

4.3

AIR QUALITY AND GREENHOUSE GAS EMISSIONS

4.3.1 INTRODUCTION

The Air Quality and Greenhouse Gas Emissions chapter of the EIR describes the effects of the proposed project on local and regional air quality, as well as global climate change. The chapter includes a discussion of existing air quality conditions, applicable regulations, construction-related emissions, and direct and indirect operational emissions, including greenhouse gas (GHG) emissions. Impacts of project emissions on both the local and regional scale, and mitigation measures to reduce or eliminate any identified significant impacts are also addressed. The Air Quality and Greenhouse Gas Emissions chapter utilizes information obtained from the *2030 Galt General Plan Policy Document*¹ and associated EIR,² the *2030 Galt General Plan Existing Conditions Report*,³ the California Emissions Estimator Model (CalEEMod) version 2013.2.2,⁴ and is primarily based on information, guidance, and analysis protocol provided by the Sacramento Metropolitan Air Quality Management District (SMAQMD).

4.3.2 EXISTING ENVIRONMENTAL SETTING

The following information provides an overview of the existing environmental setting in relation to air quality within the proposed project area. Air basin characteristics, ambient air quality standards (AAQS), attainment status and regional air quality plans, local air quality monitoring, odors, sensitive receptors, and greenhouse gases are discussed.

Air Basin Characteristics

The City of Galt is located within Sacramento County, which is within the boundaries of the Sacramento Valley Air Basin (SVAB). Air quality in the SVAB is largely the result of the following factors: emissions, geography, and meteorology (wind, atmospheric stability, and sunlight).

The Sacramento Valley is often described as a bowl shaped valley, with the SVAB being bounded by the North Coast Ranges on the west and the Northern Sierra Nevada Mountains on the east, and the intervening terrain being flat. The Sacramento Valley has a Mediterranean climate, characterized by hot dry summers and mild rainy winters. During the year, the temperature may range from 20 to 115 degrees Fahrenheit with summer highs usually in the 90s and winter lows occasionally below freezing. Average annual rainfall is approximately 20 inches with snowfall being very rare. The prevailing winds are moderate in strength and vary from moist breezes from the south to dry land flows from the north.⁵

The mountains surrounding the Sacramento Valley create a barrier to airflow, which can trap air pollutants in the valley when meteorological conditions are right and a temperature inversion exists. The highest frequency of air stagnation occurs in the autumn and early winter when large

high-pressure cells lie over the valley. The lack of surface wind during such periods and the reduced vertical flow caused by less surface heating reduces the influx of outside air and allows air pollutants to become concentrated in the air. The surface concentrations of pollutants are highest when these conditions are combined with smoke from agricultural burning, which is regulated through SMAQMD permits, or when temperature inversions trap cool air, fog, and pollutants near the ground.

The ozone season (May through October) in the Sacramento Valley is characterized by stagnant morning air or light winds with the Delta sea breeze arriving in the afternoon out of the southwest. Usually the evening breeze transports the airborne pollutants to the north out of the Sacramento Valley. However, during approximately half of the days from July to September, a phenomenon called the “Schultz Eddy” prevents such transport from occurring. Instead of allowing for the prevailing wind patterns to move north carrying the pollutants out of the valley, the Schultz Eddy causes the wind pattern and pollutants to circle back southward. The Schultz Eddy effect exacerbates the pollution levels in the area and increases the likelihood of violating the federal and State air quality standards.

Ambient Air Quality Standards

The federal Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (USEPA) to set National Ambient Air Quality Standards (NAAQS) for six common air pollutants, known as criteria pollutants, because the criteria air pollutants could be detrimental to human health and the environment. The criteria pollutants include particulate matter, ground-level ozone, carbon monoxide, sulfur oxides, nitrogen oxides, and lead. Primary standards are the set of limits based on human health, and secondary standards are the set of limits intended to prevent environmental and property damage. States may also establish their own ambient air quality standards, provided the State standards are at least as stringent as the NAAQS. California has established California Ambient Air Quality Standards (CAAQS) pursuant to Health and Safety Code Section 39606(b) and its predecessor statutes. The State of California has established air quality standards for some pollutants not addressed by federal standards, including hydrogen sulfide, sulfates, vinyl chloride, and visibility reducing particles.

The NAAQS and CAAQS summarized in Table 4.3-1 represent safe levels that avoid specific adverse health effects. A summary of the pollutants, their characteristics, health effects, and typical sources is provided in Table 4.3-2, followed by brief descriptions of each criteria pollutant. Of the pollutants, particle pollution and ground-level ozone are the most widespread health threats.

Ozone

Ozone (O₃) is a reactive gas consisting of three oxygen atoms. In the troposphere, ozone is a product of the photochemical process involving the sun's energy, and is a secondary pollutant formed as a result of a complex chemical reaction between reactive organic gases (ROG) and NO_x emissions in the presence of sunlight. As such, unlike other pollutants, ozone is not released directly into the atmosphere from any sources. In the stratosphere, ozone exists naturally and shields Earth from harmful incoming ultraviolet radiation. The primary source of ozone

precursors is mobile sources, including cars, trucks, buses, construction equipment, and agricultural equipment.

| Table 4.3-1 Ambient Air Quality Standards | | | | |
|--|------------------|-----------------------|-----------------------|----------------------|
| Pollutant | Averaging Time | CAAQS | NAAQS | |
| | | | Primary | Secondary |
| Ozone | 1 Hour | 0.09 ppm | - | Same as primary |
| | 8 Hour | 0.070 ppm | 0.075 ppm | |
| Carbon Monoxide | 8 Hour | 9 ppm | 9 ppm | - |
| | 1 Hour | 20 ppm | 35 ppm | |
| Nitrogen Dioxide | Annual Mean | 0.030 ppm | 53 ppb | Same as primary |
| | 1 Hour | 0.18 ppm | 100 ppb | - |
| Sulfur Dioxide | 24 Hour | 0.04 ppm | - | - |
| | 3 Hour | - | - | 0.5 ppm |
| | 1 Hour | 0.25 ppm | 75 ppb | - |
| Respirable Particulate Matter (PM₁₀) | Annual Mean | 20 ug/m ³ | - | Same as primary |
| | 24 Hour | 50 ug/m ³ | 150 ug/m ³ | |
| Fine Particulate Matter (PM_{2.5}) | Annual Mean | 12 ug/m ³ | 12 ug/m ³ | 15 ug/m ³ |
| | 24 Hour | - | 35 ug/m ³ | Same as primary |
| Lead | 30 Day Average | 1.5 ug/m ³ | - | - |
| | Calendar Quarter | - | 1.5 ug/m ³ | Same as primary |
| Sulfates | 24 Hour | 25 ug/m ³ | - | - |
| Hydrogen Sulfide | 1 Hour | 0.03 ppm | - | - |
| Vinyl Chloride | 24 Hour | 0.010 ppm | - | - |
| Visibility Reducing Particles | 8 Hour | see note below | - | - |

ppm = parts per million
ppb = parts per billion
ug/m³ = micrograms per cubic meter

Note: Statewide Visibility Reducing Particle Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

Source: California Air Resources Board. *Ambient Air Quality Standards*. June 4, 2013. Available at: <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>. Accessed December 2014.⁶

| Table 4.3-2 Summary of Criteria Pollutants | | | |
|---|--|--|---|
| Pollutant | Characteristics | Health Effects | Major Sources |
| Ozone | A highly reactive gas produced by the photochemical process involving a chemical reaction between the sun's energy and other pollutant emissions. Often called photochemical smog. | <ul style="list-style-type: none"> • Eye irritation • Wheezing, chest pain, dry throat, headache, or nausea • Aggravated respiratory disease such as emphysema, bronchitis, and asthma | Combustion sources such as factories, automobiles, and evaporation of solvents and fuels. |
| Carbon Monoxide | An odorless, colorless, highly toxic gas that is formed by the incomplete combustion of fuels. | <ul style="list-style-type: none"> • Impairment of oxygen transport in the bloodstream • Impaired vision, reduced alertness, chest pain, and headaches • Can be fatal in the case of very high concentrations | Automobile exhaust, combustion of fuels, and combustion of wood in woodstoves and fireplaces. |
| Nitrogen Dioxide | A reddish-brown gas that discolors the air and is formed during combustion of fossil fuels under high temperature and pressure. | <ul style="list-style-type: none"> • Lung irritation and damage • Increased risk of acute and chronic respiratory disease | Automobile and diesel truck exhaust, industrial processes, and fossil-fueled power plants. |
| Sulfur Dioxide | A colorless, irritating gas with a rotten egg odor formed by combustion of sulfur-containing fossil fuels. | <ul style="list-style-type: none"> • Aggravation of chronic obstruction lung disease • Increased risk of acute and chronic respiratory disease | Diesel vehicle exhaust, oil-powered power plants, and industrial processes. |
| Particulate Matter (PM ₁₀ and PM _{2.5}) | A complex mixture of extremely small particles and liquid droplets that can easily pass through the throat and nose and enter the lungs. | <ul style="list-style-type: none"> • Aggravation of chronic respiratory disease • Heart and lung disease • Coughing • Bronchitis • Chronic respiratory disease in children • Irregular heartbeat • Nonfatal heart attacks | Combustion sources such as automobiles, power generation, industrial processes, and wood burning. Also from unpaved roads, farming activities, and fugitive windblown dust. |
| Lead | A metal found naturally in the environment as well as in manufactured products. | <ul style="list-style-type: none"> • Loss of appetite, weakness, apathy, and miscarriage • Lesions of the neuromuscular system, circulatory system, brain, and gastrointestinal tract | Industrial sources and combustion of leaded aviation gasoline. |
| <p><i>Sources:</i></p> <ul style="list-style-type: none"> • California Air Resources Board. <i>California Ambient Air Quality Standards (CAAQS)</i>. Available at: http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm. Accessed December 2014.⁷ • Sacramento Metropolitan, El Dorado, Feather River, Placer, and Yolo-Solano Air Districts, <i>Spare the Air website</i>. Air Quality Information for the Sacramento Region. Available at: http://www.sparetheair.com/health.cfm?page=healthoverall. Accessed December 2014.⁸ • California Air Resources Board. <i>Glossary of Air Pollution Terms</i>. Available at: http://www.arb.ca.gov/html/gloss.htm. Accessed December 2014.⁹ | | | |

Ground-level ozone reaches the highest level during the afternoon and early evening hours. High levels occur most often during the summer months. Ground-level ozone is a strong irritant that could cause constriction of the airways, forcing the respiratory system to work harder in order to provide oxygen. Ozone at the Earth's surface causes numerous adverse health effects and is a major component of smog. High concentrations of ground level ozone can adversely affect the human respiratory system and aggravate cardiovascular disease and many respiratory ailments.

Reactive Organic Gas

Reactive Organic Gas (ROG) is a reactive chemical gas composed of hydrocarbon compounds typically found in paints and solvents that contributes to the formation of smog and ozone by involvement in atmospheric chemical reactions. A separate health standard does not exist for ROG. However, some compounds that make up ROG are toxic, such as the carcinogen benzene.

Oxides of Nitrogen

Oxides of Nitrogen (NO_x) are a family of gaseous nitrogen compounds and are precursors to the formation of ozone and particulate matter. The major component of NO_x, nitrogen dioxide (NO₂), is a reddish-brown gas that discolors the air and is toxic at high concentrations. NO_x results primarily from the combustion of fossil fuels under high temperature and pressure. On-road and off-road motor vehicles and fuel combustion are the major sources of NO_x. NO_x reacts with ROG to form smog, which could result in adverse impacts to human health, damage the environment, and cause poor visibility. Additionally, NO_x emissions are a major component of acid rain. Health effects related to NO_x include lung irritation and lung damage and can cause increased risk of acute and chronic respiratory disease.

Carbon Monoxide

Carbon Monoxide (CO) is an odorless, colorless, highly toxic gas that is formed by the incomplete combustion of fuels and is emitted directly into the air (unlike ozone). Emissions of CO are primarily a winter pollution problem due to cold stagnant weather conditions. When CO enters the body, the CO combines with chemicals in the body, which prevents blood from carrying oxygen to cells, tissues, and organs. Symptoms of exposure to CO could include problems with vision, reduced alertness, and general reduction in mental and physical functions. Exposure to CO can result in chest pain, headaches, and reduced mental alertness.

The main source of CO in the region is motor vehicle emissions, with other CO sources including other mobile sources, miscellaneous processes, and fuel combustion from stationary sources. Emissions and ambient concentrations of CO decreased dramatically in Sacramento County with the introduction of the catalytic converter emission control technology for on-road motor vehicles in 1975. Exceedances of the State or federal standards for CO have not been recorded at a monitoring station in Sacramento County since 1993. Both California Air Resources Board (CARB) and USEPA have re-designated the Sacramento County as an attainment area for CO, for the CAAQS in 1997 and the NAAQS on June 1, 1998, respectively. However, elevated localized concentrations of CO still warrant consideration due to the severe effect on human health in concentrated amounts. Occurrences of localized CO concentrations are

often associated with heavy traffic congestion, which most frequently occur at signalized intersections of high-volume roadways.

Sulfur Dioxide

Sulfur Dioxide is a colorless, irritating gas with a rotten egg odor formed primarily by the combustion of sulfur-containing fossil fuels from mobile sources, such as locomotives, ships, and off-road diesel equipment. SO₂ is also emitted from several industrial processes, such as petroleum refining and metal processing. Similar to airborne NO_x, suspended sulfur oxide particles contribute to poor visibility. The sulfur oxide particles are also a component of PM₁₀.

Particulate Matter

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

- "Inhalable coarse particles (PM_{2.5-10})," which are found near roadways and dusty industries, are between 2.5 and 10 micrometers in diameter. PM_{2.5-10} is deposited in the thoracic region of the lungs.
- "Fine particles (PM_{2.5})," which are found in smoke and haze, are 2.5 micrometers in diameter and smaller. PM_{2.5} particles could be directly emitted from sources such as forest fires, or could form when gases emitted from power plants, industries, and automobiles react in the air. They penetrate deeply into the thoracic and alveolar regions of the lungs.
- "Ultrafine particles (UFP)," which are very, very small particles (less than 0.1 micrometers in diameter) largely resulting from the combustion of fossil fuels, meat, wood, and other hydrocarbons. While UFP mass is a small portion of PM_{2.5}, their high surface area, deep lung penetration, and transfer into the bloodstream could result in disproportionate health impacts relative to their mass. UFP is not currently regulated separately, but is analyzed as part of PM_{2.5}.

PM₁₀, PM_{2.5-10}, and UFP include primary pollutants (emitted directly to the atmosphere) as well as secondary pollutants (formed in the atmosphere by chemical reactions among precursors). Generally speaking, PM_{2.5} and UFP are emitted by combustion sources like vehicles, power generation, industrial processes, and wood burning, while PM₁₀ sources include the same sources plus roads and farming activities. Fugitive windblown dust and other area sources also represent a source of airborne dust. Long-term PM pollution, especially fine particles, could result in significant health problems including, but not limited to, the following: increased respiratory symptoms, such as irritation of the airways, coughing or difficulty breathing; decreased lung

function; aggravated asthma; development of chronic respiratory disease in children; development of chronic bronchitis or obstructive lung disease; irregular heartbeat; heart attacks; and increased blood pressure.

Lead

Lead (Pb) is a relatively soft and chemically resistant metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, and, thus, essentially persists forever. Lead forms compounds with both organic and inorganic substances. As an air pollutant, lead is present in small particles. Sources of lead emissions in California include a variety of industrial activities. Gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels. The use of leaded fuel has been mostly phased out, with the result that ambient concentrations of lead have dropped dramatically. However, because lead was emitted in large amounts from vehicles when leaded gasoline was used, lead is present in many soils (especially urban soils) and could become re-suspended into the air.

Because lead is only slowly excreted, exposures to small amounts of lead from a variety of sources could accumulate to harmful levels. Effects from inhalation of lead near the level of the ambient air quality standard include impaired blood formation and nerve conduction. Lead can adversely affect the nervous, reproductive, digestive, immune, and blood-forming systems. Symptoms could include fatigue, anxiety, short-term memory loss, depression, weakness in the extremities, and learning disabilities in children. Lead also causes cancer.

Sulfates

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

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

Hydrogen Sulfide

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

Vinyl Chloride

Vinyl Chloride (C₂H₃Cl, also known as VCM) is a colorless gas that does not occur naturally, but is formed when other substances such as trichloroethane, trichloroethylene, and tetrachloroethylene are broken down. Vinyl chloride is used to make polyvinyl chloride (PVC) which is used to make a variety of plastic products, including pipes, wire and cable coatings, and packaging materials.

Visibility Reducing Particles

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

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TACs) are also a category of environmental concern. TACs are present in many types of emissions with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least 40 different TACs. In terms of health risks, the most volatile contaminants are diesel particulate matter (DPM), benzene, formaldehyde, 1,3-butadiene and acetaldehyde. Gasoline vapors contain several TACs, including benzene, toluene, and xylenes. Public exposure to TACs can result from emissions from normal operations as well as accidental releases.

