>46,032.7874</b>	<b>46,032.7874</b>	<b>0.8823</b>	<b>0.8439</b>	<b>46,306.3373</b>

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	9.81533e+006	113.1739	0.0178	0.0000	113.6191
City Park	0	0.0000	0.0000	0.0000	0.0000
Elementary School	3.65221e+006	42.1112	6.6300e-003	0.0000	42.2768
General Heavy Industry	1.24346e+008	1,433.7545	0.2256	0.0000	1,439.3947
General Light Industry	6.7021e+007	772.7730	0.1216	0.0000	775.8130
Government Office Building	1.61437e+007	186.1419	0.0293	0.0000	186.8741
Regional Shopping Center	7.3339e+006	84.5623	0.0133	0.0000	84.8949
Single Family Housing	1.06389e+008	1,226.6941	0.1930	0.0000	1,231.5198
Strip Mall	1.95819e+006	22.5785	3.5500e-003	0.0000	22.6674
<b>Total</b>		<b>3,881.7892</b>	<b>0.6108</b>	<b>0.0000</b>	<b>3,897.0599</b>

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**5.3 Energy by Land Use - Electricity**

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	9.81533e+006	113.1739	0.0178	0.0000	113.6191
City Park	0	0.0000	0.0000	0.0000	0.0000
Elementary School	3.65221e+006	42.1112	6.6300e-003	0.0000	42.2768
General Heavy Industry	1.24346e+008	1,433.7545	0.2256	0.0000	1,439.3947
General Light Industry	6.7021e+007	772.7730	0.1216	0.0000	775.8130
Government Office Building	1.61437e+007	186.1419	0.0293	0.0000	186.8741
Regional Shopping Center	7.3339e+006	84.5623	0.0133	0.0000	84.8949
Single Family Housing	1.06389e+008	1,226.6941	0.1930	0.0000	1,231.5198
Strip Mall	1.95819e+006	22.5785	3.5500e-003	0.0000	22.6674
<b>Total</b>		<b>3,881.7892</b>	<b>0.6108</b>	<b>0.0000</b>	<b>3,897.0599</b>

**6.0 Area Detail**

**6.1 Mitigation Measures Area**

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Use Low VOC Paint - Non-Residential Exterior

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	250.5785	7.2229	118.9329	0.0437		1.1234	1.1234		1.1234	1.1234	0.0000	7,000.2556	7,000.2556	0.3132	0.1248	7,045.2851
Unmitigated	250.5785	7.2229	118.9329	0.0437		1.1234	1.1234		1.1234	1.1234	0.0000	7,000.2556	7,000.2556	0.3132	0.1248	7,045.2851

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	42.6824					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	203.7113					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.6880	5.8796	2.5019	0.0375		0.4754	0.4754		0.4754	0.4754	0.0000	6,809.1538	6,809.1538	0.1305	0.1248	6,849.6172
Landscaping	3.4969	1.3433	116.4310	6.1800e-003		0.6480	0.6480		0.6480	0.6480	0.0000	191.1017	191.1017	0.1827	0.0000	195.6679
<b>Total</b>	<b>250.5785</b>	<b>7.2229</b>	<b>118.9329</b>	<b>0.0437</b>		<b>1.1234</b>	<b>1.1234</b>		<b>1.1234</b>	<b>1.1234</b>	<b>0.0000</b>	<b>7,000.2556</b>	<b>7,000.2556</b>	<b>0.3132</b>	<b>0.1248</b>	<b>7,045.2851</b>

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	42.6824					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	203.7113					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.6880	5.8796	2.5019	0.0375		0.4754	0.4754		0.4754	0.4754	0.0000	6,809.1538	6,809.1538	0.1305	0.1248	6,849.6172
Landscaping	3.4969	1.3433	116.4310	6.1800e-003		0.6480	0.6480		0.6480	0.6480	0.0000	191.1017	191.1017	0.1827	0.0000	195.6679
<b>Total</b>	<b>250.5785</b>	<b>7.2229</b>	<b>118.9329</b>	<b>0.0437</b>		<b>1.1234</b>	<b>1.1234</b>		<b>1.1234</b>	<b>1.1234</b>	<b>0.0000</b>	<b>7,000.2556</b>	<b>7,000.2556</b>	<b>0.3132</b>	<b>0.1248</b>	<b>7,045.2851</b>

