

## 3.2 - Air Quality/Greenhouse Gas Emissions

This section describes the existing air quality setting and potential effects from project implementation on the site and its surrounding area. FirstCarbon Solutions performed air quality analysis for the proposed project, which included impacts from vehicle emissions, natural gas emissions, and area sources such as architectural coatings and landscaping equipment. CalEEMod Version 2013.2.2 was used to quantify project-related emissions. The air quality analysis, including model output, is provided in Appendix B.

### 3.2.1 - Environmental Setting

#### Air Basin

The proposed project is located within the City of American Canyon in Napa County within the San Francisco Bay Area Air Basin (Air Basin). The Air Basin is approximately 5,600 square miles in area and consists of nine counties that surround the San Francisco Bay, including all of Alameda County, Contra Costa County, Marin County, San Francisco County, San Mateo County, Santa Clara County, and Napa County, the southwestern portion of Solano County and the southern portion of Sonoma County. Its terrain and geographical location determine the distinctive climate of the Air Basin, as the Basin is a coastal plain with connecting valleys and low hills. The local agency with jurisdiction over air quality in the Basin is the Bay Area Air Quality Management District (BAAQMD).

#### Air Pollutants

##### *Criteria Air Pollutants*

For reasons described below in the Regulatory Framework section, the criteria pollutants of greatest concern for the project area are ozone, particulate matter with aerodynamic diameter of 10 microns or less and particulate matter with aerodynamic diameter of 2.5 microns or less (PM<sub>10</sub>, and PM<sub>2.5</sub>). Carbon monoxide is of less concern in the Air Basin because it is classified as an attainment area for this criteria pollutant. Table 3.2-1 summarizes the most relevant effects from exposure, the properties, and the sources of the pollutants. Also shown are national and California ambient air quality standards.

##### *Toxic Air Contaminants*

In addition to the criteria pollutants, toxic air contaminants (TACs), many of which are also hazardous air pollutants (HAPs), are another group of pollutants of concern. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which adverse health impacts are not expected to occur. This contrasts with the criteria pollutants for which acceptable levels of exposure can be determined and for which the state and federal governments have set ambient air quality standards.

According to the California Almanac of Emissions and Air Quality, the majority of the estimated health risk from TACs for the State of California, can be attributed to relatively few compounds, the most important of which is diesel particulate matter (DPM) from diesel-fueled engines.

#### *Diesel Particulate Matter (DPM)*

The California Air Resources Board (ARB) identified the PM emissions from diesel-fueled engines as a TAC in August 1998 under California's TAC program. The State of California, after a 10-year research program, determined in 1998 that DPM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to DPM poses a chronic (long-term) health risk. The California Office of Environmental Health Hazard Assessment (OEHHA) recommends using a 70-year exposure duration for determining residential cancer risks. DPM is emitted from both mobile and stationary sources. In California, on-road diesel-fueled vehicles contribute approximately 40 percent of the statewide total, with an additional 57 percent attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and transport refrigeration units.

#### *Asbestos*

Asbestos is listed as a TAC by the ARB and as a Hazardous Air Pollutant (HAP) by the United States Environmental Protection Agency (EPA). Naturally occurring asbestos areas are identified by the type of rock found in the area. Asbestos-containing rocks found in California are ultramafic rocks, including serpentine rocks. Crushing or breaking these rocks, through construction or other means, can release asbestiform fibers into the air. Asbestos emissions can result from the sale or use of asbestos-containing materials, road surfacing with such materials, grading activities, and surface mining. The risk of disease is dependent upon the intensity and duration of exposure. When inhaled, asbestos fibers may remain in the lungs and with time may be linked to such diseases as asbestosis, lung cancer, and mesothelioma.

According to the California Division of Mines and Geology, naturally occurring asbestos has been found in scattered locations within the Napa County; however, the nearest known location of naturally occurring asbestos is farther than 1 mile from the project site. Additionally, there are no existing structures at the project site, which would require demolition; therefore, asbestos-containing materials would not be present.

#### **Greenhouse Gases (GHGs)**

Global climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans in recent decades. There is a general scientific consensus that global climate change is occurring, caused in whole or in part by increased emissions of GHGs that keep the Earth's surface warm by trapping heat in the Earth's atmosphere, in much the same way as glass traps heat in a greenhouse. The Earth's climate is changing because human activities, primarily the combustion of fossil fuels, are altering the chemical composition of the atmosphere through the buildup of GHGs. GHGs are released by the combustion of fossil fuels, land clearing, agriculture, and other activities, and lead to an increase in the greenhouse effect.<sup>1</sup>

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<sup>1</sup> The temperature on Earth is regulated by a system commonly known as the "greenhouse effect." Just as the glass in a greenhouse lets heat from sunlight in and reduces the heat escaping, greenhouse gases like carbon dioxide, methane, and nitrous oxide in the atmosphere keep the Earth at a relatively even temperature. Without the greenhouse effect, the Earth would be a frozen globe;

### *Carbon Dioxide (CO<sub>2</sub>)*

In the atmosphere, carbon generally exists in its oxidized form, as CO<sub>2</sub>. Natural sources of CO<sub>2</sub> include the respiration (breathing) of humans, animals and plants, volcanic outgassing, decomposition of organic matter and evaporation from the oceans. Anthropogenic sources of CO<sub>2</sub> include the combustion of fossil fuels and wood, waste incineration, mineral production and deforestation. Anthropogenic sources of CO<sub>2</sub> amount to over 30 billion tons per year, globally. Natural sources release substantially larger amounts of CO<sub>2</sub>. Nevertheless, natural removal processes, such as photosynthesis by land and ocean-dwelling plant species, cannot keep pace with this extra input of man-made CO<sub>2</sub>, and consequently, the gas is building up in the atmosphere.

### *Methane (CH<sub>4</sub>)*

Methane is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources include wetlands, termites, and oceans. Decomposition occurring in landfills accounts for the majority of human-generated CH<sub>4</sub> emissions in California and in the United States as a whole. Agricultural processes such as intestinal fermentation, manure management, and rice cultivation are also significant sources of CH<sub>4</sub> in California.

### *Nitrous Oxide (N<sub>2</sub>O)*

Nitrous oxide is produced naturally by a wide variety of biological sources, particularly microbial action in soils and water. Tropical soils and oceans account for the majority of natural source emissions. Nitrous oxide is a product of the reaction that occurs between nitrogen and oxygen during fuel combustion. Both mobile and stationary combustion produce N<sub>2</sub>O, and the quantity emitted varies according to the type of fuel, technology, and pollution control device used, as well as maintenance and operating practices. Agricultural soil management and fossil fuel combustion are the primary sources of human-generated N<sub>2</sub>O emissions in California.