The CARB has identified DPM from diesel-fueled engines as a TAC; thus, high volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic are identified as having the highest associated health risks from DPM. Construction-related activities also have the potential to generate concentrations of DPM from on-road haul trucks and off-road equipment exhaust emissions. Major distribution centers or other land uses that involve heavy truck traffic or idling, or substantial use of stationary diesel engines, are not located in the vicinity of the proposed project. The proposed project is not located in the vicinity of any major roadway or freeway. Other known sources of TACs are not located on the project site or in the immediate vicinity.

Health risks from TACs are a function of both the concentration of emissions and the duration of exposure, which typically are associated with long-term exposure and the associated risk of contracting cancer. Health effects of exposure to TACs other than cancer include birth defects, neurological damage, and death.

Naturally occurring asbestos (NOA) was identified as a TAC in 1986 by CARB. Earth disturbance activity could result in the release of NOA to the air. NOA is located in many parts of California and is commonly associated with ultramafic rocks. According to mapping prepared by the California Geological Survey, the only area within Sacramento County that is likely to

contain NOA is eastern Sacramento County.¹⁰ The project site is not located in eastern Sacramento County and is not in an area identified as likely to contain NOA. Thus, sensitive receptors would not be exposed to NOA as a result of the proposed project.

Attainment Status and Regional Air Quality Plans

Areas not meeting the NAAQS presented above are designated by the USEPA as nonattainment. Further classifications of nonattainment areas are based on the severity of the nonattainment problem, with marginal, moderate, serious, severe, and extreme nonattainment classifications for ozone. Nonattainment classifications for PM range from marginal to serious. The CAA requires areas violating the NAAQS to prepare an air quality control plan referred to as the State Implementation Plan (SIP). The SIP contains the strategies and control measures for states to use to attain the NAAQS. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, rules, and regulations of air basins as reported by the agencies with jurisdiction over them. The USEPA reviews SIPs to determine if they conform to the mandates of the federal CAA amendments and would achieve air quality goals when implemented.

The CARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA) of 1988. The CCAA classifies ozone nonattainment areas as moderate, serious, severe, and extreme based on severity of violations of CAAQS. For each nonattainment area classification, the CCAA specifies air quality management strategies that must be adopted. For all nonattainment areas, attainment plans are required to demonstrate a five-percent-per-year reduction in nonattainment air pollutants or their precursors, averaged every consecutive three-year period, unless an approved alternative measure of progress is developed. Air districts with air quality that is in violation of CAAQS are required to prepare an air quality attainment plan that lays out a program to attain the CCAA mandates.

Table 4.3-3 presents the current attainment status of the jurisdictional area of the SMAQMD. As shown in the table, Sacramento County is in attainment for all State and federal AAQS, with the exception of ozone, PM₁₀, and PM_{2.5}. At the federal level, the area is designated as severe nonattainment for the 8-hour ozone standard, nonattainment for the 24-hour PM_{2.5} standard, and attainment or unclassified for all other criteria pollutants. Air quality monitoring data shows that Sacramento County does meet the federal PM₁₀ standard. However, SMAQMD must request re-designation to attainment and submit a maintenance plan to the USEPA. At the State level, the area is designated as a serious nonattainment area for the 1-hour ozone standard, nonattainment for the 8-hour ozone standard, nonattainment for the PM₁₀ and PM_{2.5} standards, and attainment or unclassified for all other State standards. Although the 1-Hour federal ozone standard has been revoked, on October 18, 2012, the USEPA officially determined that the Sacramento Federal Nonattainment Area (SFNA), which includes Sacramento and Yolo counties, Placer and El Dorado counties (except Lake Tahoe Basin portions), Solano County (eastern portion), and Sutter County (southern portion), attained the revoked 1-hour ozone NAAQS. The determination became effective November 19, 2012.¹¹

Due to the nonattainment designations, SMAQMD, along with the other air districts in the SVAB region, is required to develop plans to attain the federal and State standards for ozone and

particulate matter. The air quality plans include emissions inventories to measure the sources of air pollutants, to evaluate how well different control measures have worked, and show how air pollution would be reduced. In addition, the plans include the estimated future levels of pollution to ensure that the area would meet air quality goals. Each of the attainment plans currently in effect are discussed in further detail in the Regulatory Context section of this chapter.

| Pollutant | Designation/Classification | |
|-------------------------------|----------------------------|-----------------------|
| | Federal Standards | State Standards |
| Ozone – 1-Hour | Revoked in 2005 | Serious Nonattainment |
| Ozone – 8-Hour | Severe Nonattainment | Nonattainment |
| Carbon Monoxide | Attainment | Attainment |
| Nitrogen Dioxide | Unclassified/Attainment | Attainment |
| Sulfur Dioxide | Attainment (Pending) | Attainment |
| PM ₁₀ | Attainment | Nonattainment |
| PM _{2.5} – 24-Hour | Nonattainment | No State Standard |
| PM _{2.5} – Annual | Unclassified/Attainment | Nonattainment |
| Lead | Unclassified/Attainment | Attainment |
| Sulfates | No Federal Standard | Attainment |
| Hydrogen Sulfide | No Federal Standard | Unclassified |
| Visibility Reducing Particles | No Federal Standard | Unclassified |

Source: SMAQMD, December 23, 2013.¹²

Local Air Quality Monitoring

Air quality is monitored by SMAQMD and CARB at various locations in Sacramento County to determine which air quality standards are being violated, and to direct the SMAQMD’s emission reduction efforts, such as developing attainment plans and rules, incentive programs, etc. Twelve air quality monitoring stations exist in Sacramento County. The nearest monitoring station to the City of Galt and the proposed project site would be the Elk Grove-Bruceville Road station, located at 12490 Bruceville Road in Elk Grove, approximately 7.5 miles northwest of the project site. Table 4.3-4 presents the number of days that each criteria air pollutant standard was exceeded and/or the annual average mean concentrations for the years 2011 through 2013 for those pollutants for which monitoring data is available from the Elk Grove-Bruceville Road monitoring station.

Odors

While offensive odors rarely cause physical harm, they can be unpleasant, leading to considerable annoyance and distress among the public and can generate citizen complaints to local governments and air districts. Due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, quantitative or formulaic methodologies to determine the presence of a significant odor impact do not exist.

| Table 4.3-4 Air Quality Monitoring Data Summary for Project Area | | | | |
|---|-------------------|--------------------------------|------|------|
| Pollutant | Standard | Days Standard Exceeded During: | | |
| | | 2011 | 2012 | 2013 |
| Ozone | 1-Hour State | 1 | 0 | 0 |
| | 8-Hour State | 6 | 11 | 0 |
| | 8-Hour Federal | 1 | 5 | 0 |
| Nitrogen Dioxide | 1-Hour State | 0 | 0 | 0 |
| | 1-Hour Federal | 0 | 0 | 0 |
| PM _{2.5} | Annual Mean State | 15 | 11 | 11 |

Source: California Air Resources Board. Aerometric Data Analysis and Management (ADAM): Top Four Summary. Available at: <http://www.arb.ca.gov/adam/>. Accessed December 2014.¹³

Adverse effects of odors on residential areas and other sensitive receptors warrant the closest scrutiny; but consideration should also be given to other land use types where people congregate, such as recreational facilities, worksites, and commercial areas. The potential for an odor impact is dependent on a number of variables including the nature of the odor source, distance between a receptor and an odor source, and local meteorological conditions.

One of the most important factors influencing the potential for an odor impact to occur is the distance between the odor source and receptors, also referred to as a buffer zone or setback. The greater the distance between an odor source and receptor, the less concentrated the odor emission would be when reaching the receptor.

Meteorological conditions also affect the dispersion of odor emissions, which determines the exposure concentration of odiferous compounds at receptors. The predominant wind direction in an area influences which receptors are exposed to the odiferous compounds generated by a nearby source. Receptors located upwind from a large odor source may not be affected due to the produced odiferous compounds being dispersed away from the receptors. Wind speed also influences the degree to which odor emissions are dispersed away from any area.

Odiferous compounds can be generated from a variety of source types including both construction and operational activities. A project's operations, depending on the project type, can generate a large range of odiferous compounds that can be considered offensive to receptors. Examples of common land use types that typically generate significant odor impacts include, but are not limited to, the following: wastewater treatment plants; sanitary landfills; composting/green waste facilities; recycling facilities; petroleum refineries; chemical manufacturing plants; painting/coating operations; rendering plants; and food packaging plants. The project site is currently predominantly utilized as fallow cropland. Two existing schools, Liberty Ranch High School and Estrellita Continuation High School, and rural residences are located on the project site as well. The school and residences do not involve any operations that would result in substantial objectionable odors; however, the existing agricultural operations on-site and in the vicinity of the project site could be associated with the generation of objectionable odors such as from fertilizer or pesticide applications.

Although less common, diesel fumes associated with diesel-fueled equipment and heavy-duty trucks, such as from construction activities, freeway traffic, or distribution centers, are often found to be objectionable. Highways or major distribution centers are not located in the vicinity of the project site.

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others, due to the types of population groups or activities involved. Heightened sensitivity may be caused by health problems, proximity to the emissions source, and/or duration of exposure to air pollutants. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Accordingly, land uses that are typically considered to be sensitive receptors include residences, schools, childcare centers, playgrounds, retirement homes, convalescent homes, hospitals, and medical clinics.

The existing on-site rural residences, Liberty Ranch High School, and Estrellita Continuation High School would be considered sensitive receptors. The nearby residences west of the site, as well as to the north, northeast, and east of the site, would be considered sensitive receptors as well.

Greenhouse Gases

Greenhouse gases (GHGs) are gases that absorb and emit radiation within the thermal infrared range, trapping heat in the earth's atmosphere. The increase in atmospheric concentrations of GHG has resulted in more heat being held within the atmosphere, which is the accepted explanation for global climate change. Some GHGs occur naturally and are emitted into the atmosphere through both natural processes and human activities. Other GHGs are created and emitted solely through human activities. The principal GHGs that enter the atmosphere due to human activities are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and fluorinated carbons. Other common GHGs include water vapor, ozone, and aerosols.

The primary GHG emitted by human activities is CO₂, with the next largest components being CH₄ and N₂O. The main source of CO₂ related to human activities is associated with the combustion of fossil fuels such as coal, oil, and natural gas for energy and transportation. The primary sources of CH₄ emissions include domestic livestock sources, decomposition of wastes in landfills, releases from natural gas systems, coal mine seepage, and manure management. The main human activities producing N₂O are agricultural soil management, fuel combustion in motor vehicles, nitric acid production, manure management, and stationary fuel combustion. Emissions of GHG by economic sector indicate that energy-related activities account for the majority of U.S. emissions. Electricity generation is the largest single-source, and transportation is the second largest source, followed by industrial activities. The agricultural, commercial, and residential sectors account for the remainder of emissions.¹⁴ Emissions of GHG are offset by uptake of carbon and sequestration in forests, trees in urban areas, agricultural soils, and landfilled yard trimmings and food scraps. Attainment concentration standards for GHGs have not been established by the federal or State government.

Global Warming Potential

Global Warming Potential (GWP) is one type of simplified index (based upon radiative properties) that can be used to estimate the potential future impacts of emissions of various gases. According to the USEPA, the global warming potential of a gas, or aerosol, to trap heat in the atmosphere is the “cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas.” The reference gas for comparison is CO₂. GWP is based on a number of factors, including the heat-absorbing ability of each gas relative to that of CO₂, as well as the decay rate of each gas relative to that of CO₂. Each gas’s GWP is determined by comparing the radiative forcing associated with emissions of that gas versus the radiative forcing associated with emissions of the same mass of CO₂, for which the GWP is set at one. Methane gas, for example, is estimated by the USEPA to have a comparative global warming potential 21 times greater than that of CO₂, as shown in Table 4.3-5.

| Gas | Atmospheric Lifetime (years) | Global Warming Potential (100 year time horizon) |
|--|------------------------------|--|
| Carbon Dioxide (CO ₂) | 50-200 | 1 |
| Methane (CH ₄) | 12±3 | 21 |
| Nitrous Oxide (N ₂ O) | 120 | 310 |
| HFC-23 | 264 | 11,700 |
| HFC-134a | 14.6 | 1,300 |
| HFC-152a | 1.5 | 140 |
| PFC: Tetrafluoromethane (CF ₄) | 50,000 | 6,500 |
| PFC: Hexafluoroethane (C ₂ F ₆) | 10,000 | 9,200 |
| Sulfur Hexafluoride (SF ₆) | 3,200 | 23,900 |

Source: U.S. Environmental Protection Agency, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 - 2011, February 2013.¹⁵

As shown in the table, at the extreme end of the scale, sulfur hexafluoride is estimated to have a comparative GWP 23,900 times that of CO₂. The “specified time horizon” is related to the atmospheric lifetimes of such GHGs, which are estimated by the USEPA to vary from 50 to 200 years for CO₂, to 50,000 years for tetrafluoromethane. Longer atmospheric lifetimes allow GHG to buildup in the atmosphere; therefore, longer lifetimes correlate with the global warming potential of a gas. The common indicator for GHG is expressed in terms of metric tons of CO₂ equivalents (MTCO_{2e}).

Analysis of GHGs and Global Climate Change

Analysis of global climate change presents the challenge of analyzing the relationship between local and global activities. GHGs are not generally thought of as traditional air pollutants because GHGs, and their impacts, are global in nature, while air pollutants affect the health of people and other living things at ground level, in the general region of their release to the atmosphere. Accordingly, the issue of global climate change is different from any other areas of

air quality impact analysis. A global climate change analysis must be conducted on a global level, rather than the typical local or regional setting, and requires consideration of not only emissions from the project under consideration, but also the extent of the displacement, translocation, and redistribution of emissions.

In the usual context, where air quality is linked to a particular location or area, considering the creation of new emissions in that specific area to be an environmental impact whether or not the emissions are truly “new” emissions to the overall globe is appropriate. In fact, the approval of a new developmental plan or project does not necessarily create new automobile drivers – the primary source of a land use project’s emissions. Rather, a new land use project may simply be redistributing existing mobile emissions. For example, future residents of the proposed project could be current residents within the region that would be moving from other parts of the region to the project site, which could result in a shorter or longer associated vehicle trip, but would not introduce a new vehicle trip to the overall region. Accordingly, the use of models that measure overall emissions increases without accounting for existing emissions would substantially overstate the impact of the development project on global warming. Thus, an accurate analysis of GHG emissions substantially differs from other air quality impacts, where the “addition” of redistributed emissions to a new locale can make a substantial difference to overall air quality in that area. It should be noted that, as the Liberty Ranch site and “Future Growth Area” is currently fallow cropland, the site does not currently generate any GHG emissions. The non-participating properties contain the high schools, residences, and agricultural operations which generate GHG emissions.

4.3.3 REGULATORY CONTEXT

Air quality and GHGs are monitored through the efforts of various international, federal, State, and local government agencies. The agencies work jointly and individually to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for regulating and improving the air quality within the City of Galt area are discussed below.

Federal Regulations

The most prominent federal regulation is the CAA, which is implemented and enforced by the USEPA.

CAA and USEPA

The CAA requires the USEPA to set NAAQS and designate areas with air quality not meeting NAAQS as nonattainment. The USEPA is responsible for enforcement of NAAQS for atmospheric pollutants and regulates emission sources that are under the exclusive authority of the federal government including emissions of GHGs. The USEPA’s air quality mandates are drawn primarily from the CAA, which was signed into law in 1970. Congress substantially amended the CAA in 1977 and again in 1990. This requires states to prepare SIPs that demonstrate attainment and maintenance of the NAAQS.

The USEPA has been directed to develop regulations to address the GHG emissions of cars and trucks. The Mandatory Reporting of Greenhouse Gases Rule requires reporting of GHG emissions from large sources and suppliers in the U.S., and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHG, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions are required to submit annual reports to the USEPA. To track the national trend in emissions and removals of GHG since 1990, USEPA develops the official U.S. GHG inventory each year.

State Regulations

California has adopted a variety of regulations aimed at reducing air pollution and GHG emissions. The adoption and implementation of the key State legislation described in further detail below demonstrates California's leadership in addressing air quality and global climate change. Only the most prominent and applicable California air quality- and GHG-related legislation are included below; however, an exhaustive list and extensive details of California air quality laws and regulations could be found at the Laws and Regulations page of the CARB website (<http://www.arb.ca.gov/html/lawsregs.htm>).

CCAA and CARB

The CARB (California's air quality management district) is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the CCAA. The CCAA requires that air quality plans be prepared for areas of the State that have not met the CAAQS for ozone, CO, NO_x, and SO₂. Among other requirements of the CCAA, the plans must include a wide range of implementable control measures, which often include transportation control measures and performance standards. In order to implement the transportation-related provisions of the CCAA, local air pollution control districts have been granted explicit authority to adopt and implement transportation controls. The CARB regulates and oversees the activities of county air pollution control districts and regional air quality management districts. The CARB regulates local air quality indirectly using State standards and vehicle emission standards, by conducting research activities, and through planning and coordinating activities. In addition, the CARB has primary responsibility in California to develop and implement air pollution control plans designed to achieve and maintain the NAAQS established by the USEPA. Furthermore, the CARB is charged with developing rules and regulations to cap and reduce GHG emissions.