**7.0 Water Detail**

**7.1 Mitigation Measures Water**



Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	2,555,587 4	216.0828	5.1005	9,477.605 7
Unmitigated	2,555,587 4	216.0828	5.1005	9,477.605 7

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	154.806 / 97.5951	62.7098	5.0465	0.1191	224.3664
City Park	0 / 1.64424	0.0664	1.0000e-005	0.0000	0.0666
Elementary School	15.574 / 40.0473	7.5287	0.5079	0.0120	23.7967
General Heavy Industry	3339.74 / 0	1,267.9120	108.8581	2.5696	4,755.1064
General Light Industry	1800.07 / 0	683.3860	58.6729	1.3850	2,562.9326
Government Office Building	362.794 / 222.358	146.7063	11.8266	0.2791	525.5543
Regional Shopping Center	68.5912 / 42.0397	27.7368	2.2360	0.0528	99.3631
Single Family Housing	869.285 / 548.028	352.1355	28.3377	0.6688	1,259.8889
Strip Mall	18.3144 / 11.225	7.4060	0.5970	0.0141	26.5308
<b>Total</b>		<b>2,555.5874</b>	<b>216.0828</b>	<b>5.1005</b>	<b>9,477.6057</b>

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**7.2 Water by Land Use**

**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	154.806 / 97.5951	62.7098	5.0465	0.1191	224.3664
City Park	0 / 1.64424	0.0664	1.0000e-005	0.0000	0.0666
Elementary School	15.574 / 40.0473	7.5287	0.5079	0.0120	23.7967
General Heavy Industry	3339.74 / 0	1,267.9120	108.8581	2.5696	4,755.1064
General Light Industry	1800.07 / 0	683.3860	58.6729	1.3850	2,562.9326
Government Office Building	362.794 / 222.358	146.7063	11.8266	0.2791	525.5543
Regional Shopping Center	68.5912 / 42.0397	27.7368	2.2360	0.0528	99.3631
Single Family Housing	869.285 / 548.028	352.1355	28.3377	0.6688	1,259.8889
Strip Mall	18.3144 / 11.225	7.4060	0.5970	0.0141	26.5308
<b>Total</b>		<b>2,555.5874</b>	<b>216.0828</b>	<b>5.1005</b>	<b>9,477.6057</b>

**8.0 Waste Detail**

**8.1 Mitigation Measures Waste**

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	9,341.4269	552.0625	0.0000	23,142.9898
Unmitigated	9,341.4269	552.0625	0.0000	23,142.9898

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**8.2 Waste by Land Use**

**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	1092.96	221.8610	13.1116	0.0000	549.6512
City Park	0.12	0.0244	1.4400e-003	0.0000	0.0604
Elementary School	698.22	141.7324	8.3761	0.0000	351.1359
General Heavy Industry	17908.2	3,635.2028	214.8343	0.0000	9,006.0610
General Light Industry	9652.26	1,959.3216	115.7926	0.0000	4,854.1362
Government Office Building	1698.38	344.7558	20.3745	0.0000	854.1179
Regional Shopping Center	972.3	197.3681	11.6641	0.0000	488.9712
Single Family Housing	13736.9	2,788.4625	164.7934	0.0000	6,908.2978
Strip Mall	259.61	52.6985	3.1144	0.0000	130.5583
<b>Total</b>		<b>9,341.4269</b>	<b>552.0625</b>	<b>0.0000</b>	<b>23,142.9898</b>

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**8.2 Waste by Land Use**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	1092.96	221.8610	13.1116	0.0000	549.6512
City Park	0.12	0.0244	1.4400e-003	0.0000	0.0604
Elementary School	698.22	141.7324	8.3761	0.0000	351.1359
General Heavy Industry	17908.2	3,635.2028	214.8343	0.0000	9,006.0610
General Light Industry	9652.26	1,959.3216	115.7926	0.0000	4,854.1362
Government Office Building	1698.38	344.7558	20.3745	0.0000	854.1179
Regional Shopping Center	972.3	197.3681	11.6641	0.0000	488.9712
Single Family Housing	13736.9	2,788.4625	164.7934	0.0000	6,908.2978
Strip Mall	259.61	52.6985	3.1144	0.0000	130.5583
<b>Total</b>		<b>9,341.4269</b>	<b>552.0625</b>	<b>0.0000</b>	<b>23,142.9898</b>

**9.0 Operational Offroad**

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

Fowler GP 2042 - Fresno County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Fire Pumps and Emergency Generators**

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

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

Equipment Type	Number
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**11.0 Vegetation**

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