### *Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), and Sulfur Hexafluoride (SF<sub>6</sub>)*

HFCs are primarily used as substitutes for ozone depleting substances regulated under the Montreal Protocol.<sup>2</sup> PFCs and SF<sub>6</sub> are emitted from various industrial processes including aluminum smelting, semiconductor manufacturing, electric power transmission and distribution, and magnesium casting. There is no primary aluminum or magnesium production in California; however, the rapid growth in the semiconductor industry leads to greater use of PFCs.

The magnitude of the impact on global warming differs among the GHGs. The effect each GHG has on climate change is measured as a combination of the volume of its emissions, and its global warming potential (GWP), expressed as a function of how much warming would be caused by the same mass of CO<sub>2</sub>. Thus, GHG emissions are typically measured in terms of pounds or tons of CO<sub>2</sub> equivalents (CO<sub>2</sub>e). HFCs, PFCs, and SF<sub>6</sub> have a greater “global warming potential” than CO<sub>2</sub>. In other words, these other GHGs have a greater contribution to global warming than CO<sub>2</sub> on a per mass basis. However, CO<sub>2</sub> has the greatest impact on global warming because of the relatively large

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thus, although an excess of greenhouse gas results in global warming, the naturally occurring greenhouse effect is necessary to keep our planet at a comfortable temperature.

<sup>2</sup> The Montreal Protocol is an international treaty that was approved on January 1, 1989, and was designated to protect the ozone layer by phasing out the production of several groups of halogenated hydrocarbons believed to be responsible for ozone depletion.

quantities of CO<sub>2</sub> emitted into the atmosphere. For example, BAAQMD estimates that CO<sub>2</sub> made up about 92 percent of the total emission of the six gases listed above in 2007 in the Bay Area.<sup>3</sup>

### Local Air Quality

Meteorology acts on the emissions released into the atmosphere to produce pollutant concentrations. These airborne pollutant concentrations are measured throughout California at air quality monitoring sites. The ARB operates a statewide network of monitors. Data from this network are supplemented with data collected by local air districts, other public agencies, and private contractors.

The air quality monitoring station closest to the project site is the Napa-Jefferson Avenue monitoring Station (Napa Station), which is located approximately 7.0 miles north of the project site at 2552 Jefferson Avenue, Napa. Since the Napa Station does not monitor sulfur dioxide, the Vallejo-304 Tuolumne Street Station (Vallejo Station), which is located approximately 7.1 miles south of the project site at 304 Tuolumne Street, Vallejo, was utilized for sulfur dioxide monitoring. Table 3.2-1 summarizes the recorded ambient air data at the representative monitoring stations for years 2012 through 2014. As Table 3.2-1 shows, the recorded data show exceedances of the California standards for O<sub>3</sub> (8-hour) and federal standards for O<sub>3</sub> (8-hour) and PM<sub>2.5</sub> (24-hour), on one or more occasions from 2012 through 2014. No exceedances of either the state or national standards were recorded for nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), and PM<sub>10</sub>.

**Table 3.2-1: Ambient Air Monitoring Data**

Air Pollutant	Averaging Time	Item	2012	2013	2014
Ozone	1 Hour	Max 1 Hour (ppm)	0.082	0.089	0.074
		Days > State Standard (0.09 ppm)	0	0	0
	8 Hour	Max 8 Hour (ppm)	0.064	0.076	0.066
		Days > State Standard (0.07 ppm)	0	2	0
		Days > National Standard (0.075 ppm)	0	1	0
Carbon monoxide	8 Hour	Max 8 Hour (ppm)	1.48	ND	ND
		Days > State Standard (9.0 ppm)	0	ND	ND
Nitrogen dioxide (NO <sub>2</sub> )	Annual	Annual Average (ppb)	7	9	7
		Days > National Standard (9 ppb)	0	0	0
	1 Hour	Max 1 Hour (ppb)	50.0	43.4	46.1
		Days > National Standard (100 ppb)	0	0	0
Sulfur dioxide	24 Hour	Max 24 Hour (ppm)	0.003	0.002	ND
		Days > State Standard (0.04 ppm)	0	0	0
	Annual	Annual Average (µg/m <sup>3</sup> )	ND	ND	ND

<sup>3</sup> BAAQMD. 2010. Source Inventory of Bay Area Greenhouse Gas Emissions. February. Website: [http://www.baaqmd.gov/~media/Files/Planning%20and%20Research/Emission%20Inventory/regionalinventory2007\\_2\\_10.ashx](http://www.baaqmd.gov/~media/Files/Planning%20and%20Research/Emission%20Inventory/regionalinventory2007_2_10.ashx). Accessed December 19, 2014.

**Table 3.2-1 (cont.): Ambient Air Monitoring Data**

Air Pollutant	Averaging Time	Item	2012	2013	2014
Inhalable coarse particles (PM <sub>10</sub> )	24 hour	24 Hour (µg/m <sup>3</sup> )	37.7	39.6	39.3
		Days > State Standard (50 µg/m <sup>3</sup> )	0	0	0
		Days > National Standard (150 µg/m <sup>3</sup> )	0	0	0
	Annual	Annual Average (µg/m <sup>3</sup> )	16.1	18.7	15.8
		Days > State Standard (20 µg/m <sup>3</sup> )	0	0	0
Fine particulate matter (PM <sub>2.5</sub> )	24 Hour	24 Hour (µg/m <sup>3</sup> )	24.2	35.8	29.9
		Days > National Standard (35 µg/m <sup>3</sup> )	0	1	0
	Annual	Annual Average (µg/m <sup>3</sup> )	ND	11.8	12.0
		Days > State Standard (12 µg/m <sup>3</sup> )	0	0	0
Notes and Abbreviations: > = exceed                      ppm = parts per million                      µg/m <sup>3</sup> = micrograms per cubic meter Ppb = parts per billion              ND = no data                                      max = maximum State Standard = California Ambient Air Quality Standard National Standard = National Ambient Air Quality Standard Measurements are from the Napa Station and Vallejo Station Source: ARB 2014a.					

**Local Sources of Air Pollution**

Exhaust gas from motor vehicles that travel along the nearby roadways constitute a major source of ambient air pollutants within the project area. Nearby sources of air pollution include Napa County Airport, State Route 29 (SR-29), SR-12, and the Napa Branch Line railroad. Between 2009 and 2011 the California Northern Railroad Company (CNRC), which operates the Napa Branch Line railroad, upgraded all engines to 3GS21B “genset N-ViroMotive” locomotive engines, made by National Railroad Equipment, which reduce emissions of NO<sub>x</sub>, ROG, and PM relative to the fleet average.

While there is not a PM<sub>10</sub> or PM<sub>2.5</sub> monitor for ambient air adjacent to the project site, the BAAQMD maintains a database of stationary source risks and PM<sub>2.5</sub> concentrations from permitted sources.<sup>4</sup> In the vicinity of the project, three facilities are identified with individual contributions to ambient PM<sub>2.5</sub> concentrations above the BAAQMD cumulative significance threshold of 0.8 µg/m<sup>3</sup> PM<sub>2.5</sub>.