Air Quality and Land Use Handbook

CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (Handbook) addresses the importance of considering health risk issues when siting sensitive land uses, including residential development, in the vicinity of intensive air pollutant emission sources including freeways or high-traffic roads, distribution centers, ports, petroleum refineries, chrome plating operations, dry cleaners, and gasoline dispensing facilities.¹⁶ The Handbook provides recommended buffers between sensitive land uses and substantial air pollutant emission sources such the aforementioned sources. Projects that would place sensitive land

uses in closer proximity to substantial sources of pollutants than the recommended buffer distances set forth in the Handbook could result in health risks to the sensitive receptors.

Importantly, the Introduction section of the CARB Handbook clarifies that the guidelines are strictly advisory, recognizing that: “[I]and use decisions are a local government responsibility. The Air Resources Board Handbook is advisory and these recommendations do not establish regulatory standards of any kind.” Also, CARB recognizes that there may be land use objectives as well as meteorological and other site specific conditions that need to be considered by a governmental jurisdiction relative to the general recommended setbacks, specifically stating, “[t]hese recommendations are advisory. Land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues.” Nonetheless, further analysis is typically required for CEQA considerations for projects that would place sensitive land uses in closer proximity to substantial sources of pollutants than the recommended buffer distances set forth in the Handbook in order to determine the potential health risks associated with such sources to sensitive users.

Senate Bill 656

In 2003, the Legislature passed Senate Bill (SB) 656 to reduce public exposure to PM₁₀ and PM_{2.5} above the State CAAQS. The legislation requires the CARB, in consultation with local air pollution control and air quality management districts, to adopt a list of the most readily available, feasible, and cost-effective control measures that could be implemented by air districts to reduce PM₁₀ and PM_{2.5} emissions. The CARB list is based on California rules and regulations existing as of January 1, 2004, and was adopted by CARB in November 2004. Categories addressed by SB 656 include measures for reduction of emissions associated with residential wood combustion and outdoor greenwaste burning, fugitive dust sources such as paved and unpaved roads and construction, combustion sources such as boilers, heaters, and charbroiling, solvents and coatings, and product manufacturing. Some of the measures include, but are not limited to, the following:

- Reduce or eliminate wood-burning devices allowed;
- Prohibit residential open burning;
- Permit and provide performance standards for controlled burns;
- Require water or chemical stabilizers/dust suppressants during grading activities;
- Limit visible dust emissions beyond the project boundary during construction;
- Require paving/curbing of roadway shoulder areas; and
- Require street sweeping.

Under SB 656, each air district is required to prioritize the measures identified by CARB, based on the cost effectiveness of the measures and their effect on public health, air quality, and emission reductions. On July 28, 2005, the SMAQMD adopted an implementation schedule for the most cost-effective measures, which include, but are not limited to, requiring use of USEPA-certified Phase II or equivalent wood burning devices, restricting the number of wood-burning fireplaces allowed in new residential developments, limiting PM emissions from agricultural sources that occur when tilling or mulching is performed in high winds, and limiting PM emissions from vehicle travel on unpaved roads.

Assembly Bill 32

In September 2006, then-Governor Arnold Schwarzenegger signed Assembly Bill (AB) 32, the California Climate Solutions Act of 2006 (Stats. 2006, ch. 488) (Health & Saf. Code, §38500 et seq.). AB 32 delegated the authority for its implementation to the CARB and directs CARB to enforce the State-wide cap. Among other requirements, AB 32 required CARB to (1) identify the State-wide level of GHG emissions in 1990 to serve as the emissions limit to be achieved by 2020, and (2) develop and implement a Scoping Plan. Accordingly, the CARB has prepared the *Climate Change Scoping Plan* (Scoping Plan) for California, which was approved in 2008.¹⁷ The Scoping Plan provides the outline for actions to reduce California's GHG emissions. Based on the reduction goals called for in the 2008 Scoping Plan, a 29 percent reduction in GHG levels relative to a Business As Usual (BAU) or scenario would be required to meet 1990 levels by 2020. The reduction goal and BAU scenario for the Scoping Plan were based on 2005 emissions projections. A BAU scenario is a baseline condition based on what could or would occur on a particular site in the year 2020 without implementation of a proposed project or any required or voluntary GHG reduction measures, including any State regulation GHG emission reductions. A project's BAU scenario is project- and site-specific, and varies from project to project. A long-term GHG reduction goal of 80 percent below 1990 levels by the year 2050 was also set forth in the Scoping Plan.

In 2011, the baseline or BAU level for the Scoping Plan was revised based on more recent (2010) data in order to account for the economic downturn and State regulation emission reductions (i.e., Pavley, Low Carbon Fuel Standard [LCFS], and Renewable Portfolio Standard [RPS]).¹⁸ Accordingly, the Scoping Plan emission reduction target from BAU levels required to meet 1990 levels by 2020 was modified from 29 percent to 21.7 percent (where BAU levels do not account for Statewide regulation emission reductions) below the revised estimated BAU level. The amended Scoping Plan was re-approved August 24, 2011.¹⁹

The Scoping Plan must be updated every five years. The *First Update to the Climate Change Scoping Plan* (Scoping Plan Update) was approved by CARB on May 22, 2014 and builds upon the initial Scoping Plan with new strategies and recommendations. The Scoping Plan Update highlights the State's progress towards the 2020 GHG emission reduction goals defined in the original Scoping Plan and evaluates how to align the State's longer term GHG reduction strategies with other State policy priorities for water, waste, natural resources, clean energy, transportation, and land use. According to the Scoping Plan Update, the State is on track to meet the 2020 GHG goal and has created a framework for ongoing climate action that could be built upon to maintain and continue economic sector-specific reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050, as required by AB 32.

California GHG Cap-and-Trade Program

The AB 32 Scoping Plan identifies a cap-and-trade program as one of the strategies California will employ to reduce the GHG emissions that cause climate change. The program will help put California on the path to meet the GHG emission reduction goal of 1990 levels by the year 2020, and ultimately achieving an 80 percent reduction from 1990 levels by 2050. Under cap-and-trade, an overall limit on GHG emissions from capped sectors would be established by the cap-

and-trade program and facilities subject to the cap would be able to trade permits (allowances) to emit GHGs. The CARB has designed a California cap-and-trade program that is enforceable and meets the requirements of AB 32. The program started on January 1, 2012, with an enforceable compliance obligation beginning with the 2013 GHG emissions.

AB 1493

California AB 1493 (Stats. 2002, ch. 200) (Health & Safety Code, §§42823, 43018.5), known as Pavley I, was enacted on July 22, 2002. AB 1493 requires that the CARB develop and adopt regulations that achieve “the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty truck and other vehicles determined by the CARB to be vehicles whose primary use is noncommercial personal transportation in the state.” On June 30, 2009, the USEPA granted a waiver of CAA preemption to California for the State’s GHG emission standards for motor vehicles, beginning with the 2009 model year. Pursuant to the CAA, the waiver allows for the State to have special authority to enact stricter air pollution standards for motor vehicles than the federal government’s. On September 24, 2009, the CARB adopted amendments to the Pavley regulations (Pavley I) that reduce GHG emissions in new passenger vehicles from 2009 through 2016. The second phase of the Pavley regulations (Pavley II) is expected to affect model year vehicles from 2016 through 2020. The CARB estimates that the regulation would reduce GHG emissions from the light-duty passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030.

Executive Order S-01-07

On January 18, 2007, then-Governor Schwarzenegger signed Executive Order S-01-07, which mandates that a State-wide goal be established to reduce carbon intensity of California’s transportation fuels by at least 10 percent by 2020. The Order also required that a Low Carbon Fuel Standard (LCFS) for transportation fuels be established for California. An LCFS regulation was approved in 2009 and was intended to reduce GHG emissions associated with the lifecycle of transportation fuels used in California. The established reduction goal was a 10 percent reduction in the average carbon intensity of transportation fuels used in California by the year 2020, compared to 2010. The regulation is intended to reduce lifecycle GHG emissions by assessing a carbon intensity score to each transportation fuel based on that fuel’s lifecycle assessment. The LCFS set forth annual carbon intensity targets for various fuels. Each fuel provider is required to ensure that the overall carbon intensity score for their fuel meets the annual carbon intensity target for a given year. Amendments to the LCFS regulation were approved on November 26, 2012.

On July 15, 2013, the State of California Court of Appeals issued an opinion ruling that the LCFS adopted in 2009 and implemented in 2010 would remain in effect and that the CARB could continue to implement and enforce the 2013 regulatory standards while taking steps to address CEQA and Administrative Procedure Act issues identified in the ruling. In order to address those issues, CARB must set aside the existing LCFS regulation and re-adopt an LCFS regulation. In order to comply with the court ruling and to update and revise the LCFS, CARB is currently in the process of preparing a new LCFS regulation for consideration. The proposed LCFS regulation would differ from the original LCFS by containing new provisions that, among

other things, would be designed to foster investments in the production of low carbon intensity fuels, allow additional flexibility to regulated parties, update critical technical information, simplify and streamline program operations, and enhance enforcement.

Executive Order S-03-05

On June 1, 2005, then-Governor Schwarzenegger signed Executive Order S-03-05, which established total GHG emission targets. Specifically, emissions are to be reduced to year 2000 levels by 2010, 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. The Executive Order directed the Secretary of the California Environmental Protection Agency (Cal-EPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The Secretary is also directed to 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 the Cal-EPA created a Climate Act Team (CAT) made up of members from various State agencies and commissions. In March 2006, CAT released their first report. In addition, the CAT has released several "white papers" addressing issues pertaining to the potential impacts of climate change on California.

Executive Order S-13-08

Then-Governor Arnold Schwarzenegger issued Executive Order S-13-08 on November 14, 2008. The Executive Order is intended to hasten California's response to the impacts of global climate change, particularly sea level rise, and directs state agencies to take specified actions to assess and plan for such impacts, including requesting the National Academy of Sciences to prepare a Sea Level Rise Assessment Report, directing the Business, Transportation, and Housing Agency to assess the vulnerability of the State's transportation systems to sea level rise, and requiring the Office of Planning and Research and the Natural Resources Agency to provide land use planning guidance related to sea level rise and other climate change impacts.

The order also required State agencies to develop adaptation strategies to respond to the impacts of global climate change that are predicted to occur over the next 50 to 100 years. The adaption strategies report summarizes key climate change impacts to the State for the following areas: public health; ocean and coastal resources; water supply and flood protection; agriculture; forestry; biodiversity and habitat; and transportation and energy infrastructure. The report recommends strategies and specific responsibilities related to water supply, planning and land use, public health, fire protection, and energy conservation.

AB 2588

The Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588), California Health and Safety Code Section 44300 et seq., provides for the regulation of over 200 TACs, including DPM, and is the primary air contaminant legislation in California. Under the act, local air districts may request that a facility account for its TAC emissions. Local air districts then prioritize

facilities on the basis of emissions, and high priority designated facilities are required to submit a health risk assessment and communicate the results to the affected public.

AB 1807

AB 1807, enacted in September 1983, sets forth a procedure for the identification and control of TACs in California. CARB is responsible for the identification and control of TACs, except pesticide use, which is regulated by the California Department of Pesticide Regulation.

Renewable Portfolio Standard (RPS)

Established in 2002 under SB 1078, accelerated in 2006 under SB 107, and expanded in 2011 under SB 2, California's Renewables Portfolio Standard (RPS) is one of the most ambitious renewable energy standards in the country. The RPS program requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020.

SB 375

In September 2008, then-Governor Arnold Schwarzenegger signed SB 375, known as the Sustainable Communities and Climate Protection Act of 2008, which is intended to build on AB 32 by attempting to control GHG emissions by curbing sprawl. SB 375 enhances CARB's ability to reach goals set by AB 32 by directing CARB to develop regional GHG emission reduction targets to be achieved by the State's 18 metropolitan planning organizations (MPOs), including the Sacramento Area Council of Governments (SACOG). Under SB 375, MPOs must align regional transportation, housing, and land-use plans and prepare a "Sustainable Communities Strategy" (SCS) to reduce the amount of vehicle miles traveled in their respective regions and demonstrate the region's ability to attain its greenhouse gas reduction targets. SB 375 provides incentives for creating walkable and sustainable communities and revitalizing existing communities, and allows home builders to get relief from certain environmental reviews under CEQA if they build projects consistent with the new sustainable community strategies. Furthermore, SB 375 encourages the development of alternative transportation options, which will reduce traffic congestion.

California Building Standards Code

California's building codes (California Code of Regulations [CCR], Title 24) are published on a triennial basis, and contain standards that regulate the method of use, properties, performance, or types of materials used in the construction, alteration, improvement, repair, or rehabilitation of a building or other improvement to real property. The California Building Standards Commission (CBSC) is responsible for the administration and implementation of each code cycle, which includes the proposal, review, and adoption process. Supplements and errata are issued throughout the cycle to make necessary mid-term corrections. The 2013 code has been prepared and became effective January 1, 2014, with minor exceptions to Part 6, Part 1, and energy provisions of Part 11, which did not become effective until July 1, 2014. The California building code standards apply State-wide; however, a local jurisdiction may amend a building code

standard if the jurisdiction makes a finding that the amendment is reasonably necessary due to local climatic, geological, or topographical conditions.

California Green Building Standards Code

The original California Green Building Standards Code, otherwise known as the CALGreen Code (CCR Title 24, Part 11), became effective in 2010. The purpose of the CALGreen Code is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices. The provisions of the code apply to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure throughout California. The primary intention of the CALGreen Code is to reduce GHG emissions from buildings, as well as to promote environmentally responsible, cost-effective, healthier places to live and work; reduce energy and water consumption; and respond to directives by the Governor, including the reduction in GHG emissions per AB 32. Establishing the CALGreen Code was an important step towards more efficient and responsible building designs. CARB estimated that the mandatory provisions of the 2010 CALGreen Code would reduce State-wide GHG emissions by three million metric tons by the year 2020.

The 2013 CALGreen Code became effective January 1, 2014. As mentioned above, the energy provisions of the CALGreen Code did not become effective until July 1, 2014. The key features of the CALGreen Code include the following mandates:

- Compliance with the California Building Energy Efficiency Standards Code;
- 20 percent mandatory reduction in indoor water use, with voluntary goal standards for 30, 35 and 40 percent reductions;
- Separate indoor and outdoor water meters to measure nonresidential buildings' indoor and outdoor water use with a requirement for moisture-sensing irrigation systems for larger landscape projects;
- Diversion of 50 percent of construction waste from landfills, increasing voluntarily to 65 and 75 percent for new homes and 80 percent for commercial projects;
- Mandatory periodic inspections of energy systems (i.e., heat furnace, air conditioner, mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity according to their design efficiencies; and
- Mandatory use of low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring, and particle board.

In addition to the mandatory measures listed above and to other State-wide mandates, the CALGreen Code encourages local governments to adopt more stringent voluntary provisions, known as Tier 1 and Tier 2 provisions, to further reduce emissions, improve energy efficiency, and conserve natural resources. If a local government adopts one of the tiers, the provisions become mandates for all new construction within that jurisdiction. The City of Galt has not adopted any voluntary provisions of the CALGreen Code to date.

California Building Energy Efficiency Standards Code

The California Energy Commission (CEC) administers building energy efficiency standards (CCR Title 24, Part 6), commonly referred to as “Title 24”, which were established in 1978 in response to a legislative mandate to reduce California’s energy consumption. Standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. As mentioned above, the 2013 Building Energy Efficiency Standards became effective July 1, 2014. The 2013 California Building Energy Efficiency Standards Code sets forth a number of energy efficiency standards for both residential and nonresidential buildings to ensure that building construction, system design and installation achieve energy efficiency and preserve outdoor and indoor environmental quality. The 2013 California Building Energy Efficiency Standards Code establishes a minimum level of building energy efficiency; however, buildings may be designed to a higher efficiency level, resulting in additional energy savings. It should be noted that the 2013 Building Energy Efficiency Standards are anticipated to result in 25 percent less energy consumption for residential buildings and 30 percent savings for nonresidential buildings over the previous energy standards.²⁰ Because the primary source of GHG emissions related to human activities is associated with the combustion of fossil fuels such as coal, oil, and natural gas for energy and transportation, the reductions in energy consumption as a result of the 2013 California Building Energy Efficiency Standards Code would subsequently result in a reduction of associated GHG emissions.

SB 97

SB 97, signed in August 2007, acknowledges that climate change is an important environmental issue that requires analysis under CEQA. The bill directs the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, by July 1, 2009.

As directed by SB 97, the Governor's Office of Planning and Research (OPR) amended the CEQA Guidelines, effective March 18, 2010, to provide guidance to public agencies regarding the analysis and mitigation of GHG emissions and the effects of GHG emissions in draft CEQA documents. The amendments include revisions to the *Appendix G Initial Study Checklist* that incorporates a new subdivision to address project-generated GHG emissions and contribution to climate change. The new subdivision emphasizes that the effects of GHG emissions are cumulative, and should be analyzed in the context of CEQA's requirements for cumulative impacts analysis. In addition, the revisions include a new subdivision to assist lead agencies in determining the significance of project related GHG emissions. Under the revised CEQA Appendix G checklist, an agency would consider whether the project will generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and whether the project conflicts with an applicable plan, policy or regulation adopted for the purpose of reducing the emission of GHGs.

Guidance on determining the significance of impacts from GHG emissions is also provided in the SB 97 amendments. The guidance suggests the lead agency make a good-faith effort, based on available information, to describe, calculate or estimate the amount of GHG emissions resulting from a project. When assessing the significance of impacts from GHG emissions on the

environment, lead agencies can consider the extent to which the project may increase or reduce GHG as compared to the existing environmental setting, whether the project emissions exceed a threshold of significance determined applicable to the project, and/or the extent to which the project complies with adopted regulations or requirements to implement a State-wide, regional, or local plan for the reduction or mitigation of GHG emissions. When adopting thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence.

Under the SB 97 amendments, if GHG emissions of a project are determined to be significant, feasible means of mitigating GHG emissions, such as the following, shall be applied:

- Measurement of the reduction of emissions required as part of the lead agency's decision;
- Reductions in emissions resulting from project through project features, design, or other measures;
- Off-site measures, including offsets, to mitigate a project's emissions;
- Measures that sequester GHG gases; and
- If a GHG reduction plan, ordinance, regulation, or other similar plan is adopted, mitigation may include project-by-project measures, or specific measures or policies found in the plan that reduces the cumulative effect of emissions.

Local Regulations

The following are the regulatory agencies and regulations pertinent to the proposed project on a local level.

Sacramento Metropolitan Air Quality Management District (SMAQMD)

Various local, regional, State and federal agencies share the responsibility for air quality management in Sacramento County. The SMAQMD operates at the local level with primary responsibility for attaining and maintaining the federal and State AAQS in Sacramento County. The SMAQMD is tasked with implementing programs and regulations required by the FCAA and the CCAA, including preparing plans to attain federal and State AAQS. The SMAQMD works jointly with the USEPA, CARB, SACOG, other air districts in the Sacramento region, county and city transportation and planning departments, and various non-governmental organizations to improve air quality through a variety of programs. Programs include the adoption of regulations, policies and guidance, extensive education and public outreach programs, as well as emission reducing incentive programs.

Nearly all development projects in the Sacramento region have the potential to generate air pollutants that may increase the difficulty of attaining federal and State AAQS. Therefore, for most projects, evaluation of air quality impacts is required to comply with CEQA. In order to help public agencies evaluate air quality impacts, the SMAQMD has developed the *Guide to Air Quality Assessment in Sacramento County*.²¹ The SMAQMD's guide includes recommended thresholds of significance, including mass emission thresholds for construction-related and

operational ozone precursors, as the area is under nonattainment for the federal and State ozone AAQS. The SMAQMD's guide also includes screening criteria for localized CO emissions and thresholds for new stationary sources of TACs. The SMAQMD's recommended thresholds of significance, as well as screening criteria and methodology, are discussed in further detail in the Standards of Significance section below.

SMAQMD Rules and Regulations

All projects under the jurisdiction of the SMAQMD are required to comply with all applicable SMAQMD rules and regulations. In addition, SMAQMD permit requirements apply to most industrial processes (e.g., manufacturing facilities, food processing), many commercial activities (e.g., print shops, drycleaners, gasoline stations), and other miscellaneous activities (e.g., demolition of buildings containing asbestos and aeration of contaminated soils). The SMAQMD regulations and rules include, but are not limited to, the following:

Regulation 2 - Permits

Regulation 2 (Permits) is intended to provide an orderly procedure for the review of new sources, and modification and operation of existing sources, of air pollution through the issuance of permits. Regulation 2 primarily deals with permitting major emission sources and includes rules such as permit requirements (Rule 201), New Source Review (Rule 202), Emission Reduction Credits (Rule 204), and Sacramento Carbon Exchange Program (Rule 250). Regulation 2 ensures that stationary source emissions would be reduced or mitigated to below the SMAQMD's significance thresholds.

Regulation 4 - Prohibitory Rules

Regulation 4 (Prohibitory Rules) is comprised of prohibitory rules that are written to achieve emission reductions from specific source categories or from all sources. The rules are applicable to existing sources (retrofit requirements) as well as new sources. Examples of prohibitory rules include Rule 402 (Nuisance), Rule 403 (Fugitive Dust), Rule 404 (Particulate Matter), Rule 407 (Open Burn), Rule 417 (Wood Burning Appliances), Rule 421 (Check Before You Burn), and Rule 442 (Architectural Coatings).

Regulation 10 - Mobile Sources

Regulation 10 (Mobile Sources) is intended to reduce emissions associated with mobile sources. Examples of rules associated with Regulation 10 include Rule 1002 (Fleet Inventory), through which the SMAQMD is able to obtain fleet-related data necessary for the development, implementation, and monitoring of Rule 1003 (Reduced-Emission Fleet Vehicles/Alternative Fuels). Rule 1003 is intended to reduce the emissions of ROG and NO_x from fleet vehicles by requiring reduced-emission vehicles and encouraging vehicles to be operated on cleaner burning alternative fuels or electric power. Rule 1005 (Mobile Source Emission Reduction Credits/Banking) provides a means for regulated businesses and/or agencies to develop compliance programs, minimizes the cost of compliance with SMAQMD rules, while providing emissions reduction needed to attain

air quality goals, and establishes a mobile source emission reduction credit/banking system.

Air Quality Attainment Plans

Each of the attainment plans currently in effect for the SVAB are discussed in further detail below.

2013 Revisions to the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan²²

The SMAQMD, along with the other air districts in the region, prepared the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* in December 2008. The CARB determined that the Plan met CAA requirements and approved the Plan on March 26, 2009 as a revision to the SIP. An update to the Plan, *2013 Revisions to the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* (2013 Ozone Attainment Plan), has been prepared and was approved and adopted by SMAQMD on September 26, 2013. The 2013 Ozone Attainment Plan is being submitted to the USEPA as a revision to the SIP. In addition to strengthening the 8-hour ozone NAAQS, the USEPA also strengthened the secondary 8-hour ozone NAAQS, making the secondary standard identical to the primary standard.

The 2013 Ozone Attainment Plan demonstrates how existing and new control strategies would provide the necessary future emission reductions to meet the federal NAAQS. The SVAB remains classified as a severe nonattainment area with an attainment deadline of 2027. The USEPA is in the process of preparing the final implementation rule of the revised NAAQS for ozone to address the requirements for reasonable further progress, modeling and attainment demonstrations, and reasonably available control measures (RACM) and reasonably available control technology (RACT). Districts' actions are pending the publication of the final rule. The final rule is anticipated to require an attainment demonstration plan to be submitted in 2015. Because the proposed project is located within the nonattainment area for ozone, the project would be subject to the requirements set forth in the 2013 Ozone Attainment Plan, as enforced by SMAQMD through rules and regulations.

PM_{2.5} Implementation/Maintenance Plan and Re-designation Request for Sacramento PM_{2.5} Nonattainment Area²³

The USEPA promulgated a new 24-hour standard for PM_{2.5} in October 2006, which strengthened the daily standard from 65µg/m³ to 35µg/m³ to protect the general public from health effects caused by exposure to fine particulate matter. Although the Sacramento area had attained the prior PM_{2.5} standards, the area did not meet the new standards and the USEPA Administrator established PM_{2.5} nonattainment designations for the 2006 standard, which became effective on December 14, 2009. In the USEPA's final designation, a multi-county PM_{2.5} nonattainment area was created in the Sacramento region.

However, the Sacramento federal PM_{2.5} Nonattainment Area attained the federal PM_{2.5} health standards on December 31, 2011. To be re-designated, the area must, among other things, show that attainment was achieved by permanent and enforceable reductions and that the area would remain below the standard for 10 years after accounting for emissions growth. The *PM_{2.5} Implementation/Maintenance Plan and Re-designation Request for Sacramento PM_{2.5} Nonattainment Area* (PM_{2.5} Implementation/Maintenance Plan) was prepared to show that the region has met the requirements and requests that the USEPA re-designate the area to attainment. The USEPA issued a final rule for Determination of Attainment for the Sacramento Nonattainment Area effective August 14, 2013. The PM_{2.5} Implementation/Maintenance Plan would be adopted by the air districts within the nonattainment area, as well as the CARB, as a revision to the SIP. Contents of the PM_{2.5} Implementation/Maintenance Plan include demonstration that the NAAQS was met and that all requirements have been met for a re-designation to attainment, specification of actions to be taken if the standards are violated in the future, and establishment of regional motor vehicle emission budgets. Because the proposed project is located within the nonattainment area for PM_{2.5}, the project would be subject to the requirements set forth in the PM_{2.5} Implementation/Maintenance Plan, as enforced by SMAQMD through rules and regulations.

1991 Air Quality Attainment Plan and Triennial Reports

In addition to the federal attainment plans discussed above for meeting NAAQS, the CCAA of 1988 requires air districts to endeavor to achieve and maintain the CAAQS and develop plans for attainment. Sacramento County meets the CAAQS for sulfur dioxide, nitrogen dioxide, and carbon monoxide, but is designated nonattainment for the State ozone and particulate matter standards. In compliance with the CCAA, the SMAQMD prepared and submitted the 1991 Air Quality Attainment Plan (AQAP) to mainly address Sacramento County's nonattainment status for ozone and, although not required, PM₁₀. The AQAP also addressed CO. The AQAP was designed to make expeditious progress toward attaining the State ozone standard and contained preliminary implementation schedules for control programs on stationary sources, transportation, indirect sources, and a vehicle/fuels program.

The CCAA also requires that air districts assess their progress toward attaining the CAAQS once every three years. The triennial assessment is to report the extent of air quality improvement and the amounts of emission reductions achieved from control measures for the preceding three year period. The SMAQMD reviews and revises the AQAP, if necessary, to correct for deficiencies in meeting progress, to incorporate new data or projections, to mitigate ozone transport, and to pursue the expeditious adoption of all feasible control measures. The most recent triennial assessment is the *2009 Triennial Report and Plan Revision*.²⁴ SMAQMD rules included in the Triennial Reports and AQAP Revisions are intended to limit emissions from stationary sources. Programs are also proposed to provide incentives for mobile heavy duty vehicles/engines, CEQA mitigation for construction and land use development, and a Spare the Air program to reduce vehicle trips. Additional rules include, but may not be limited to, rules that would reduce emissions from degreasing and solvent cleaning operations, adhesives and

sealants, solvents and unspecified coatings. Because the proposed project is located within the nonattainment area for State ozone and PM standards, the project would be subject to any requirements set forth in the AQAP or Triennial Reports, as enforced by SMAQMD through rules and regulations.

SACOG Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS)

The 2035 MTP/SCS is a long-range plan for transportation improvements in the region. The plan is based on projections for growth in population, housing, and jobs. SACOG determines the regional growth projections by evaluating baseline data (existing housing units and employees, jobs/housing ratio, and percent of regional growth share for housing units and employees), historic reference data (based upon five- and ten-year residential building permit averages and historic county-level employment statistics), capacity data (General Plan data for each jurisdiction), and current MTP data about assumptions used in the most recent MTP/SCS. SACOG staff then meets with each jurisdiction to discuss and incorporate more subjective considerations about planned growth for each area. Finally, SACOG makes a regional growth forecast for new homes and new jobs, based upon an economic analysis provided by a recognized expert in order to estimate regional growth potential based on market analysis and related economic data. This growth forecast is then incorporated into the MTP/SCS.

City of Galt General Plan

The following goals and policies from the Conservation and Open Space Element of the City's General Plan are related to air quality and climate change and are applicable to the proposed project.

- | | |
|----------------|--|
| Goal COS-5 | To protect and improve air quality in the Galt area with the goal of attaining State and Federal health-based air quality standards. |
| Policy COS-5.1 | Vehicle Emission Reduction Programs. The City should support land use, transportation management, infrastructure, and environmental planning programs that reduce vehicle emissions and improve air quality. |
| Policy COS-5.2 | Walkable Design. The City shall require subdivision and site plan designs to maximize pedestrian and bicycle circulation and promote street designs that strongly encourage biking and walking. |
| Policy COS-5.3 | Infill Development Priority. The City should promote growth within existing urban areas (infill) as a priority over urban expansion and adopt incentives for implementing infill development |

projects near job centers and transportation nodes within the Planning Area.

- Policy COS-5.4 Mixed-Use Development. The City should support appropriately located mixed-use developments inclusive of homes, schools, civic uses, retail and commercial services, and daycare facilities within walking distance of each other.
- Policy COS-5.5 Midday Trip Reduction. The City should support the location of ancillary employee services (including, but not limited to, child care, restaurants, banking facilities, convenience markets) at major employment centers for the purpose of reducing midday vehicle trips.
- Policy COS-5.6 SMAQMD Coordination. The City shall coordinate with the Sacramento Metropolitan Air Quality Management District (SMAQMD) on the review of proposed development projects. The City shall use the SMAQMD Guide to Air Quality Assessment for determining and mitigating project air quality impacts and related thresholds of significance for use in environmental documents.
- Policy COS-5.8 Child Safety Programs. The City shall support infrastructure and programs that encourage children to safely walk or ride a bicycle to school.
- Policy COS-5.9 Air Quality Mitigation Measures. The City shall enforce construction and operation related air quality mitigation measures adopted through the CEQA process.
- Policy COS-5.10 New Development Operational Emission Reductions. The City shall require all new development projects which have the potential to result in significant operational air quality impacts (exceeding SMAQMD adopted thresholds), to incorporate design or operational features that result in a reduction in emissions equal to 15 percent from the level that would be produced by an unmitigated project, based upon feasible mitigation under CEQA.

- Policy COS-5.11 Construction Mitigation Measures. The City shall require developers to implement dust suppression measures as well as the applicable standard construction mitigation measures associated with exhaust NO_x and PM-10 reduction in accordance with the current SMAQMD CEQA Guide to Air Quality Assessment.
- Policy COS-5.12 Construction Mitigation Fees. The City shall require developers to comply with the current SMAQMD construction mitigation fee offset program.
- Policy COS-5.13 Air Pollution Control Technology. The City shall follow the rules and regulations as adopted by the SMAQMD to maintain healthful air quality and high visibility standards. These measures shall be applied to new development approvals and permit modifications as appropriate.
- Goal COS-6 To integrate air quality planning with the land use and transportation planning process.
- Policy COS-6.2 Pedestrian and Bicycle Facilities. The City shall encourage the use of alternative modes of transportation by encouraging public transit, neighborhood electric vehicles, bicycle, and pedestrian modes in City transportation planning and by requiring new development to provide safe and separate pedestrian circulation and adequate bikeway circulation and facilities.
- Policy COS-6.3 Employer Programs. The City should encourage employers to provide bicycle facilities, alternative work schedules, ridesharing, telecommuting, work-at-home programs, employee education (including information on alternatives to single-occupancy travel), preferential parking for carpools/vanpools, and alternative transportation mode subsidies.
- Policy COS-6.6 Traffic Calming Measures. The City shall recommend the use of traffic calming measures where appropriate within a subdivision plan (e.g., traffic circles, curb extensions, and median islands).
- Policy COS-6.7 Transportation Management Association. The City should consider and encourage the establishment of

Transportation Management Associations (either City operated or through the Transit Provider or another entity) when new specific plans are proposed or if there is a proposed commercial, industrial, or residential development that is large enough to warrant it (over 200 full time employees or 500 homes) and for which it would be feasible.

Policy COS-6.8 Off-Peak Deliveries. The City should encourage business owners to schedule deliveries at off-peak traffic hours.

Goal COS-7 To encourage energy conservation in new and existing developments in order to reduce greenhouse gas emissions and its effect on global warming.