**Sensitive Receptors**

Some population groups such as children, the elderly, and persons with pre-existing respiratory or cardiovascular illness are more sensitive to air pollution than others. BAAQMD defines sensitive receptors as residential areas, hospitals and long-term health care facilities, rehabilitation centers, convalescent centers and retirement homes, elementary schools, daycare centers, playgrounds, athletic facilities and parks. Residential areas are considered sensitive to air pollution because

<sup>4</sup> Database for Napa and Solano Counties available at [http://baaqmd.gov/~media/Files/Planning%20and%20Research/CEQA/Napa\\_Solano\\_2012.ashx?la=en](http://baaqmd.gov/~media/Files/Planning%20and%20Research/CEQA/Napa_Solano_2012.ashx?la=en). Accessed March 2015.

residents, including children and the elderly, tend to be at home for extended periods of time, resulting in sustained exposure to pollutants. Implementation of the Housing Element would result in the construction of new residences, some of which would be located within 1,000 feet of existing stationary sources of air pollution and/or major highways. Sensitive receptors may also be impacted by fugitive dust and emissions generated by construction activities.

### Attainment Status

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

Each standard has a different definition, or “form” of what constitutes attainment, based on specific air quality statistics. For example, the federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the federal annual PM<sub>2.5</sub> standard is met if the 3-year average of the annual average PM<sub>2.5</sub> concentration is less than or equal to the standard.

The current attainment designations for the Air Basin are shown in Table 3.2-2. The Air Basin is designated as nonattainment for the state and federal ozone and PM<sub>2.5</sub> standards and the PM<sub>10</sub> state standards.

**Table 3.2-2: San Francisco Bay Area Air Basin Attainment Status**

Pollutant	Designation	
	Federal	State
Ozone—1-hour	No Federal Standard	Nonattainment
Ozone—8-hour	Nonattainment	Nonattainment
PM <sub>10</sub>	Unclassified	Nonattainment
PM <sub>2.5</sub>	Nonattainment	Nonattainment
Carbon monoxide	Attainment/Unclassified	Attainment
Nitrogen dioxide	Attainment/Unclassified	Attainment
Sulfur dioxide	Attainment/Unclassified	Attainment
Lead	No Designation/Classification	Attainment
Hydrogen sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility-reducing particles	No Federal Standard	Unclassified
Source: ARB, 2014b.		

## GHG Emissions

### ***Potential Effects of Human Activity on Global Climate Change***

Globally, climate change has the potential to impact numerous environmental resources through anticipated, though uncertain, impacts related to future air temperatures and precipitation patterns. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21<sup>st</sup> century than were observed during the 20th century. A warming of about 0.2 Celsius (°C) (0.36°F) per decade is projected, and there are identifiable signs that global warming is taking place, including substantial loss of ice in the Arctic.<sup>5</sup>

However, the understanding of GHG emissions, particulate matter, and aerosols on global climate trends is complex and involves varying uncertainties and a balance of different effects. In addition to uncertainties about the extent to which human activity rather than solar or volcanic activity is responsible for increasing warming, there is also evidence that some human activity has cooling, rather than warming, effects, as discussed in detail in numerous publications by the International Panel on Climate Change (IPCC), such as the Fifth Assessment Report (AR5) Working Group 1 Report “The Physical Science Basis.”<sup>6,7</sup> Nonetheless, when all effects and uncertainties are considered together, the consensus is that human activity has contributed significantly to global warming. As stated in the AR5 discussion of Attribution of Climate Change, “It is extremely likely that human influence has been the dominant cause of the observed warming since the mid-20th century.”<sup>8</sup>

Acknowledging uncertainties regarding the rate at which anthropogenic GHG emissions would continue to increase (based upon various factors under human control, such as future population growth and the locations of that growth; the amount, type, and locations of economic development; the amount, type, and locations of technological advancement; adoption of alternative energy sources; legislative and public initiatives to curb emissions; and public awareness and acceptance of methods for reducing emissions), and the impact of such emissions on climate change, the IPCC devises emission scenarios which utilize various assumptions about the rates of economic development, population growth, and technological advancement over the course of the next century. For the AR5, a set of four new scenarios, denoted Representative Concentration Pathways (RCP), were developed. RCPs are based on a combination of integrated assessment models, simple climate models, atmospheric chemistry and global carbon cycle models. The four RCPs include a mitigation scenario, two stabilizing scenarios, and one scenario with very high GHG emissions. “The RCPs can thus represent a range of 21<sup>st</sup> century climate policies, as compared with the no-climate policy of the Special Report on Emissions Scenarios (SRES) used in the AR3 and the AR4.”<sup>9</sup>

<sup>5</sup> IPCC Fifth Assessment Report. Climate Change 2013: Working Group I Report: The Physical Science Basis. 2013. Website: [http://www.climatechange2013.org/images/report/WG1AR5\\_SPM\\_FINAL.pdf](http://www.climatechange2013.org/images/report/WG1AR5_SPM_FINAL.pdf). Accessed: December 2014.

<sup>6</sup> The IPCC was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme to assess scientific, technical, and socio-economic information relevant for the understanding of climate change, its potential impacts and options for adaptation and mitigation. The IPCC has produced a series of Assessment Reports comprised of full scientific and technical assessments of climate change. The first assessment report (FAR), was developed in 1990.

<sup>7</sup> IPCC Fifth Assessment Report. Climate Change 2013: Working Group I Report: The Physical Science Basis. .2013. Figure SPM.5. Website: [http://www.climatechange2013.org/images/report/WG1AR5\\_SPM\\_FINAL.pdf](http://www.climatechange2013.org/images/report/WG1AR5_SPM_FINAL.pdf). Accessed: December 2014.

<sup>8</sup> IPCC Fifth Assessment Report. Climate Change 2013: Working Group I Report: The Physical Science Basis. Summary for Policymakers. Detection and Attribution of Climate Change. Website: [http://www.climatechange2013.org/images/report/WG1AR5\\_SPM\\_FINAL.pdf](http://www.climatechange2013.org/images/report/WG1AR5_SPM_FINAL.pdf). Accessed: December 2014.

<sup>9</sup> IPCC Fifth Assessment Report. Climate Change 2013: Working Group I Report: The Physical Science Basis. Summary for Policymakers. Detection and Attribution of Climate Change. Box SPM.1. Website: [http://www.climatechange2013.org/images/report/WG1AR5\\_SPM\\_FINAL.pdf](http://www.climatechange2013.org/images/report/WG1AR5_SPM_FINAL.pdf). Accessed: December 2014.