Policy COS-7.1 Greenhouse Gas Emission Reduction. The City shall reduce greenhouse gas emissions from City operations as well as from private development in compliance with the California Global Warming Act of 2006 and any applicable State regulations. To accomplish this, the City will coordinate with the SMAQMD and the California Air Resources Board in developing a Greenhouse Gas Emissions Reduction Plan (Plan) that identifies greenhouse gas emissions within the City as well as ways to reduce those emissions. The plan will parallel the requirements adopted by the California Air Resources Board specific to this issue. Specifically, the City will work with the SMAQMD to include the following key items in the Plan:

- Inventory all known, or reasonably discoverable, sources (both public and private) of greenhouse gases in the City;
- Inventory estimated 1990 greenhouse gas emissions based on available data, the current level, those projected for the 2020 milestone year (consistent with AB32), and that projected for the year 2030;
- Set a target for the reduction of emissions attributable to the City's discretionary land use decisions and its own internal government operations, and;

- Identify specific actions that will be undertaken by the City to meet the emission reduction targets set by the City.

| | |
|----------------|---|
| Policy COS-7.2 | Statewide Global Warming Solutions Support. The City should monitor and support the efforts of the California Air Resources Board, under AB 32, to formulate mitigation strategies, if any, that may be implemented by local government. If and when any such strategies become available, the City should consider whether to implement them in some form, such as, for example, by imposing new mitigation measures on new development. If the City Council, after seeking public input on the subject, chooses to implement any such measures it considers to be feasible and desirable, the City’s commitment may take the form of a new ordinance, resolution, or other type of policy document. |
| Policy COS-7.3 | Motor Vehicle Trip Reduction. The City shall encourage strategic land use patterns for businesses that reduce the number and length of motor vehicle trips and/or encourage alternative modes of travel. |
| Policy COS-7.4 | Energy Efficient Development. In addition to the energy regulations of Title 24, the City shall encourage the energy efficiency of new development. Possible energy efficient design techniques include provisions for solar access, building siting to maximize natural heating and cooling, and landscaping to aid passive cooling and protection from winter winds. |
| Policy COS-7.5 | Building Design and Components. The City shall encourage the implementation of cost-effective and innovative emission-reduction technologies in building components and design. |
| Policy COS-7.6 | Sustainable Design. The City shall promote the implementation of sustainable design strategies for “cool communities” such as reflective roofing, light colored pavement, and urban shade trees. |
| Policy COS-7.7 | Energy Efficient Design Techniques in Specific Plans. The City should require specific plans to incorporate energy efficient design techniques. |

- Policy COS-7.10 Renewable Energy Incentive Programs. The City shall encourage voluntary participation in incentive programs to increase the use of renewable energy.
- Policy COS-7.11 Solar Photovoltaic System Incentive Programs. The City shall promote voluntary participation in incentive programs to increase the use of solar photovoltaic systems in new and existing residential, commercial, institutional, and public buildings.
- Policy COS-7.14 Energy Planner Coordination. The City should include energy planners and energy efficiency specialists from SMUD and other energy providers in the initial pre-application discussions with developers to identify the potential for solar orientation and energy efficient systems, building practices, and materials.
- Policy COS-7.15 New Tree Selection and Location. The City shall coordinate with utility providers to offer programs for all new developments to incorporate the planting of trees and other vegetation, to provide shade, buffering, and visual character. Tree selection shall be consistent with the requirements of Policy CC-4.2.
- Policy COS-7.16 EPA Energy Star Certified Appliances. The City shall encourage the use of “EPA Energy Star” certified appliances (e.g., water heaters, swimming pool heaters, cooking equipment, refrigerators, furnaces and boiler units) for new private development, where feasible. The City shall encourage the use of “EPA Energy Star” certified appliances for all public facilities, where feasible, in the course of ongoing maintenance/replacement.
- Policy COS-7.17 Developer and Builder Energy Provider Coordination. The City shall encourage developers and builders of single-family and multi-family homes to contact utility providers for information about energy efficiency and renewable energy incentive programs for exceeding the State’s Title 24 energy efficiency standards.

- Policy COS-7.19 Expedited Review for Installing Photovoltaic Systems. The City should reduce/remove the building review fee, use a standardized submittal procedure, and provide a one-day application review process for installing photovoltaic systems.
- Policy COS-7.23 Waste Diversion Plan. The City should require developers of commercial, industrial, and multi-family projects to prepare a waste diversion plan to recycle at least 50 percent of the materials generated for discard by their project during the construction phase in consultation with representatives of California Waste Recovery Systems. The waste diversion and recycling plan shall use best management practices in order to achieve the recycling target. The plan shall be subject to City Planning Department review and approval.

4.3.4 IMPACTS AND MITIGATION MEASURES

The standards of significance and methodology utilized to analyze and determine the proposed project’s potential project-specific and cumulative impacts are described below. The standards are based on policies of the City of Galt and other responsible agencies. In addition, a discussion of the project’s impacts, as well as mitigation measures where necessary, is also presented.

Standards of Significance

Table 4.3-6 below presents the SMAQMD’s recommended thresholds of significance for ozone precursor and PM emissions, which are expressed in pounds per day (lbs/day) at the project level and tons per year (tons/yr) at the cumulative level, and for GHG emissions, which are expressed in MTCO_{2e} per year.

| Pollutant | Construction Thresholds | Operational Thresholds | Cumulative Thresholds |
|-------------------|------------------------------|------------------------|------------------------------|
| NO _x | 85 lbs/day | 65 lbs/day | - |
| ROG | - | 65 lbs/day | - |
| PM ₁₀ | 80 lbs/day | - | 14.6 tons/yr |
| PM _{2.5} | 82 lbs/day | - | 15 tons/yr |
| GHG | 1,100 MTCO _{2e} /yr | - | 1,100 MTCO _{2e} /yr |

Source: SMAQMD, June 2015.²⁵

Projects exceeding the 1,100 MTCO_{2e}/yr GHG threshold of significance would be required to perform a further detailed analysis showing whether the project would meet a recommended threshold, based on Statewide GHG emission reduction targets per AB 32, of a 21.7 percent

reduction from a BAU, as referred to in the Scoping Plan, or “No Action Taken” scenario by the year 2020. The 21.7 percent reduction is based on the 2011 amended Scoping Plan’s revised BAU emission level and the 2020 target GHG emissions level. The No Action Taken scenario is development of a proposed project in the year 2020 without accounting for any required or voluntary GHG reduction measures. The No Action Taken emissions in the year 2020 are then compared to the proposed project emissions in the year 2020, which would take into consideration all project-specific sustainability or design features and required GHG reduction measures, such as compliance with State regulations, in order to determine if a 21.7 percent reduction would be achieved. Emission reduction measures for GHG could include, but are not limited to, compliance with local, State, or federal plans or strategies for GHG reductions, on-site and off-site mitigation recommendations from the Office of the Attorney General, and project design features.

The SMAQMD does not expect construction activity to generate high concentrations of other criteria air pollutants (e.g., NO₂, SO_x, and CO) that would expose nearby sensitive receptors to substantial pollutant concentrations that would violate an air quality standard or contribute substantially to an existing or projected air quality violation. Therefore, evaluation of criteria pollutants other than those for which thresholds have been established is not recommended by SMAQMD.

The SMAQMD has developed screening level thresholds for construction-related and operational emissions based on preliminary modeling performed by the SMAQMD using default values. If a project is below the SMAQMD’s screening level thresholds, the project would not result in emissions in excess of the quantitative thresholds of significance presented above and have a less-than-significant impact on air quality. However, all projects involving construction activities, regardless of screening level, are required to implement the SMAQMD’s Basic Construction Emission Control Practices. For construction, projects that are 35 acres or less in size generally would not exceed the SMAQMD’s construction NO_x threshold of significance. For operations, the SMAQMD has developed a list of operational screening levels for a variety of land use development projects. Screening criteria have also been established by SMAQMD for localized CO emissions, as discussed further below. The localized CO emissions screening criteria are divided into two tiers, where a tier two analysis is required if a project does not meet the tier one screening criteria.

Related to TAC emissions associated with NOA, according to SMAQMD, if a project would not involve earth-disturbing construction activity in “areas moderately likely to contain NOA” per the California Geological Survey map or would not locate receptors in such an area, then the project would not have the potential to expose people to airborne asbestos particles.

Based on the recommendations of SMAQMD as presented above, consistent with Appendix G of the CEQA Guidelines, the City’s General Plan, and professional judgment, a significant impact would occur if the proposed project would result in any of the following:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation (i.e., exceed the SMAQMD thresholds of significance of 85 lbs/day for

construction-related NO_x, 80 lbs/day for construction-related PM₁₀, 82 lbs/day for construction-related PM_{2.5}, or 65 lbs/day for operational ROG and NO_x);

- Expose sensitive receptors to substantial pollutant concentrations (including localized concentrations of CO and TAC emissions);
- Create objectionable odors affecting a substantial number of people;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable AAQS (including releasing emissions which exceed quantitative thresholds for ozone precursors, 14.6 tons/yr for operational PM₁₀, or 15 tons/yr for operational PM_{2.5});
- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment (i.e., exceed 1,100 MTCO_{2e}/yr during construction or operations); or
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs (i.e., not achieve a minimum 21.7 percent emission reduction from a No Action Taken scenario by 2020 per AB 32, or be inconsistent with SACOG's MTP/SCS).

Method of Analysis

The analysis protocol and guidance provided by the SMAQMD's *Guide to Air Quality Assessment in Sacramento County* was utilized to analyze the proposed project's air quality and climate change impacts, including screening criteria and pollutant thresholds of significance.

Construction Emissions

The proposed project's short-term construction emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2013.2.2 software - a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify air quality emissions, including GHG emissions, from land use projects. The model applies inherent default values for various land uses, including trip generation rates based on the ITE Manual, vehicle mix, trip length, average speed, etc. However, where project-specific data was available, such data was input into the model.

Project-specific details regarding the construction schedule for the proposed project are currently unavailable; however, a series of five buildout phases are anticipated to occur for the Liberty Ranch portion of the proposed project. The first phase of construction was assumed to commence in June 2016 and occur over a four-year period. The first buildout phase is anticipated to include 328 dwelling units (271 Low-Density and 55 High-Density) and would disturb a total of 111.3 acres. Phase 2 of development would involve 445 dwelling units (259 Low-Density and 186 High-Density) and would disturb a total of 63.1 acres. Phase 3 would involve the development of 214 dwelling units (166 Low-Density and 48 High-Density) and would disturb a total of 55.5 acres. Phase 4 would involve the development of 236 Low-Density dwelling units and would disturb a total of 56.6 acres. Lastly, Phase 5 of project buildout would involve the development of 210 Low-Density dwelling units and would disturb a total of 46.5 acres. Although development of the "Future Growth Area" and the non-participating properties is not proposed at this time, consistent with the assumptions used for the Transportation Impact

Analysis prepared for the proposed project by Omni-Means, the future growth of such was included in the full buildout scenario for the proposed project, which was assumed to occur by 2035. Therefore, the analysis in this chapter represents a worst-case scenario.

Because Phase 1 of development would involve the greatest area of disturbance and development of the greatest number of Low-Density dwelling units, Phase 1 would be expected to result in the maximum construction-related emissions. Therefore, buildout of Phase 1 was modeled using CalEEMod in order to present the maximum daily construction emissions, which would represent the maximum construction emissions anticipated during buildout of the entire proposed project. As such, construction emissions were modeled separately from operational emissions. The following assumptions were made in order to model the proposed project's construction emissions:

- Demolition of the existing structures within the Phase 1 area would be required for development of Phase 1;
- Construction was assumed to commence in June 2016;
- Phase 1 construction-related emissions assumed to represent worst-case emissions for project buildout;
- Construction of Phase 1 was assumed to occur over an approximately four-year period;
- Construction phase durations (i.e., site preparation, grading, building construction, and architectural coating phases) were modified to reflect the assumed four-year construction period; and
- The number of pieces of construction equipment was doubled for the modeling in accordance with SMAQMD's Tips for Using CalEEMod;²⁶ and
- A total of 111.3 acres would be disturbed during the grading phase for Phase 1 of development.

The results of emissions estimations were compared to the standards of significance discussed above in order to determine the associated level of impact. All CalEEMod modeling results are included in Appendix C to this EIR.

Operational Emissions

The proposed project's long-term operational and GHG emissions were estimated using CalEEMod. The Liberty Ranch portion of the proposed project was modeled separately in order to show the emissions associated with buildout of only such portion of the site. In order to be consistent with the buildout assumptions used by the traffic consultant, the Liberty Ranch portion of the proposed project assumes 1,400 dwelling units and a 700-student-capacity elementary school that would be built out by the year 2026. CalEEMod does not have a 2026 operational year option, but jumps from 2025 to 2030. As such, the year 2025 was applied as the operational year for the Liberty Ranch modeling.

In order to present the total emissions associated with full buildout of the project site, the full buildout scenario consistent with the Transportation Impact Analysis assumptions was modeled. Per the Transportation Impact Analysis prepared for the proposed project by Omni-Means, full

buildout of the site, including the growth associated with the non-participating properties and “Future Growth Area,” would occur by 2035. According to the Transportation Impact Analysis, additional growth due to the non-participating properties and “Future Growth Area” would result in the need for an expansion of the elementary school; thus, an 850-student elementary school was assumed for full buildout. A total of 1,745 dwelling units were assumed (i.e., an additional 335 dwelling units due to the non-participating properties and “Future Growth Area”). Although the non-participating properties and “Future Growth Area” are not proposed for development at this time, because the proposed project includes these areas as part of the annexation area, buildout of such must be included in the EIR analysis. Thus, the level of emissions that have been calculated for both the Liberty Ranch planned development area and the overall EVSP area are considered conservative as they would be if more specific trip generation rates had been applied.

It should be noted that the Transportation Impact Analysis Report prepared for the proposed project assumes that all of the residential units would be single-family detached units. The proposed project would include a combination of high density residential units, medium density residential units, and low density residential units. Because low density units typically have higher trip generation rates than medium or high density residential units, the Transportation Impact Analysis Report overestimated the trip generation for the proposed project. Therefore, the following analysis is conservative. It should be further noted that traffic studies are typically conservative by nature as project-related average daily trips is overstated. Thus, adjusting the trip generation rates to include the medium and high density residential units would likely not affect the following findings.

The modeling performed for the proposed project included the following inherent design features and statutorily required standards:

- Compliance with the 2013 California Building Energy Efficiency Standards Code, which would be verified as part of the City’s building approval review process;
- Project-specific data for the vehicle miles traveled (VMT) provided by Omni-Means for both the Liberty Ranch and full buildout modeling conditions;
- Increase in diversity (i.e., mix of uses) at full buildout;
- Improvements to street network characteristics, including walkability and connectivity;
- Improvements to the pedestrian and bicycle network; and
- Provision of traffic calming measures such as traffic circles.

In addition, for the GHG emissions modeling, the CO₂ intensity factor within CalEEMod was adjusted in order to reflect SMUD’s anticipated progress towards the State RPS goal.

The results of emissions estimations were compared to the standards of significance discussed above in order to determine the associated level of impact. All CalEEMod modeling results are included in Appendix C to this EIR.

No Action Taken GHG Emissions

The No Action Taken scenario was modeled using CalEEMod, and assumes full buildout of the proposed project in the year 2020, but without inclusion of any required or voluntary GHG reduction measures, consistent with the CARB's Scoping Plan and SMAQMD definitions. As such, the No Action Taken modeling does not include any of the project-specific sustainability or design features that would not necessarily be inherent under a No Action Taken scenario (i.e., walkability improvements, pedestrian network improvements on-site and connecting off-site, and traffic calming measures), or any required GHG reduction measures per regulations (i.e., California Building Energy Efficiency Standards Code and RPS). All other project assumptions, such as project-specific VMT and increased diversity, were applied to the No Action Taken scenario as well. The No Action Taken CalEEMod GHG modeling results are included in Appendix C to this EIR.

Project-Specific Impacts and Mitigation Measures

The following discussion of air quality impacts is based on implementation of the proposed project in comparison to existing conditions and the standards of significance presented above. The discussions and mitigation measures presented below apply to the Liberty Ranch, "Future Growth Area," and non-participating properties portions of the proposed project unless otherwise stated.

4.3-1 A violation of any air quality standard or substantial contribution to an existing or projected air quality violation during construction. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

During construction of the project, various types of equipment and vehicles would temporarily operate on the project site. Construction exhaust emissions would be generated from construction equipment, vegetation clearing and earth movement activities, construction workers' commute, and construction material hauling for the entire construction period. The aforementioned activities would involve the use of diesel- and gasoline-powered equipment that would generate emissions of criteria pollutants. Project construction activities also represent sources of fugitive dust, which includes PM₁₀ emissions. According to SMAQMD, during typical construction projects, the majority of PM emissions are generated in the form of fugitive dust during ground disturbing activities, most of which is generated during the grading phase. Emissions of PM are also generated in the form of equipment exhaust and reentrained road dust from vehicle travel on paved and unpaved surfaces.

The proposed project exceeds the screening level threshold established by SMAQMD for construction-related emissions, which is a project that is 35 acres or more in size; thus, the proposed project's construction-related emissions must be quantified and compared to the applicable thresholds of significance.

The proposed project's construction-related emissions have been estimated and the resultant maximum estimated unmitigated emissions are presented in Table 4.3-7. The

construction modeling assumptions are described in the Method of Analysis section above. As shown in the table, the proposed project’s maximum unmitigated construction-related emissions would exceed the SMAQMD threshold of significance for NO_x, but would be below the SMAQMD’s thresholds of significance for PM₁₀ and PM_{2.5}.

| Table 4.3-7 Maximum Unmitigated Project Construction-Related Emissions | | |
|--|--|---|
| Pollutant | Project Emissions (lbs/day) | SMAQMD Threshold of Significance (lbs/day) |
| NO _x | 201.00 | 85 |
| PM ₁₀ | 47.22 | 80 |
| PM _{2.5} | 29.70 | 82 |
| Note: The maximum construction emissions are anticipated to occur in 2016 according to the CalEEMod results. | | |
| Source: CalEEMod, April 2015 (see Appendix C). | | |

The proposed project is required to comply with all applicable SMAQMD rules and regulations for construction, including, but not limited to, Rule 403 (Fugitive Dust), Rule 404 (Particulate Matter), and Rule 442 (Architectural Coatings).²⁷ In addition, as discussed above, all projects are required to implement the SMAQMD’s Basic Construction Emission Control Practices.²⁸ Rule 403 requires control of fugitive dust, and the SMAQMD’s Basic Construction Emission Control Practices are feasible control measures for fugitive dust from a construction site.²⁹ The Basic Construction Emission Control Practices include the following:³⁰

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
- All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes (as required by the state airborne toxics control measure [Title 13, Section 2485 of the California Code of Regulations]). Provide clear signage that posts this requirement for workers at the entrances to the site.

- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.

It should be noted that similar construction emissions would be expected to occur associated with buildout of the project site under the currently approved land use designations per the City's General Plan as well as the proposed land use designations, as development would occur over the same site and over a similar area of disturbance. As such, the proposed project would not result in any additional impacts related to construction emissions beyond those anticipated in the General Plan EIR.

Conclusion

As discussed above, the proposed project would result in construction-related emissions below the applicable SMAQMD thresholds of significance for PM₁₀ and PM_{2.5}. In addition, the proposed project would be required to comply with all applicable SMAQMD rules and regulations, which would help to minimize emissions generated during construction activities. It should be noted that because development of the proposed project would occur over the same site and over a similar area of disturbance, similar construction emissions would be expected to occur with buildout of the site per the current General Plan land uses. However, the proposed project would result in construction-related emissions of NO_x in excess of the applicable threshold of significance. Therefore, the proposed project's construction-related emissions could result in a contribution to the region's nonattainment status of ozone and/or violate an air quality standard or contribute substantially to an existing or projected air quality violation. Consequently, construction activities associated with development of the proposed project would be considered to result in a *potentially significant* impact to air quality.

Mitigation Measure(s)

Mitigation Measure 4.3-1(a) below would reduce the proposed project's maximum anticipated construction-related NO_x emissions from 201.00 lbs/day to 160.80 lbs/day, which would still exceed the applicable threshold of significance of 85 lbs/day. Implementation of Mitigation Measure 4.3-1(b) below would further reduce the project's emissions through payment of a fee that SMAQMD uses to fund emission reduction programs in the air basin. One program example is the SMAQMD's Heavy Duty Incentive Program through which select owners of heavy-duty equipment in Sacramento County can repower or retrofit their old engines with cleaner engines or technologies.

The fee rate is based on the cost-effectiveness factor updated by the latest CARB Carl Moyer Program Guideline. Cost-effectiveness is a measure of the dollars provided for each ton of covered emission reductions, which CARB may adjust to reflect emission reduction market conditions. The current rate for the SMAQMD's off-site mitigation fee calculation is \$17,720 per ton of ozone precursor emissions (ROG or NO_x).³¹

Through providing an in-lieu fee towards the funding of aforementioned programs, the proposed project's construction-related NO_x emissions would be considered to be offset from 160.80 lbs/day to the threshold of 85 lbs/day. Thus, with implementation of the following mitigation measures, the above impact would be reduced to a *less-than-significant* level.

- 4.3-1(a) *The project applicant shall show on all grading plans via notation that the contractor shall ensure that all off-road heavy-duty equipment (more than 50 horsepower) to be used for each phase of construction of the project (i.e., owned, leased, and subcontractor vehicles) would achieve a project-wide fleet-average 20 percent NO_x reduction compared to the most recent California Air Resources Board fleet average in existence at the time of construction. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available. Grading plans shall be subject to review and approval by the City Engineer prior to issuance of any grading or building permits. The applicant of each phase of development shall obtain from the contractor, and submit to the Community Development Department and SMAQMD, a comprehensive inventory of all off-road construction equipment greater than 50 horsepower that would be used an aggregate of 40 or more hours during any portion of the construction period. The inventory shall include horsepower rating, engine production year, and projected hours of use for each piece of equipment. The construction timeline, including start date and name and phone number of the project manager and on-site foreman, shall also be submitted with the inventory. The inventory shall be updated and submitted monthly to the City Engineer and SMAQMD throughout the duration of construction of the project, except for any 30-day period in which construction activities would not occur.*
- 4.3-1(b) *Prior to issuance of a grading permit or approval of improvement plans, the project applicant shall provide to SMAQMD construction emissions modeling based on more accurate equipment and phasing information, when available, and pay SMAQMD the appropriate off-site mitigation fee (if needed) to reduce the project's construction NO_x emissions to a less-than-significant level. As of July 1, 2014, the mitigation fee rate is \$17,720 per ton of emissions. The specific fee amount shall be calculated based on the modeling performed when the project's daily construction emissions can more accurately be determined. Calculation of the off-site fee associated with each phase of project development shall be conducted by the project applicant in consultation with SMAQMD staff prior to the approval of grading plans by the City.*

4.3-2 A violation of any air quality standard or substantial contribution to an existing or projected air quality violation during operations, and a conflict with or obstruction of implementation of applicable air quality plans. Based on the analysis below, even with mitigation, the impact is *significant and unavoidable*.

As discussed above, due to the nonattainment designations of the area, SMAQMD has developed plans to attain the State and federal standards for ozone and particulate matter. The plans include the 2013 Ozone Attainment Plan, the PM_{2.5} Implementation/Maintenance Plan, and the AQAP and Triennial Reports. Adopted SMAQMD rules and regulations, as well as the thresholds of significance, are consistent with the air quality plans. According to the SMAQMD *Guide to Air Quality Assessment in Sacramento County*, by exceeding the SMAQMD's mass emission thresholds for operational emissions of ROG or NO_x, a project would be considered to conflict with or obstruct implementation of the SMAQMD's air quality planning efforts.

Operational emissions of criteria pollutants would be generated by the proposed project from both mobile and stationary sources. Day-to-day activities such as future residents' vehicle trips to and from the project site would make up the majority of the mobile emissions. Emissions would also occur from area sources such as natural gas combustion from heating mechanisms, landscape maintenance equipment exhaust, and consumer products (e.g., deodorants, cleaning products, spray paint, etc.).

As stated above, the project is required to comply with all applicable SMAQMD rules and regulations, such as Rule 402 (Nuisance), Rule 404 (Particulate Matter), and Rule 417 (Wood Burning Appliances). CalEEMod accounts for compliance with Rule 417. As discussed in the Method of Analysis section above, the modeling included inherent design features of the proposed project and required compliance with the California Building Energy Efficiency Standards Code.

Liberty Ranch Only

The Liberty Ranch portion of the proposed project estimated operational emissions are presented in Table 4.3-8. As shown in the table, the Liberty Ranch portion of the proposed project would result in operational emissions below the applicable threshold of significance for NO_x, but would exceed the applicable threshold of significance for ROG. In addition, the Liberty Ranch portion of the proposed project would result in operational PM emissions below the proposed SMAQMD thresholds of significance. The majority of the operational emissions of ROG would result from area sources, such as natural gas combustion from heating mechanisms, landscape maintenance equipment exhaust, and consumer products (e.g., deodorants, cleaning products, spray paint, etc.). Because the Liberty Ranch portion of the proposed project would result in emissions of ROG in excess of the applicable threshold of significance, the proposed project could violate an air quality standard, would contribute to an existing air quality violation (i.e., the region's nonattainment status of ozone), and would be considered to conflict with or obstruct implementation of the SMAQMD's air quality planning efforts.

| Table 4.3-8 Maximum Unmitigated Liberty Ranch Only Operational Emissions¹ | | |
|---|--|--|
| Pollutant | Project Emissions (lbs/day) | SMAQMD Thresholds of Significance (lbs/day) |
| NO _x | 62.01 | 65 |
| ROG | 103.42 | 65 |
| PM ₁₀ | 59.59 | 80 |
| PM _{2.5} | 17.53 | 82 |
| ¹ Includes compliance with SMAQMD Rule 417 and inherent sustainable project features. <i>Source: CalEEMod, April 2015 (see Appendix C).</i> | | |

Full Buildout of Proposed Project

Full buildout of the proposed project, including development of Liberty Ranch, the non-participating properties, and the “Future Growth Area,” would result in operational emissions as estimated by CalEEMod and presented in Table 4.3-9. As shown in the table, the proposed project’s operational emissions would exceed the applicable SMAQMD thresholds of significance for ROG, NO_x, and PM₁₀. It should be noted that the majority of the operational emissions of ROG would result from area sources, such as natural gas combustion from heating mechanisms, landscape maintenance equipment exhaust, and consumer products (e.g., deodorants, cleaning products, spray paint, etc.). The majority of NO_x and PM emissions would result from mobile sources. Because the project would exceed the applicable SMAQMD thresholds of significance for ROG, NO_x, and PM₁₀, the proposed project would be expected to result in a significant impact.

| Table 4.3-9 Maximum Unmitigated Proposed Project (Full Buildout) Operational Emissions¹ | | |
|---|--|--|
| Pollutant | Project Emissions (lbs/day) | SMAQMD Thresholds of Significance (lbs/day) |
| NO _x | 79.45 | 65 |
| ROG | 134.60 | 65 |
| PM ₁₀ | 95.05 | 80 |
| PM _{2.5} | 27.63 | 82 |
| ¹ Includes compliance with SMAQMD Rule 417 and inherent sustainable project features. <i>Source: CalEEMod, April 2015 (see Appendix C).</i> | | |

Proposed Project Compared to Buildout of Site per General Plan

In order to compare the proposed project’s overall change in emissions from what is currently anticipated for the site per the City’s General Plan, the currently approved land use designations for the site were applied to CalEEMod. The proposed project would result in fewer residential units and less commercial square footage than what is currently anticipated for the site per the General Plan. Other than the land use modifications, improvements to the walkability and connectivity of the site, improvements to the area’s pedestrian network, and provision of traffic calming measures, all of the same

assumptions as the proposed project were applied to the modeling, including project-specific VMT. The estimated operational emissions associated with the project site per the approved land uses, as well as a comparison of the proposed project’s associated emissions, are presented in Table 4.3-10 below.

As shown in the table, compared to buildout of the project site under the currently approved land uses, the land use designation changes proposed for the project would result in an overall decrease in operational emissions. Because the proposed project would result in fewer emissions than anticipated under the approved land uses for the site, new impacts or an increase in the severity of any previously identified air quality impacts within the General Plan EIR would not occur.

| Pollutant | As Approved Emissions (lbs/day) | Proposed Project Emissions (lbs/day) | Change (lbs/day) |
|--|--|---|-----------------------------|
| NO _x | 144.76 | 79.45 | -65.31 |
| ROG | 172.90 | 134.60 | -38.30 |
| PM ₁₀ | 109.14 | 95.05 | -14.09 |
| PM _{2.5} | 31.67 | 27.63 | -4.04 |
| ¹ Both scenarios include compliance with SMAQMD Rule 417 and inherent project-specific features (except for improvements to the walkability and connectivity of the site, improvements to the area’s pedestrian network, and provision of traffic calming measures, which would not necessarily be implemented under As Approved conditions). | | | |
| <i>Source: CalEEMod, April 2015 (see Appendix C).</i> | | | |

Although the proposed project would result in an overall reduction in operational emissions from what is currently anticipated for the site per the City’s General Plan, the project would still result in operational emissions of NO_x, ROG, and PM₁₀ in excess of the applicable thresholds of significance, and a significant impact would occur.

Proposed Project Operational Air Quality Mitigation Plan

According to SMAQMD, projects that generate a significant impact for ozone precursors should create an AQMP to minimize impacts. The AQMP shall consist of feasible measures to reduce operational mobile source ozone precursor emissions associated with the project and minimize impacts. Due to the anticipated significant impacts related to project emissions in excess of applicable thresholds of significance for ozone precursors, an Operational Air Quality Mitigation Plan (AQMP), consistent with the SMAQMD *Guide to Air Quality Assessment in Sacramento County* (CEQA Guide),³² was prepared for the proposed project (see Appendix D).³³ The AQMP is a stand-alone document separate from any other documents or plans required by CEQA or other laws, ordinances, or regulations. SMAQMD guidance provides that the creation and implementation of an AQMP is feasible mitigation, provided a reduction of mobile source ozone precursors is illustrated to be below an unmitigated baseline by 15 percent for projects considered in the SIP and 35 percent for projects not considered in the SIP. Because buildout of the project

site has been anticipated by the City per the General Plan and associated EIR, development of the project site was included in the SIP. As a result, a reduction of 15 percent below unmitigated baseline emissions of mobile source ozone precursors would be required for the proposed project.

Based on the analysis within the AQMP, the proposed project's inherent design features (i.e., project-specific VMT, increased diversity, walkability improvements, pedestrian and bicycle network improvements, and traffic calming measures) would be sufficient to reduce project mobile source ozone precursor emissions from an unmitigated baseline condition by more than the 15 percent reduction requirement. The project's features would result in an overall 34.67 percent reduction in mobile source ozone precursor emissions from the unmitigated baseline condition; thus, the AQMP prepared for the proposed project shows that the project would satisfy SMAQMD requirements. Implementation of the measures set forth in the AQMP would be required for any development within the project area in order for buildout of the proposed project to meet the necessary overall regional reduction in operational ozone emissions per SMAQMD requirements.

It should be noted that the measures required per the AQMP would also contribute to a reduction in the proposed project's PM emissions (i.e., PM₁₀ emissions would be reduced to 91.84 lbs/day and PM_{2.5} emissions would be reduced to 24.54 lbs/day); however, PM₁₀ emissions would still exceed the applicable threshold of significance.

Consistency with SACOG MTP/SCS

A detailed discussion regarding the proposed project's consistency with the SACOG MTP/SCS is presented in the Land Use and Planning / Population and Housing chapter of this EIR. As discussed in the chapter, the proposed project site is categorized per the MTP/SCS as "Developing Communities"³⁴. The proposed project is a specific plan and includes a mix of residential and employment uses, which is consistent with the MTP/SCS's definition of a Developing Community. Transportation options in Developing Communities often depend, to a great extent, on the timing of development. Many Developing Communities are designed with dedicated pedestrian and bicycle trails. The proposed project includes a central pedestrian corridor, as well as separated sidewalks along roadways and wide vegetated planters. The central pedestrian corridor, known as the Deadman Gulch Open Space Corridor, as well as all other proposed pedestrian and bicycle network improvements, would provide pedestrian connections within the proposed project site and linkage to nearby areas as well. Overall, the proposed project would be consistent with the MTP/SCS's definition of a Developing Community.

Conclusion

Although the proposed project would result in an overall reduction in operational emissions from what is currently anticipated for the site per the City's General Plan, the project would still result in operational emissions of NO_x, ROG, and PM₁₀ in excess of the applicable thresholds of significance. Thus, the proposed project would still

contribute towards the significant and unavoidable impact identified for buildout of the General Plan. Similarly, although the proposed project has prepared an AQMP that shows that the project would satisfy the SMAQMD requirement of a 15 percent reduction of mobile source operational ozone precursor emissions from unmitigated baseline conditions, the project would still result in operational emissions of NO_x, ROG, and PM₁₀ in excess of the applicable thresholds of significance. As a result, the proposed project could violate an air quality standard, would contribute to an existing air quality violation (i.e., the region's nonattainment status of ozone or PM), and would be considered to conflict with or obstruct implementation of the SMAQMD's air quality planning efforts. Therefore, the proposed project would be considered to result in a *significant* impact associated with operational NO_x, ROG, and PM₁₀ emissions and a conflict with or obstruction of implementation of applicable air quality plans.

Mitigation Measure(s)

The following mitigation measure would reduce the proposed project's mobile source operational ozone precursor emissions as discussed above; however, additional feasible mitigation is not available at this time sufficient to reduce emissions to below the applicable thresholds of significance such that a less-than-significant impact would occur. Therefore, even with implementation of the following mitigation measure, the above impact would remain *significant and unavoidable*.

Non-Participating Properties, Future Growth Area, and Liberty Ranch

4.3-2 *Prior to approval of site plans, the project applicant shall show on the plans, via notation where necessary, compliance with and implementation of all measures prescribed in the SMAQMD-confirmed AQMP prepared for the proposed project, a copy of which is included as Appendix D to the Draft EIR. Project plans shall be subject to review and approval by the Community Development Department.*

4.3-3 Exposure of sensitive receptors to substantial pollutant concentrations. Based on the analysis below, the impact is *less than significant*.

The proposed project involves the creation of new housing; thus, would introduce new sensitive receptors to the area. Accordingly, the proposed project would be considered a sensitive receptor. In addition, the existing on-site school and rural residences would be considered sensitive receptors. The nearby residences west of the site, as well as to the north, northeast, and east of the site, would be considered sensitive receptors as well. The major pollutant concentrations of concern are localized CO emissions and TAC emissions, which are addressed in further detail below.

Localized CO Emissions

Except for CO, land use development projects do not typically have the potential to result in localized concentrations of criteria air pollutants that exceed or contribute to an exceedance of AAQS, as such pollutants are predominantly generated in the form of

mobile-source exhaust from vehicle trips associated with the land use development project, which occur throughout a network of roadways. As such, associated exhaust emissions are not generated in a single location where high concentrations could be formed. For the aforementioned reasons, the primary pollutant of localized concern is CO. Localized concentrations of CO are related to the levels of traffic and congestion along streets and at intersections.

Implementation of the proposed project would increase traffic volumes on streets near the project site; therefore, the project would be expected to increase local CO concentrations. Concentrations of CO approaching the ambient air quality standards are only expected where background levels are high, and traffic volumes and congestion levels are high. The SMAQMD's preliminary screening methodology for localized CO emissions provides a conservative indication of whether project-generated vehicle trips would result in the generation of CO emissions that contribute to an exceedance of the applicable threshold of significance. The first tier of SMAQMD's recommended screening criteria for localized CO states that a project would result in a less-than-significant impact to air quality for local CO if:

- Traffic generated by the project would not result in deterioration of intersection level of service (LOS) to LOS E or F; and
- The project would not contribute additional traffic to an intersection that already operates at LOS of E or F.