The projected effects of global warming on weather and climate are likely to vary regionally, but are expected to include the following direct effects, according to the IPCC:<sup>10</sup>

- It is *very likely* that the Arctic sea ice cover will continue to shrink and thin and that Northern Hemisphere spring snow cover will decrease during the 21st century as global mean surface temperature rises. Global glacier volume will further decrease;
- It is virtually certain that there will be more frequent hot and fewer cold temperature extremes over most land areas on daily and seasonal timescales as global mean temperatures increase. It is very likely that heat waves will occur with a higher frequency and duration. Occasional cold winter extremes will continue to occur;
- Global surface temperature change for the end of the 21st century is *likely* to exceed 1.5°C relative to 1850 to 1900 for all RCP scenarios except the mitigation scenario. It is *likely* to exceed 2°C for the highest forcing scenario and one stabilizing scenario, and *more likely than not* to exceed 2°C for the remaining stabilizing scenario. Warming will continue beyond 2100 under all RCP scenarios except the mitigation scenario;
- The global ocean will continue to warm during the 21<sup>st</sup> century. Heat will penetrate from the surface to the deep ocean and affect ocean circulation;
- Climate change will affect carbon cycle processes in a way that will exacerbate the increase of CO<sub>2</sub> in the atmosphere (*high confidence*). Further uptake of carbon by the ocean will increase ocean acidification;
- Changes in the global water cycle in response to the warming over the 21<sup>st</sup> century will not be uniform. The contrast in precipitation between wet and dry regions and between wet and dry seasons will increase, although there may be regional exceptions; global mean sea level will continue to rise during the 21<sup>st</sup> century.

Cumulative emissions of CO<sub>2</sub> largely determine global mean surface warming by the late 21<sup>st</sup> century and beyond. Most aspects of climate change will persist for many centuries even if emissions of CO<sub>2</sub> are stopped.

Potential secondary effects from global warming include global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity.

### ***Potential Effects of Climate Change on State of California***

According to the California Air Resources Board (ARB), some of the potential impacts in California of global warming may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years.<sup>11</sup> Several recent studies have attempted to explore the possible negative consequences that climate change, left unchecked, could have in California. These reports acknowledge that climate scientists' understanding of the complex

<sup>10</sup> IPCC Fifth Assessment Report. Climate Change 2013: Working Group I Report: The Physical Science Basis. Summary for Policymakers. Website: [http://www.climatechange2013.org/images/report/WG1AR5\\_SPM\\_FINAL.pdf](http://www.climatechange2013.org/images/report/WG1AR5_SPM_FINAL.pdf). Accessed: December 2014.

<sup>11</sup> ARB. 2006. Public Workshop to Discuss Establishing the 1990 Emissions Level and the California 2020 Limit and Developing Regulations to Require Reporting of Greenhouse Gas Emissions. December.

global climate system, and the interplay of the various internal and external factors that affect climate change, remains too limited to yield scientifically valid conclusions on such a localized scale. Substantial work has been done at the international and national level to evaluate climatic impacts, but far less information is available on regional and local impacts. In addition, projecting regional impacts of climate change and variability relies on large-scale scenarios of changing climate parameters, using information that is typically at too general a scale to make accurate regional assessments.<sup>12</sup>

Below is a summary of some of the potential effects reported in an array of studies that could be experienced in California as a result of global warming and climate change.

#### *Air Quality*

Higher temperatures, conducive to air pollution formation, could worsen air quality in California. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore its indirect effects, are uncertain. For other pollutants, the effects of climate change and/or weather are less well studied, and even less well understood. If higher temperatures are accompanied by drier conditions, the potential for large wildfires could increase, which, in turn, would further worsen air quality. However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains would tend to temporarily clear the air of particulate pollution and reduce the incidence of large wildfires, thus ameliorating the pollution associated with wildfires. Additionally, severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the State.<sup>13</sup>

#### *Water Supply*

Uncertainty remains with respect to the overall impact of global climate change on future water supplies in California. For example, models that predict drier conditions (such as the parallel climate model) suggest decreased reservoir inflows and storage and decreased river flows, relative to current conditions. By comparison, models that predict wetter conditions (such as HadCM2) project increased reservoir inflows and storage, and increased river flows.<sup>14</sup>

A July 2006 technical report prepared by the California Department of Water Resources (DWR) addresses the State Water Project (SWP), the Central Valley Project, and the Sacramento-San Joaquin Delta. Although the report projects that, “[c]limate change will likely have a significant effect on California’s future water resources ... [and] future water demand,” it also reports that, “there is much uncertainty about future water demand, especially those aspects of future demand that will be directly affected by climate change and warming. While climate change is expected to continue through at least the end of this century, the magnitude and, in some cases, the nature of future changes is uncertain. This uncertainty serves to complicate the analysis of future water demand, especially where the relationship between climate change and its potential effect on water demand is not well understood.”<sup>15</sup> DWR adds that “[i]t is unlikely that this level of uncertainty will diminish significantly in the foreseeable future.”<sup>16</sup> Still, changes in water supply are expected to occur, and

<sup>12</sup> Kiparsky, M. and P.H. Gleick. 2003. Climate Change and California Water Resources: A Survey and Summary of the Literature. Oakland, CA: Pacific Institute for Studies in Development. July.

<sup>13</sup> California Climate Change Center (CCCC). 2006. Our Changing Climate: Assessing the Risks to California, CEC500-2006-077. July.

<sup>14</sup> Brekke, L.D., et al. 2004. Climate Change Impacts Uncertainty for Water Resources in the San Joaquin River Basin, California. Journal of the American Water Resources Association (AWRA). 40(2): 149–164.

<sup>15</sup> DWR. 2006. Progress on Incorporating Climate Change into Management of California Water Resources. July.

<sup>16</sup> Ibid.

many regional studies have shown that large changes in the reliability of water yields from reservoirs could result from only small changes in inflows.<sup>17</sup>

Water purveyors such as the City of American Canyon are required by state law to prepare Urban Water Management Plans (UWMPs) (discussed below, under Regulatory Context for Greenhouse Gas Emissions and Climate Change) that consider climatic variations and corresponding impacts on long-term water supplies.<sup>18</sup> DWR has published a 2005 SWP Delivery Reliability Report, which presents information from computer simulations of the SWP operations based on historical data over a 73-year period (1922–1994). The DWR notes that the results of those model studies “represent the best available assessment of the delivery capability of the SWP.” In addition, the DWR is continuing to update its studies and analysis of water supplies. The City’s most recent UWMP (required every five years per the California Water Code), was adopted in 2010 and incorporates this information from DWR.<sup>19</sup> Information from the UWMP can be incorporated into Water Supply Assessments (WSAs) and Water Verifications prepared for certain development projects in accordance with Cal. Water Code Section 10910, et seq. and Cal. Government Code Section 66473.7, et seq.