Even if a project would result in either of the above, under the SMAQMD's second tier of localized CO screening criteria, if all of the following criteria are met, the project would still result in a less-than-significant impact to air quality for localized CO:

- The project would not result in an affected intersection experiencing more than 31,600 vehicles per hour;
- The project would not contribute traffic to a tunnel, parking garage, bridge underpass, urban street canyon, or below-grade roadway; or other locations where horizontal or vertical mixing of air would be substantially limited; and
- The mix of vehicle types at the intersection is not anticipated to be substantially different from the County average (as identified by the EMFAC or CalEEMod models).

According to the Transportation Impact Analysis prepared for the proposed project by Omni-Means, at full buildout of the project, all study intersections would operate at acceptable levels (i.e., LOS D or better). Therefore, the proposed project would not be expected to result in excessive traffic congestion or the generation of localized CO emissions in excess of the applicable AAQS. In addition, the proposed project would result in fewer residential units and less commercial square footage than currently allowable per the existing land use designations for the site. The modifications in land uses would result in a reduction of vehicle trips and a subsequent reduction in overall regional VMT from what is anticipated for buildout of the site per the City's General

Plan. The reduction in overall travel in the region from implementation of the proposed project would result in fewer associated mobile emissions, including criteria air pollutant emissions, from what has been anticipated for the site. As such, the project would not result in an increase in any previously identified impacts related to localized CO emissions.

TAC Emissions

The CARB Handbook provides recommendations for siting new sensitive land uses near sources typically associated with significant levels of TAC emissions, including, but not limited to, freeways and high traffic roads, distribution centers, and rail yards.³⁵ The CARB has identified DPM from diesel-fueled engines as a TAC; thus, high volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic are identified as having the highest associated health risks from DPM. Health risks from TACs are a function of both the concentration of emissions and the duration of exposure.

Construction activities have the potential to generate DPM emissions related to the number and types of equipment typically associated with construction. Off-road heavy-duty diesel equipment used for site grading, paving, and other construction activities result in the generation of DPM. However, construction is temporary and occurs over a relatively short duration in comparison to the operational lifetime of the proposed project. In addition, buildout of the proposed project would likely occur in phases, where only portions of the site would be disturbed at a time, with operation of construction equipment regulated and occurring intermittently throughout the course of a day. Thus, the likelihood that any one sensitive receptor would be exposed to high concentrations of DPM for any extended period of time would be low.

The residences to the east of the project site would be subjected to the highest construction-related emission concentrations, including DPM, associated with buildout of the site. As discussed above, the proposed project's construction-related PM₁₀ emission concentration (including both fugitive dust and exhaust PM₁₀ emissions) at the nearest sensitive receptor to the east was estimated using the AERMOD software program. Based on the AERMOD results, the highest 24-hour average concentration of PM₁₀ associated with construction of the proposed project at a nearby sensitive receptor was estimated to be 34.91 ug/m³, which is below the 24-hour CAAQS of 50 µg/m³ that SMAQMD considers the concentration-based threshold of significance for construction-related PM₁₀ emissions. Because health risks associated with exposure to DPM or any TAC are correlated with high concentrations over a long period of exposure (e.g., over a 70-year lifetime), the temporary, intermittent construction-related DPM emissions would not be expected to cause any health risks to any nearby sensitive receptors. As such, construction of the proposed project would not expose any nearby existing sensitive receptors to substantial concentrations of TACs.

Operational-related emissions of TACs are typically associated with stationary diesel engines or land uses that involve heavy truck traffic or idling. The proposed project does

not involve long-term operation of any stationary diesel engine or other major on-site stationary source of TACs. The CARB's Handbook includes facilities (distribution centers) with associated diesel truck trips of more than 100 trucks per day as a source of substantial TAC emissions. The project is not a distribution center, would not involve heavy diesel truck traffic, and is not located near any existing distribution center. Therefore, overall, the proposed project would not expose any existing sensitive receptors to any new permanent or substantial TAC emissions.

Existing Union Pacific Railroad tracks generally bound the site to the south. However, due to the lack of idling trains, CARB does not consider railroad tracks to represent a potentially significant source of TAC emissions. Rail yards are considered a significant source of TACs by CARB due to the substantial amount of trains and idling. The project site is not located within the vicinity of any rail yard. Therefore, the project would not be affected by DPM emissions associated with a rail yard.

The CARB, per its Handbook, recommends the evaluation of emissions when freeways are within 500 feet of sensitive receptors. Any project placing sensitive receptors within 500 feet of a major roadway or freeway may have the potential to expose those receptors to DPM. The proposed project is not located within 500 feet of a major roadway or freeway. Therefore, according to the SMAQMD's *Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways*, a site-specific health risk assessment is not necessary for the proposed project.

As discussed above, the only area within Sacramento County that is likely to contain NOA is eastern Sacramento County. The project site is not located in eastern Sacramento County and is not in an area identified as likely to contain NOA. Thus, sensitive receptors would not be exposed to NOA as a result of the proposed project.

Conclusion

As discussed above, the proposed project would not cause or be exposed to substantial pollutant concentrations, including localized CO or TAC emissions. Therefore, exposure of sensitive receptors to substantial pollutant concentrations would not occur and a *less than significant* short-term impact would occur.

Mitigation Measure(s)

None required.

4.3-4 The creation of objectionable odors affecting a substantial number of people. Based on the analysis below, the impact is *less than significant*.

As discussed above, due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, quantitative methodologies to determine the presence of a significant odor impact do not exist. Typical odor-generating land uses include, but are not limited to, wastewater treatment plants, landfills, and composting facilities. The proposed project would not

introduce any such land uses and is not located in the vicinity of any existing or planned such land uses.

Residential land uses are not typically associated with the creation of substantial objectionable odors. In addition, the proposed land use modifications would not introduce any previously unanticipated uses that would create objectionable odors. However, existing agricultural land uses are located to the south and the east of the project site. Accordingly, the future residents of the proposed project could potentially be exposed to odors associated with the ongoing agricultural operations, including, but not limited to, odors associated with exhaust fumes from use of heavy equipment and overspray of chemicals. However, land to the south of the site is designated primarily for residential development in the City's General Plan. Land to the east and south of the site is within Sacramento County and is designated agricultural-residential and general agricultural. As such, agricultural operations would continue to occur. The site would be separated from the existing agricultural areas by the UPRR right-of-way and roadways, which would provide a buffer between the proposed project and the ongoing agricultural operations to the south (until such time as the planned residential development occurs consistent with the Galt General Plan) and east. Thus, the nearby agricultural operations would not be expected to create objectionable odors that would affect a substantial number of people on the project site.

Diesel fumes from construction equipment are often found to be objectionable; however, construction is temporary and associated diesel emissions would be regulated. In addition, the proposed project would be required to comply with all applicable SMAQMD rules and regulations, which would help to control construction-related odorous emissions. Therefore, construction of the proposed project would not be expected to create objectionable odors affecting a substantial number of people.

The SMAQMD regulates objectionable odors through Rule 402 (Nuisance), which prohibits any person or source from emitting air contaminants that cause detriment, nuisance, or annoyance to a considerable number of persons or the public. Rule 402 is enforced based on complaints. If complaints are received, the SMAQMD is required to investigate the complaint, as well as determine and ensure a solution for the source of the complaint, which could include operational modifications. Thus, although not anticipated, if odor complaints are made after the proposed project is developed, the SMAQMD would ensure that such odors are addressed and any potential odor effects reduced to less than significant.

For the aforementioned reasons, construction and operation of the proposed project would not create objectionable odors, nor would the project site be affected by any existing sources of substantial objectionable odors, and a *less-than-significant* impact related to objectionable odors would result.

Mitigation Measure(s)

None required.

Cumulative Impacts and Mitigation Measures

A project's emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and future development projects. The geographic context for the proposed project cumulative air quality analysis includes the City of Galt and surrounding areas within the SVAB that are designated nonattainment for ozone and PM.

Global climate change is, by nature, a cumulative impact. Emissions of GHG contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change (e.g., sea level rise, impacts to water supply and water quality, public health impacts, impacts to ecosystems, impacts to agriculture, and other environmental impacts). A single project could not generate enough GHG emissions to contribute noticeably to a change in the global average temperature. However, the combination of GHG emissions from a project in combination with other past, present, and future projects contribute substantially to the world-wide phenomenon of global climate change and the associated environmental impacts. Although the geographical context for global climate change is the Earth, for analysis purposes under CEQA and due to the regulatory context pertaining to GHG emissions and global climate change applicable to the proposed project, the geographical context for global climate change in this EIR is limited to the State of California.

4.3-5 A cumulatively considerable net increase of any criteria pollutant. Based on the analysis below and the lack of feasible mitigation, the impact is *significant and unavoidable*.

A cumulative impact analysis considers a project over time in conjunction with other past, present, and reasonably foreseeable future projects whose impacts might compound those of the project being assessed. Air pollution is largely a cumulative impact. The nonattainment status of regional pollutants, including ozone and PM, is a result of past and present development, and, thus, cumulative impacts related to these pollutants could be considered cumulatively significant. Future attainment of AAQS is a function of successful implementation of SMAQMD attainment plans. Consequently, the SMAQMD's approach to cumulative thresholds of significance is relevant to whether a project's individual emissions of ROG and NO_x would result in a cumulatively considerable contribution to the SVAB's existing cumulative impacts related to air quality conditions. If a project's ozone precursor emissions would be less than SMAQMD project-level thresholds, the project would not be expected to result in a cumulatively considerable contribution to a significant cumulative impact. However, exceedance of the project-level thresholds would not necessarily constitute a significant cumulative impact.

The General Plan EIR concluded that buildout of the entire General Plan would contribute to a cumulatively significant environmental impact associated with cumulative air quality and climate change. As discussed above, full buildout of the proposed project would result in operational emissions of NO_x and ROG in excess of the applicable project-level thresholds of significance. Accordingly, the proposed project's operational

emissions would contribute to the significant and unavoidable impact identified for buildout of the General Plan involving ozone precursor emissions.

In addition, SMAQMD has adopted mass emissions thresholds of significance for PM₁₀ and PM_{2.5}, including cumulative thresholds. The proposed project’s anticipated PM emissions contribution to cumulative conditions has been estimated and compared to the thresholds of significance, as shown in Table 4.3-11. As shown in the table, the proposed project would result in emissions of PM₁₀ in excess of the applicable SMAQMD threshold of significance. The majority of the PM₁₀ emission would result from mobile sources. Accordingly, the proposed project’s operational emissions of PM would contribute to the significant and unavoidable impact identified for buildout of the General Plan involving PM emissions.

| Table 4.3-11 | | |
|--|--|--|
| Proposed Project (Full Buildout) Cumulative Emissions Contribution¹ | | |
| Pollutant | Project Emissions (tons/yr) | SMAQMD Thresholds of Significance (tons/yr) |
| PM ₁₀ | 15.33 | 14.6 |
| PM _{2.5} | 4.47 | 15 |
| ¹ Includes compliance with SMAQMD Rule 417 and inherent sustainable project features. | | |
| <i>Source: CalEEMod, April 2015 (see Appendix C).</i> | | |

It should be noted, however, that the proposed project would result in fewer residential units and less commercial square footage from what has been anticipated and analyzed for the site per the General Plan and associated EIR. The modifications in land uses would result in an associated reduction of vehicle trips, which would result in fewer associated mobile emissions, including criteria air pollutant emissions, from what has been anticipated for the site per the General Plan. Thus, the proposed project’s incremental contribution towards the significant and unavoidable impact identified for buildout of the General Plan would be less than what has been anticipated for the site.

Nonetheless, because the proposed project would still contribute towards the significant and unavoidable impact identified for buildout of the General Plan, consistent with the conclusion within the General Plan EIR, the proposed project’s incremental contribution towards regional air quality would be cumulatively considerable, and the cumulative impact would be considered *significant*.

Mitigation Measure(s)

Feasible mitigation measures are not currently available sufficient to reduce the proposed project’s emissions to below the applicable thresholds of significance such that a less-than-significant cumulative impact would occur. Therefore, consistent with the General Plan EIR, the above impact would remain *significant and unavoidable*.

4.3-6 Generation of GHG emissions, either directly or indirectly, that may have a significant impact on the environment (i.e., exceed 1,100 MTCO_{2e}/yr) and/or a conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs (i.e., not achieve a minimum 21.7 percent emission reduction from a No Action Taken scenario by 2020 per AB 32, or be inconsistent with SACOG's MTP/SCS). Based on the analysis below, the impact is *less than significant*.

Emissions of GHGs contributing to global climate change are attributable in large part to human activities.³⁶ The major man-made sources of GHG emissions contributing to global climate change include utility, transportation, industrial/manufacturing, residential, and agricultural sector operations.³⁷ Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on Earth. A project's GHG emissions are at a micro-scale relative to global emissions, but could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact. Based on State law requiring reduction in GHG emissions to historical levels, as discussed above, any impacts identified associated with GHG emissions are inherently cumulatively considerable.

As discussed above, the threshold of significance for both construction-related and operational GHG emissions is 1,100 MTCO_{2e}/yr or a 21.7 percent reduction from a No Action Taken scenario by the year 2020 (based on Statewide GHG emission reduction targets per AB 32). The No Action Taken scenario for this analysis would be development of the proposed project without implementation of any State-wide regulation GHG emission reductions or project-specific sustainable design features.

Implementation of the proposed project along with other past, present, and reasonably foreseeable future projects, would contribute GHG emissions that are associated with global climate change. Estimated GHG emissions attributable to future development would be primarily associated with increases of CO₂ and other GHG pollutants, including CH₄ and N₂O, from mobile sources and utility usage. The proposed project's short-term construction-related and long-term operational GHG emissions were estimated using CalEEMod and are expressed in MTCO_{2e}/yr.

Construction GHG Emissions

Construction-related GHG emissions are a one-time release and are, therefore, not typically expected to generate a significant contribution to global climate change, as global climate change is inherently a cumulative effect that occurs over a long period of time and is quantified on a yearly basis. However, the proposed project's construction GHG emissions have been estimated and compared to the SMAQMD threshold of significance. The proposed project's maximum annual construction-related GHG emissions are presented in Table 4.3-12. The construction modeling assumptions are described in the Method of Analysis section above.

| Table 4.3-12 Proposed Project Construction GHG Emissions | | |
|--|--|---|
| | Annual GHG Emissions (MTCO₂e/yr) | SMAQMD Thresholds of Significance (MTCO₂e/yr) |
| Maximum Construction-related GHG Emissions ¹ | 883.46 | 1,100 |
| ¹ It should be noted that the maximum annual GHG emissions are anticipated to occur during the year 2018 according to CalEEMod. | | |
| <i>Source: CalEEMod, June 2015 (see Appendix C).</i> | | |

As shown in the table, the proposed project’s construction-related GHG emissions would be below the applicable threshold of significance. Accordingly, the proposed project would not be expected to have a cumulatively considerable contribution to a significant cumulative environmental impact during construction. It should be noted that similar construction emissions would be expected to occur associated with buildout of the project site under the currently approved land use designations per the City’s General Plan as well as the proposed land use designations, as development would occur over the same site and over a similar area of disturbance. As such, the proposed project would not result in any additional impacts related to construction GHG emissions beyond those anticipated in the General Plan EIR.

Operational GHG Emissions

Because the Liberty Ranch portion of the project is the only portion of the project currently proposed for development, the Liberty Ranch portion of the proposed project was modeled separately for comparison and informational purposes only. Because the proposed project includes the non-participating properties and “Future Growth Area” as part of the proposed project site, the emissions associated with full buildout of the site, including such areas, were compared to the applicable thresholds of significance for the impact significance determination.

Liberty Ranch Only

The estimated annual operational GHG emissions associated with the Liberty Ranch portion of the proposed project only are presented in Table 4.3-13. As shown in the table, the Liberty Ranch portion of the proposed project alone would result in operational emissions of GHG in excess of the applicable threshold of significance of 1,100 MTCO₂e/yr. The modeling assumptions are discussed in the Method of Analysis section above.

| Table 4.3-13 Unmitigated Liberty Ranch Only Operational GHG Emissions¹ | | |
|--|--|---|
| Emission Source | Annual GHG Emissions (MTCO ₂ e/yr) | SMAQMD Thresholds of Significance (MTCO ₂ e/yr) |
| Area | 24.07 | - |
| Energy | 4,135.46 | - |
| Mobile | 8,954.16 | - |
| Solid Waste | 670.29 | - |
| Water | 196,73 | - |
| TOTAL ANNUAL GHG EMISSIONS | 13,980.71 | 1,100 |
| ¹ Includes compliance with SMAQMD Rule 417 and inherent sustainable project features. | | |
| <i>Source: CalEEMod, April 2015 (see Appendix C).</i> | | |

Full Buildout of Proposed Project

Full buildout of the proposed project, including development of Liberty Ranch, the non-participating properties, and the “Future Growth Area,” would result in operational GHG emissions at full buildout year (assumed to be 2035) as estimated by CalEEMod and presented in Table 4.3-14. The modeling assumptions are discussed in the Method of Analysis section above. As shown in the table, full buildout of the proposed project would result in operational GHG emissions in excess of the SMAQMD’s threshold of 1,100 MTCO₂e/yr. Accordingly, the proposed project could have a cumulatively considerable contribution to a significant cumulative environmental impact.

| Table 4.3-14 Unmitigated Proposed Project Operational GHG Emissions¹ | | |
|--|--|---|
| Emission Source | Annual GHG Emissions (MTCO ₂ e/yr) | SMAQMD Thresholds of Significance (MTCO ₂ e/yr) |
| Area | 29.84 | - |
| Energy | 5,464.00 | - |
| Mobile | 13,671.70 | - |
| Solid Waste | 889.82 | - |
| Water | 263.21 | - |
| TOTAL ANNUAL GHG EMISSIONS | 20,318.58 | 1,100 |
| ¹ Includes compliance with SMAQMD Rule 417 and inherent sustainable project features. | | |
| <i>Source: CalEEMod, December 2014 (see Appendix C).</i> | | |

Additional GHG Analysis

Because both the project’s construction and operational GHG emissions were estimated to exceed the applicable thresholds of significance, additional analysis is required to determine the project’s consistency with AB 32 and the Scoping Plan’s reduction goal of 21.7 percent from a No Action Taken scenario by the year 2020. Full buildout of the

proposed project in the year 2020, including amortized construction GHG emissions were compared to the No Action Taken scenario, which, for this analysis would be development of the proposed project in 2020 without accounting for any project-specific sustainability or design features or any required GHG reductions measures per regulations. Annual GHG emissions associated with full buildout of the proposed project in the year 2020 and under No Action Taken conditions were estimated using CalEEMod and are presented in Table 4.3-15 and Table 4.3-16, respectively. Modeling assumptions are discussed in the Method of Analysis section above.

| Table 4.3-15 | |
|---|---|
| Proposed Project Operational GHG Emissions (YEAR 2020)¹ | |
| Emission Source | Annual GHG Emissions (MTCO _{2e} /yr) |
| Construction Emissions² | 35.33 |
| Operational Emissions | 21,485.20 |
| Area | 29.85 |
| Energy | 5,464.00 |
| Mobile | 14,838.31 |
| Solid Waste | 889.82 |
| Water | 263.21 |
| TOTAL ANNUAL GHG EMISSIONS | 21,520.53 |
| ¹ Includes compliance with SMAQMD Rule 417 and inherent sustainable project features. ² Maximum annual construction GHG emissions of 883.46 MTCO _{2e} were amortized over the anticipated lifetime of the project, which was assumed to be 25 years for this analysis (883.46 MTCO _{2e} / 25 years = 35.33 MTCO _{2e} /yr. ³⁸ | |
| <i>Source: CalEEMod, December 2014 (see Appendix C).</i> | |

| Table 4.3-16 | |
|--|---|
| No Action Taken GHG Emissions | |
| Emission Source | Annual GHG Emissions (MTCO _{2e} /yr) |
| Construction Emissions² | 35.33 |
| Operational Emissions | 28,907.36 |
| Area | 29.85 |
| Energy | 7,164.31 |
| Mobile | 20,502.11 |
| Solid Waste | 889.81 |
| Water | 321.27 |
| TOTAL ANNUAL GHG EMISSIONS | 28,942.69 |
| ¹ Includes compliance with SMAQMD Rule 417 and inherent sustainable features, except for improvements to the pedestrian network, which would not necessarily be implemented under No Action Taken conditions ² Construction emissions would be similar under the No Action Taken condition to the proposed project due to the total area of disturbance expected. | |
| <i>Source: CalEEMod, December 2014 (see Appendix C).</i> | |

Consequently, the proposed project would result in approximately a 25.64 percent reduction in annual GHG emissions from No Action Taken conditions by 2020, as

presented in Table 4.3-17 ($[28,942.69 \text{ MTCO}_2e - 21,520.53 \text{ MTCO}_2e] / 28,942.69 \text{ MTCO}_2e \times 100\% = 25.64\%$). The reduction in GHG emissions would primarily be attributable to the advancement of vehicle and equipment efficiency as a result of federal and State regulations, as well as more stringent building energy efficiency and green building standards, RPS reductions, and other regulations related to climate change as time progresses. Although a reduction related to such attributes would occur for every development project, CalEEMod takes into consideration how much of each attribute is applied for each specific project based on the size of the project and associated land uses.

| Table 4.3-17 | |
|--|--|
| Percent GHG Reduction From No Action Taken Conditions by 2020 | |
| | Annual GHG Emissions (MTCO_{2e}/yr) |
| No Action Taken | 28,942.69 |
| Proposed Project Year 2020 | 21,520.53 |
| Total Reduction from No Action Taken by 2020 | 7,422.16 |
| PERCENT REDUCTION¹ | 25.64% |
| ¹ Percent reduction of project GHG emissions from No Action Taken conditions by 2020 (see calculation in text above). | |

In addition, the proposed project would be required to comply with the EVSP Development Standards and Design Guidelines, which would contribute towards a reduction in air pollutant emissions, including GHGs, associated with buildout of the proposed project.

Because the proposed project would result in a reduction in GHG emissions of 25.64 percent from No Action Taken levels by 2020, which would meet the minimum reduction goal of 21.7 percent, the proposed project would not be considered to conflict with AB 32. In addition, although the 1,100 MTCO_{2e}/yr threshold of significance would be exceeded during project construction and operations, because the proposed project would be capable of meeting the 21.7 percent reduction goal per AB 32 and the Scoping Plan, the proposed project’s GHG emissions would not be considered to have a significant impact on the environment.

It should be noted that the proposed Eastview Specific Plan (EVSP) includes the following applicable guiding principle related to air quality and climate change in Section 3.1, Goals and Guiding Principles, on page 3-2 of the EVSP:

- k. Implement feasible “smart growth” and “green building” practices, including:
 - 1. Design compact and efficient development to maximize efficiency in land as a resource as well as minimize energy consumption, minimize air quality impacts and reduce greenhouse gas (GHG) emissions.

2. Locate higher density housing central to the plan adjacent to principal recreational land uses to promote walking and cycling and minimize auto use for short daily trips.
3. Incorporate passive energy-efficient features in the design and orientation of buildings and utilize deciduous street trees to provide protection and shade.
4. Incorporate “green” storm water infrastructure and low-impact design strategies such as water quality basins and swales to pre-treat urban run-off and allow ground recharge and absorption by plant material.
5. Promote cool roofs and/or photovoltaic energy production by meeting or exceeding the most current Title 24 requirements and provide “solar ready” homes.
6. Promote “smart grid” technology to integrate communications or gather information on the behaviors and needs of residents so that services can be provided in an efficient and more sustainable manner (smart meters, tiered pricing to reduce peaking, service distribution based on demands, etc.)
7. Encourage community bus service that would allow local and regional connections to Galt, Lodi, Stockton, and Sacramento.

The guiding principle would further contribute towards the project’s GHG emissions reductions and benefit global climate change. In addition, the proposed EVSP includes Development Standards and Design Guidelines for the proposed land uses. The Community Design Guidelines of the EVSP are intended to provide design direction for new development within the proposed project area in order to make a positive contribution to the built environment. The Development Standards and Design Guidelines would also contribute towards a reduction in air pollutant emissions, including GHGs. The proposed project would be required to comply with the EVSP Development Standards and Design Guidelines.

It should be noted that the Scoping Plan includes a goal to reduce State-wide GHG emissions to 80 percent below 1990 levels by 2050. Based on recent developments, the regulatory environment associated with climate change and sustainability has a high level of effect on land use related GHG emissions. More stringent regulations and technological advancements are ever-evolving. Accordingly, the future regulations that may be in place in the year 2050 could substantially reduce project emissions at that time, but are currently unknown and cannot be reasonably predicted or quantified. However, as shown in Table 4.3-15, at full buildout of the proposed project, which is anticipated to occur in the year 2035, operational GHG emissions would be reduced from 2020 emissions (as presented in Table 4.3-16) by an estimated 1,1166.62 MTCO₂/yr. Consequently, the proposed project would result in a downward trajectory in GHG emissions over time. The downward trend is substantially associated with more stringent regulations and standards set forth by the federal, State, and local governments as time progresses and technology advances. Therefore, the proposed project would contribute towards the overall downward trajectory of GHG emissions towards the 2050 Scoping Plan reduction goal.

Consistency with SACOG MTP/SCS

As discussed above, the proposed project would overall be consistent with the MTP/SCS's definition of a Developing Community, which is what the proposed project site is categorized under per the MTP/SCS.

Consistency with General Plan

The City of Galt General Plan encourages energy conservation that leads to lowering Galt's carbon footprint relative to new development. Brief discussions regarding some of the applicable General Plan policies that are relevant to or which could be practically addressed by a specific plan are discussed below.

Policy COS-7.4: Energy Efficient Development

In the neighborhood in the southwest portion of the EVSP area, approximately 50 percent of the residential lots would be oriented in the most optimal east-west direction, along north/south aligned streets, which would provide for maximum solar access opportunities for future homes with roofs that slope to the south. The neighborhood immediately to the east would not contain any lots oriented along an east-west axis; however, all of the lots would be oriented in a northeast-southwest direction, which would provide for effective solar access for future homes. In the neighborhood located in the southeastern area, between Walnut Avenue and the UPRR tracks, approximately five percent of the lots would be oriented along the optimal east-west axis and approximately 90 percent would be oriented along an effective northeast-southwest axis. In the neighborhood in the northeast part of the EVSP area, approximately 10 percent of the lots would be oriented along the optimal east-west axis, while the rest would have a less advantageous north-south orientation, where more innovative roof designs would be required in order to allow for optimal solar access to rooftop panels. In the neighborhood on the west side of Liberty Ranch Road, north of Deadman Gulch, approximately 40 percent of the lots would have an optimal east-west orientation. The remaining lots would have a more challenging north-south orientation that would require more innovation in roof designs to provide optimal solar access for rooftop panels.

Policy COS-7.6: Sustainable Design

A variety of canopy trees would be included in the plant palette described in Chapter 7 of the EVSP that would provide shade that could reduce cooling loads of home air conditioning systems during the hotter seasons. Street trees would be planted along all major and minor streets, which would provide shade that could partially reduce street heat levels due to sunlight. Some of the new homes are anticipated to have light or reflective roofing materials, as appropriate for the particular architectural style of the home. Street pavement materials and coloring are likely to be standard black asphalt, in accordance with the City's standard specifications for street improvements.

Policy COS-7.7: Energy Efficient Design Techniques in Specific Plans

All new homes would be designed with “solar-ready” roofs, as required in the 2013 California Building Standards Code. As discussed under Policy COS-7.4 above, many of the single-family lots would be oriented along an optimal east-west axis to maximize solar access for rooftop solar photovoltaic panels, while many others have an effective northeast-southwest orientation. An intelligent metering system would be installed to allow the utility company to monitor energy usage and make fast adjustments to the delivery of electricity, to improve efficiency of the local electrical grid. The master developer would work with the City of Galt to install highly energy-efficient LED street lights along the arterials, collectors, and primary streets. According to the “Next Generation Streetlights” guide for local government³⁹, LEDs consume 50 to 70 percent less power than conventional street lights. In addition, LEDs have a longer lifetime (150,000 hours) than conventional light sources (20,000 hours), which reduces maintenance costs. Other benefits include improved lighting, reduced light trespass, enhanced controllability, and reduced GHG emissions.

Policy COS-7.15: New Tree Selection and Location

A comprehensive landscape palette is described in Chapter 7 of the EVSP that would provide a mixture of trees and other vegetation to provide shade, buffering, and visual character along the street network, within parks and open spaces, and on private lots.

Policy COS- 7.21: Residential Solar Generating Power Facilities

All homes would have “solar-ready” roofs, as discussed above, to ensure that homeowners who choose to purchase or lease rooftop photovoltaic energy systems would have well-oriented roof spaces to optimize solar access, as well as the efficiency of the panels with respect to the City’s latitude and longitude. The City would be responsible for working with SMUD, homebuilders, and homeowners who are interested in pursuing special financial programs that may be available to reduce initial or ongoing operating costs of solar systems for homeowners.

Conclusion

The proposed project would result in construction-related emissions of GHG below the 1,100 MTCO₂e/yr threshold of significance. Although the proposed project would result in operational GHG emissions in excess of the 1,100 MTCO₂e/yr thresholds of significance, the proposed project would meet the AB 32 and Scoping Plan’s 21.7 percent reduction goal from a No Action Taken scenario by 2020. In addition, the proposed project would result in a downward trajectory of GHG emissions over time, which would contribute towards the 2050 GHG emission reduction goal of the Scoping Plan. Furthermore, the proposed project would include design features that would further contribute towards a reduction in GHG emissions and would be consistent with the growth assumptions for the project site per the SACOG MTP/SCS. Overall, the proposed project would not generate GHG emissions that would have a significant impact on the

environment or conflict with an applicable plan, policy, or regulation established for the reduction of GHG emissions, and the project's incremental contribution to cumulative GHG emissions and global climate change would be considered a *less-than-significant* impact.

Mitigation Measure(s)

None required.

Endnotes

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- ⁶ California Air Resources Board. *Ambient Air Quality Standards*. June 4, 2013. Available at: <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>. Accessed December 2014.
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- ¹¹ U.S. Environmental Protection Agency. *Air Actions in the Sacramento Metro Area*. October 3, 2012. Available at: <http://www.epa.gov/region9/air/actions/sacto/index.html>. Accessed October 2014.
- ¹² Sacramento Metropolitan Air Quality Management District. *Air Quality Standards Attainment Status*. Available at: <http://www.airquality.org/aqdata/attainmentstat.shtml> (last updated on December 23, 2013). Accessed December 2014.
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- ¹⁵ U.S. Environmental Protection Agency. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 -2011*. February 2013.
- ¹⁶ California Air Resources Board. *Air Quality and Land Use Handbook: A Community Health Perspective*. April 2005.
- ¹⁷ California Air Resources Board. *Climate Change Scoping Plan*. December 2008.
- ¹⁸ California Air Resources Board. *Status of Scoping Plan Recommended Measures*. Available at: http://www.arb.ca.gov/cc/scopingplan/status_of_scoping_plan_measures.pdf. Accessed October 2014.
- ¹⁹ California Air Resources Board. *Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document*. August 19, 2011.
- ²⁰ California Energy Commission. News Release: “*New Title 24 Standards Will Cut Residential Energy Use by 25 Percent, Save Water, and Reduce Greenhouse Gas Emissions.*” July 1, 2014.

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- ²¹ Sacramento Metropolitan Air Quality Management District. *Guide to Air Quality Assessment in Sacramento County*. December 2009 (latest revision in November 2014). Available at: <http://www.airquality.org/ceqa/ceqaguideupdate.shtml>. Accessed November 2014.
- ²² Sacramento Metropolitan Air Quality Management District. *2013 Revisions to the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan*. September 26, 2013.
- ²³ Sacramento Metropolitan Air Quality Management District. *PM_{2.5} Implementation/Maintenance Plan and Re-designation Request for Sacramento PM_{2.5} Nonattainment Area*. October 24, 2013.
- ²⁴ Sacramento Metropolitan Air Quality Management District. *2009 Triennial Report and Plan Revision*. December 2009.
- ²⁵ Sacramento Metropolitan Air Quality Management District. *SMAQMD Thresholds of Significance Table*. Available at: <http://www.airquality.org/ceqa/CH2ThresholdsTables5-2015.pdf>. May 28, 2015. Accessed June 2015.
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- ³² Sacramento Metropolitan Air Quality Management District. *Guide to Air Quality Assessment in Sacramento County*. December 2009 (last revised November 2014). Available at: <http://www.airquality.org/ceqa/ceqaguideupdate.shtml>. Accessed April 2015.
- ³³ Raney Planning and Management, Inc. *Eastview Specific Plan & Annexation Project Operational Air Quality Mitigation Plan*. April 2015.
- ³⁴ Sacramento Area Council of Governments. *2035 Metropolitan Transportation Plan/Sustainable Communities Strategy [pg. vii]*. April 2012.
- ³⁵ California Air Resources Board. *Air Quality and Land Use Handbook: A Community Health Perspective*. April 2005.
- ³⁶ U.S. Environmental Protection Agency. *Climate Change: Basic Information*. March 18, 2014. Available at: <http://www.epa.gov/climatechange/basics/>. Accessed October 2014.
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- ³⁸ Although the proposed project consists of residential and commercial development, in order to provide a conservative analysis, the total expected project lifetime of a commercial development was utilized to amortize the construction GHG emissions. The SMAQMD, per its *Guide to Air Quality Assessment in Sacramento County*, suggests an operational lifetime for a new conventional commercial development of 25 years. The estimates are derived from the State of California Executive Order D-16-00 and US Green Building Council's October 2003 report on *The Costs and Financial Benefits of Green Buildings*.
- ³⁹ Bay Area Climate Collaborative, California Lighting Technology Center, Energy Solutions, and PFM. *Next Generation Streetlights*. Available at: http://www.baclimate.org/images/stories/actionareas/ledstreetlights/nextgen_streetlight_guide.pdf. Accessed April 2015.