### *Hydrology*

As discussed above, climate change could potentially affect the following: the amount of snowfall, rainfall, and snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for saltwater intrusion. Sea level rise can be a product of global warming through two main processes—expansion of seawater as the oceans warm and melting of ice over land. A rise in sea levels could result in coastal flooding and erosion and could also jeopardize California’s water supply. In particular, saltwater intrusion would threaten the quality and reliability of the state’s major fresh water supply that is pumped from the southern portion of the Sacramento/San Joaquin River Delta. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

### *Ecosystems and Wildlife*

Increases in global temperatures and the potential resulting changes in weather patterns could have ecological effects on a global and local scale. In 2004, the Pew Center on Global Climate Change released a report examining the possible impacts of climate change on ecosystems and wildlife.<sup>20</sup> The report outlines four major ways in which it is thought that climate change could affect plants and animals: (1) timing of ecological events, (2) geographic range, (3) species’ composition within communities, and (4) ecosystem processes such as carbon cycling and storage.

### **Local GHG Emissions**

A community-wide baseline and projected GHG emissions inventory was conducted for American Canyon as part of the development of the 2012 Energy Efficiency Climate Action Plan (EECAP). The GHG emissions as shown in Table ES-2 of the EECAP, are shown in Table 3.2-3.

<sup>17</sup> Kiparsky 2003, op. cit.; DWR, 2005, op. cit.; Cayan, D., et al. 2006. Scenarios of Climate Change in California: An Overview (White Paper, CEC-500-2005-203-SF). February.

<sup>18</sup> California Water Code, Section 10631(c).

<sup>19</sup> EBMUD. Urban Water Management Plan 2010. <http://www.ebmud.com/sites/default/files/pdfs/UWMP-2010-2011-07-21-web-small.pdf>. Accessed: December 2014.

<sup>20</sup> Parmesan, C. and H. Galbraith. 2004. Observed Impacts of Global Climate Change in the U.S., Arlington, VA: Pew Center on Global Climate Change. November.

**Table 3.2-3: Community-wise Baseline and Projected GHG Emissions 2005–2035 (MTCO<sub>2e</sub>)**

Emissions Sector	2005 Emissions	2010 Emissions	2020 Emissions	2035 Emissions	Growth Proxy
Agriculture	11	12	12	12	City Planning Department Estimate
Commercial/Industrial Electricity	892	13,043	14,889	17,659	Community-wide employment
Commercial/Industrial Natural Gas	20,484	24,690	28,185	33,427	Community-wide employment
Residential Electricity	7,396	7841	10,716	12,226	Population
Residential Natural Gas	12,424	14378	20,143	22,980	Population
Transportation, off-road	2,006	2,373	2,976	3,456	Average of Population and Community-wide Employment
Transportation, on-road	41,664	43,874	55,994	66,317	Average of Population and Community-wide Employment
Solid Waste	7,469	4,974	6,239	7,246	Average of Population and Community-wide Employment
Wastewater	7,263	8,656	10,856	12,609	Average of Population and Community-wide Employment
<b>Total</b>	<b>107,608</b>	<b>120,201</b>	<b>150,011</b>	<b>175,931</b>	<b>Growth Proxy</b>

Source: American Canyon 2012

### 3.2.2 - Regulatory Framework

Air pollutants are regulated at the national, state, and air basin level; each agency has a different level of regulatory responsibility. The United States Environmental Protection Agency (EPA) regulates at the national level. The California Air Resources Board (ARB) regulates at the state level and SJVAPCD regulates at the air basin level.

#### Federal and State

The EPA handles global, international, national, and interstate air pollution issues and policies. The EPA sets national vehicle and stationary source emission standards, oversees approval of all State Implementation Plans, provides research and guidance for air pollution programs, and sets National Ambient Air Quality Standards, also known as federal standards or national standards. There are national standards for six common air pollutants, called criteria air pollutants, which were identified from provisions of the Clean Air Act of 1970. The criteria pollutants are:

- Ozone
- Particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>)
- Nitrogen dioxide
- Carbon monoxide (CO)
- Lead
- Sulfur dioxide

The national standards were set to protect public health, including that of sensitive individuals; thus, the standards continue to change as more medical research is available regarding the health effects of the criteria pollutants. Primary national standards are the levels of air quality necessary, with an adequate margin of safety, to protect public health, as discussed in Ambient Air Quality Standards summary prepared by the ARB.

A State Implementation Plan is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain national standards. The State Implementation Plan for the State of California is administered by the ARB, which has overall responsibility for statewide air quality maintenance and air pollution prevention. The ARB also administers California Ambient Air Quality Standards for the 10 air pollutants designated in the California Clean Air Act. The 10 state air pollutants are the six national standards listed above as well as the following: visibility-reducing particulates, hydrogen sulfide, sulfates, and vinyl chloride.

The national and state ambient air quality standards, the most relevant effects, the properties, and sources of the pollutants are summarized in Table 3.2-4.

**Table 3.2-4: Description of Air Pollutants**

Air Pollutant	Averaging Time	California Standard	Federal Standard <sup>a</sup>	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Ozone	1 Hour	0.09 ppm	—	Irritate respiratory system; reduce lung function; breathing pattern changes; reduction of breathing capacity; inflame and damage cells that line the lungs; make lungs more susceptible to infection; aggravate asthma; aggravate other chronic lung diseases; cause permanent lung damage; some immunological changes; increased mortality risk; vegetation and property damage.	Ozone is a photochemical pollutant as it is not emitted directly into the atmosphere, but is formed by a complex series of chemical reactions between volatile organic compounds (VOC), nitrous oxides (NO <sub>x</sub> ), and sunlight. Ozone is a regional pollutant that is generated over a large area and is transported and spread by the wind.	Ozone is a secondary pollutant; thus, it is not emitted directly into the lower level of the atmosphere. The primary sources of ozone precursors (VOC and NO <sub>x</sub> ) are mobile sources (on-road and off-road vehicle exhaust).
	8 Hour	0.070 ppm	0.075 ppm			
Carbon monoxide (CO)	1 Hour	20 ppm	35 ppm	Ranges depending on exposure: slight headaches; nausea; aggravation of angina pectoris (chest pain) and other aspects of coronary heart disease; decreased exercise tolerance in persons with peripheral vascular disease and lung disease; impairment of central nervous system functions; possible increased risk to fetuses; death.	CO is a colorless, odorless, toxic gas. CO is somewhat soluble in water; therefore, rainfall and fog can suppress CO conditions. CO enters the body through the lungs, dissolves in the blood, replaces oxygen as an attachment to hemoglobin, and reduces available oxygen in the blood.	CO is produced by incomplete combustion of carbon-containing fuels (e.g., gasoline, diesel fuel, and biomass). Sources include motor vehicle exhaust, industrial processes (metals processing and chemical manufacturing), residential wood burning, and natural sources.
	8 Hour	9.0 ppm	9 ppm			
Nitrogen dioxide <sup>b</sup> (NO <sub>2</sub> )	1 Hour	180 ppb	100 ppb	Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; contributions to atmospheric discoloration; increased visits to hospital for respiratory illnesses.	During combustion of fossil fuels, oxygen reacts with nitrogen to produce nitrogen oxides—NO <sub>x</sub> (NO, NO <sub>2</sub> , NO <sub>3</sub> , N <sub>2</sub> O, N <sub>2</sub> O <sub>3</sub> , N <sub>2</sub> O <sub>4</sub> , and N <sub>2</sub> O <sub>5</sub> ). NO <sub>x</sub> is a precursor to ozone, PM <sub>10</sub> , and PM <sub>2.5</sub> formation. NO <sub>x</sub> can react with compounds to form nitric acid and related small particles and result in PM related health effects.	NO <sub>x</sub> is produced in motor vehicle internal combustion engines and fossil fuel-fired electric utility and industrial boilers. Nitrogen dioxide forms quickly from NO <sub>x</sub> emissions. NO <sub>2</sub> concentrations near major roads can be 30 to 100 percent higher than those at monitoring stations.
	Annual	30 ppb	53 ppb			

**Table 3.2-4 (cont.): Description of Air Pollutants**

Air Pollutant	Averaging Time	California Standard	Federal Standard <sup>a</sup>	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Sulfur dioxide <sup>c</sup> (SO <sub>2</sub> )	1 Hour	0.25 ppm	0.075 ppm	Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma. Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient sulfur dioxide levels. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor.	Sulfur dioxide is a colorless, pungent gas. At levels greater than 0.5 ppm, the gas has a strong odor, similar to rotten eggs. Sulfur oxides (SO <sub>x</sub> ) include sulfur dioxide and sulfur trioxide. Sulfuric acid is formed from sulfur dioxide, which can lead to acid deposition and can harm natural resources and materials. Although sulfur dioxide concentrations have been reduced to levels well below state and federal standards, further reductions are desirable because sulfur dioxide is a precursor to sulfate and PM <sub>10</sub> .	Human caused sources include fossil-fuel combustion, mineral ore processing, and chemical manufacturing. Volcanic emissions are a natural source of sulfur dioxide. The gas can also be produced in the air by dimethylsulfide and hydrogen sulfide. Sulfur dioxide is removed from the air by dissolution in water, chemical reactions, and transfer to soils and ice caps. The sulfur dioxide levels in the State are well below the maximum standards.
	3 Hour	—	0.5 ppm			
	24 Hour	0.04 ppm	0.14 (for certain areas)			
	Annual	—	0.030 ppm (for certain areas)			
Particulate matter (PM <sub>10</sub> )	24 hour	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	<ul style="list-style-type: none"> <li>- Short-term exposure (hours/days): irritation of the eyes, nose, throat; coughing; phlegm; chest tightness; shortness of breath; aggravate existing lung disease, causing asthma attacks and acute bronchitis; those with heart disease can suffer heart attacks and arrhythmias.</li> <li>- Long-term exposure: reduced lung function; chronic bronchitis; changes in lung morphology; death.</li> </ul>	Suspended particulate matter is a mixture of small particles that consist of dry solid fragments, droplets of water, or solid cores with liquid coatings. The particles vary in shape, size, and composition. PM <sub>10</sub> refers to particulate matter that is between 2.5 and 10 microns in diameter, (one micron is one-millionth of a meter). PM <sub>2.5</sub> refers to particulate matter that is 2.5 microns or less in diameter, about one-thirtieth the size of the average human hair.	Stationary sources include fuel or wood combustion for electrical utilities, residential space heating, and industrial processes; construction and demolition; metals, minerals, and petrochemicals; wood products processing; mills and elevators used in agriculture; erosion from tilled lands; waste disposal, and recycling. Mobile or transportation related sources are from vehicle exhaust and road dust. Secondary particles form from reactions in the atmosphere.
	Mean	20 µg/m <sup>3</sup>	—			
Particulate matter (PM <sub>2.5</sub> )	24 Hour	—	35 µg/m <sup>3</sup>			
	Annual	12 µg/m <sup>3</sup>	12.0 µg/m <sup>3</sup>			
Visibility reducing particles	8 Hour	See note below <sup>d</sup>				

**Table 3.2-4 (cont.): Description of Air Pollutants**

Air Pollutant	Averaging Time	California Standard	Federal Standard <sup>a</sup>	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Sulfates	24 Hour	25 µg/m <sup>3</sup>	—	(a) Decrease in ventilatory function; (b) aggravation of asthmatic symptoms; (c) aggravation of cardio-pulmonary disease; (d) vegetation damage; (e) degradation of visibility; (f) property damage.	The sulfate ion is a polyatomic anion with the empirical formula SO <sub>4</sub> <sup>2-</sup> . Sulfates occur in combination with metal and/or hydrogen ions. Many sulfates are soluble in water.	Sulfates are particulates formed through the photochemical oxidation of sulfur dioxide. In California, the main source of sulfur compounds is combustion of gasoline and diesel fuel.
Lead <sup>e</sup>	30-day	1.5 µg/m <sup>3</sup>	—	Lead accumulates in bones, soft tissue, and blood and can affect the kidneys, liver, and nervous system. It can cause impairment of blood formation and nerve conduction, behavior disorders, mental retardation, neurological impairment, learning deficiencies, and low IQs.	Lead is a solid heavy metal that can exist in air pollution as an aerosol particle component. Leaded gasoline was used in motor vehicles until around 1970. Lead concentrations have not exceeded state or federal standards at any monitoring station since 1982.	Lead ore crushing, lead-ore smelting, and battery manufacturing are currently the largest sources of lead in the atmosphere in the United States. Other sources include dust from soils contaminated with lead-based paint, solid waste disposal, and crustal physical weathering.
	Quarter	—	1.5 µg/m <sup>3</sup>			
	Rolling 3-month average	—	0.15 µg/m <sup>3</sup>			
Vinyl chloride <sup>e</sup>	24 Hour	0.01 ppm	—	Short-term exposure to high levels of vinyl chloride in the air causes central nervous system effects, such as dizziness, drowsiness, and headaches. Epidemiological studies of occupationally exposed workers have linked vinyl chloride exposure to development of a rare cancer, liver angiosarcoma, and have suggested a relationship between exposure and lung and brain cancers.	Vinyl chloride, or chloroethene, is a chlorinated hydrocarbon and a colorless gas with a mild, sweet odor. In 1990, ARB identified vinyl chloride as a toxic air contaminant and estimated a cancer unit risk factor.	Most vinyl chloride is used to make polyvinyl chloride plastic and vinyl products, including pipes, wire and cable coatings, and packaging materials. It can be formed when plastics containing these substances are left to decompose in solid waste landfills. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites.
Hydrogen sulfide	1 Hour	0.03 ppm	—	High levels of hydrogen sulfide can cause immediate respiratory arrest. It can irritate the eyes and respiratory tract and cause headache, nausea, vomiting, and cough. Long exposure can cause pulmonary edema.	Hydrogen sulfide (H <sub>2</sub> S) is a flammable, colorless, poisonous gas that smells like rotten eggs.	Manure, storage tanks, ponds, anaerobic lagoons, and land application sites are the primary sources of hydrogen sulfide. Anthropogenic sources include the combustion of sulfur containing fuels (oil and coal).

**Table 3.2-4 (cont.): Description of Air Pollutants**

Air Pollutant	Averaging Time	California Standard	Federal Standard <sup>a</sup>	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Volatile organic compounds (VOC)		There are no State or federal standards for VOCs because they are not classified as criteria pollutants.		Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations because of interference with oxygen uptake. In general, concentrations of VOCs are suspected to cause eye, nose, and throat irritation; headaches; loss of coordination; nausea; and damage to the liver, the kidneys, and the central nervous system. Many VOCs have been classified as toxic air contaminants.	Reactive organic gases (ROGs), or VOCs, are defined as any compound of carbon—excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate—that participates in atmospheric photochemical reactions. Although there are slight differences in the definition of ROGs and VOCs, the two terms are often used interchangeably.	Indoor sources of VOCs include paints, solvents, aerosol sprays, cleansers, tobacco smoke, etc. Outdoor sources of VOCs are from combustion and fuel evaporation. A reduction in VOC emissions reduces certain chemical reactions that contribute to the formulation of ozone. VOCs are transformed into organic aerosols in the atmosphere, which contribute to higher PM <sub>10</sub> and lower visibility.
Benzene		There are no ambient air quality standards for benzene.		Short-term (acute) exposure of high doses from inhalation of benzene may cause dizziness, drowsiness, headaches, eye irritation, skin irritation, and respiratory tract irritation, and at higher levels, loss of consciousness can occur. Long-term (chronic) occupational exposure of high doses has caused blood disorders, leukemia, and lymphatic cancer.	Benzene is a VOC. It is a clear or colorless light-yellow, volatile, highly flammable liquid with a gasoline-like odor. The EPA has classified benzene as a “Group A” carcinogen.	Benzene is emitted into the air from fuel evaporation, motor vehicle exhaust, tobacco smoke, and from burning oil and coal. Benzene is used as a solvent for paints, inks, oils, waxes, plastic, and rubber. Benzene occurs naturally in gasoline at one to two percent by volume. The primary route of human exposure is through inhalation.
Diesel particulate matter (DPM)		There are no ambient air quality standards for DPM.		Some short-term (acute) effects of DPM exposure include eye, nose, throat, and lung irritation, coughs, headaches, light-headedness, and nausea. Studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering	Diesel PM is a source of PM <sub>2.5</sub> —diesel particles are typically 2.5 microns and smaller. Diesel exhaust is a complex mixture of thousands of particles and gases that is produced when an engine burns diesel fuel. Organic compounds account for	Diesel exhaust is a major source of ambient particulate matter pollution in urban environments. Typically, the main source of DPM is from combustion of diesel fuel in diesel-powered engines. Such engines are in on-road vehicles

**Table 3.2-4 (cont.): Description of Air Pollutants**

Air Pollutant	Averaging Time	California Standard	Federal Standard <sup>a</sup>	Most Relevant Effects from Pollutant Exposure	Properties	Sources
				from respiratory problems. Human studies on the carcinogenicity of DPM demonstrate an increased risk of lung cancer, although the increased risk cannot be clearly attributed to diesel exhaust exposure.	80 percent of the total particulate matter mass, which consists of compounds such as hydrocarbons and their derivatives, and polycyclic aromatic hydrocarbons and their derivatives. Fifteen polycyclic aromatic hydrocarbons are confirmed carcinogens, a number of which are found in diesel exhaust.	such as diesel trucks, off-road construction vehicles, diesel electrical generators, and various pieces of stationary construction equipment.
<p>Notes:</p> <p>ppm = parts per million (concentration)      ppb = parts per billion      <math>\mu\text{g}/\text{m}^3</math> = micrograms per cubic meter  Annual = Annual Arithmetic Mean      30-day = 30-day average      Quarter = Calendar quarter</p> <p><sup>a</sup> Federal standard refers to the primary national ambient air quality standard, or the levels of air quality necessary, with an adequate margin of safety to protect the public health. All standards listed are primary standards except for 3-Hour SO<sub>2</sub>, which is a secondary standard. A secondary standard is the level of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.</p> <p><sup>b</sup> To attain the 1-hour nitrogen dioxide national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (0.100 ppm).</p> <p><sup>c</sup> On June 2, 2010, a new 1-hour SO<sub>2</sub> standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO<sub>2</sub> national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.</p> <p><sup>d</sup> Visibility reducing particles: In 1989, ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are “extinction of 0.23 per kilometer” and “extinction of 0.07 per kilometer” for the statewide and Lake Tahoe Air Basin standards, respectively.</p> <p><sup>e</sup> ARB has identified lead and vinyl chloride as “toxic air contaminants” with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.</p> <p>Source of effects, properties, and sources: South Coast Air Quality Management District 2007a; California Environmental Protection Agency 2002; California Air Resources Board 2009; United States Environmental Protection Agency 2003, 2009a, 2009b, 2010, 2011a, and 2012; National Toxicology Program 2011a and 2011b. Source of standards: California Air Resources Board 2013c.</p>						

## Greenhouse Gases

### ***Federal GHG Regulations***

The United States has historically had a voluntary approach to reducing GHG emissions. Several national and international voluntary climate change initiatives are discussed below. There are currently no federal regulations that apply to GHG emissions from construction or operation of the project. However, on April 2, 2007, the U.S. Supreme Court ruled that the EPA has the authority to regulate CO<sub>2</sub> emissions under the federal Clean Air Act (CAA), discussed below.

### ***Kyoto Protocol***

The United States participates in the United Nations Framework Convention on Climate Change (UNFCCC) (signed on March 21, 1994). The Kyoto Protocol is a treaty made under the UNFCCC and was the first international agreement to regulate GHG emissions and was adopted on December 11, 1997. The first commitment period of the Protocol, between 2008 and 2012, aimed to reduce GHG emissions from the group of industrialized countries (i.e., the Annex I countries excluding the U.S.) by 4.2% relative to the base year, which in most cases is 1990. According to Olivier *et al.* (2011), the Kyoto Parties met their collective target, with a projected average reduction of 16% for 2008-2012.<sup>21</sup> The Doha Amendment of the Kyoto Protocol was adopted on December 8, 2012 and negotiations are currently underway to agree on post-Kyoto legal framework that would obligate all major polluters to pay for CO<sub>2</sub> emissions. It should be noted that although the United States is a signatory to the Kyoto Protocol, Congress has not ratified the Protocol and the United States is not bound by the Protocol's commitments.

### ***Copenhagen Summit***

The 2009 United Nations Climate Change Conference (Copenhagen Summit) was held in Denmark in December 2009. The conference included the 15 Conference of the Parties to the United Nations Framework Convention on Climate Change, and the fifth meeting of the Parties to the Kyoto Protocol. A framework for climate change mitigation beyond 2012 was to be agreed there. The Copenhagen Accord was drafted by the US, China, India, Brazil, and South Africa on December 18, and judged to be a "meaningful agreement" by the United States government. It was "taken note of" but not "adopted" in a debate of all the participating countries the next day, and it was not passed unanimously. The document recognized that climate change is one of the greatest challenges of the present day and that actions should be taken to keep any temperature increases to below 2 degrees Celsius. The document is not legally binding and does not contain any legally binding commitments for reducing CO<sub>2</sub> emissions.

### ***Climate Change Technology Program***

The United States has opted for a voluntary and incentive-based approach toward emissions reductions in lieu of the Kyoto Protocol's mandatory framework. The Climate Change Technology Program (CCTP) is a multi-agency research and development coordination effort (which is led by the

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<sup>21</sup> Olivier, J.G.J., et al. 2011. Long-term trend in global CO<sub>2</sub> emissions; 2011 report (PDF). PBL Netherlands Environmental Assessment Agency; Institute for Environment and Sustainability (IES) of the European Commission's Joint Research Centre (JRC).

Secretaries of Energy and Commerce) that is charged with carrying out the President's National Climate Change Technology Initiative.<sup>22</sup>

### **Federal Clean Air Act**

The federal Clean Air Act (CAA), enacted in 1970 and amended in 1977 and 1990, establishes the framework for federal air pollution control. The CAA does not identify greenhouse gases as air pollutants subject to regulation. However, in April 2007, in *Massachusetts v. U.S. Environmental Protection Agency*,<sup>23</sup> the U.S. Supreme Court held that CO<sub>2</sub> is an "air pollutant" as defined under the federal Clean Air Act, and that the U.S. Environmental Protection Agency (EPA) must follow the pertinent Clean Air Act criteria in determining whether to regulate emissions of CO<sub>2</sub> and other GHGs. In response to that decision, and as directed by the Court, EPA announced initiation of an effort to determine whether to propose an "endangerment finding" with regard to the impacts of GHG emissions from new motor vehicles. In December 2009, EPA issued an endangerment finding that GHGs from new motor vehicles contribute to air pollution and may endanger public health or welfare. The endangerment finding classified six GHGs as pollutants that threaten health: CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, and SF<sub>6</sub>. EPA found that the combined emissions of GHGs from new motor vehicles contribute to GHG pollution, which threatens public health and welfare.

During the George W. Bush Administration, EPA rejected California's application for a Clean Air Act preemption waiver needed by California to implement the state's GHG standards for new motor vehicles. In January 2009, President Obama directed EPA to re-assess whether it should grant California's waiver application. On February 12, 2009, EPA published a Federal Register notice proposing to approve the California waiver. In March 2009, EPA held public hearings on the matter. On June 30, 2009, EPA granted California's waiver request.

On June 25, 2013, President Obama announced his Climate Action Plan (CAP) consisting of a set of executive actions. This plan will cut carbon pollution, prepare for the impacts of climate change, and lead international efforts to address climate change.<sup>24, 25</sup> Also on June 25, 2013, President Obama issued a Presidential Memorandum directing EPA to issue a new draft regulation for standards of performance for new power plants and a second draft regulation for existing power plants.<sup>26</sup> On June 24, 2014, the White House released a report detailing progress under the Climate Action Plan.<sup>27</sup> On September 20, 2013 and June 2, 2014, EPA issued proposed draft rules for new power plants<sup>28</sup> and existing power plants<sup>29</sup>, respectively.

<sup>22</sup> CCTP. 2008. About the U.S. Climate Change Technology Program. Website: <http://www.climatechange.gov/about/index.htm>. Accessed: December 21, 2014.

<sup>23</sup> U.S. Supreme Court, *Massachusetts et al. v. USEPA et al.* (No. 05-1120, 415F 3d 50). April 2, 2007

<sup>24</sup> Fact Sheet: President Obama's Climate Action Plan. 2014. Website: <http://www.whitehouse.gov/the-press-office/2013/06/25/fact-sheet-president-obama-s-climate-action-plan>. Accessed: December 21, 2014.

<sup>25</sup> Climate Change and President Obama's Action Plan. 2013. Website: <http://www.whitehouse.gov/sites/default/files/image/president27climateactionplan.pdf>. Accessed: December 21, 2014.

<sup>26</sup> Presidential Memorandum - Power Sector Carbon Pollution Standards. <http://www.whitehouse.gov/the-press-office/2013/06/25/presidential-memorandum-power-sector-carbon-pollution-standards>. Accessed: December 21, 2014.

<sup>27</sup> President Obama's Climate Action Plan Progress Report. 2014. Website: [http://www.whitehouse.gov/sites/default/files/docs/cap\\_progress\\_report\\_update\\_062514\\_final.pdf](http://www.whitehouse.gov/sites/default/files/docs/cap_progress_report_update_062514_final.pdf). Accessed: December 21, 2014.

<sup>28</sup> 2013 Proposed Carbon Pollution Standard for New Power Plants. Website: <http://www2.epa.gov/carbon-pollution-standards/2013-proposed-carbon-pollution-standard-new-power-plants>. Accessed: December 21, 2014.

<sup>29</sup> Clean Power Plan Proposed Rule. Website: <http://www2.epa.gov/carbon-pollution-standards/clean-power-plan-proposed-rule>. Accessed: December 21, 2014.

## State GHG Regulations

### **California Environmental Quality Act (CEQA)**

CEQA applies to all discretionary projects undertaken or subject to approval by the State's public agencies.<sup>30</sup> CEQA states that it is the policy of the State of California to "ensure the long-term protection of the environment."<sup>31</sup> Under the provisions of CEQA, a public agency should assess the significance of impacts from the greenhouse gas emissions of a project based on the following factors:<sup>32</sup>

- The extent to which a project may increase or decrease greenhouse gas emissions as compared to the existing environmental conditions;
- Whether emissions resulting from the project exceed a threshold of significance that the public agency determines applies to the project; and
- The extent to which the project complies with regulations or requirements adopted to implement State, regional, or local plans for the reduction or mitigation of greenhouse gas emissions.

On July 3, 2009, the California Natural Resources Agency began the formal rulemaking process for adopting the CEQA Guidelines for GHG emissions. The Amendments became effective on March 18, 2010. Among the changes included in these recent CEQA Guidelines amendments are guidance for determining the significance of impacts from GHG emissions (CEQA Guidelines Section 15064.4). These guidelines indicate that "The determination of the significance of GHG emissions calls for a careful judgment by the lead agency ... A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of GHG emissions resulting from a project." A lead agency shall have discretion to determine, in the context of a particular project, whether to use a model or other methodology to quantify GHG emissions resulting from a project, and which model or methodology to use, or whether to rely on a qualitative analysis or performance based standard.

These Guidelines also indicate that a lead agency should consider the following factors, among others, when assessing the significance of impacts from GHG emissions on the environment:

- "The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;
- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
- The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional or local plan for the reduction or mitigation of GHG emissions."

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<sup>30</sup> CEQA Guidelines Section 15002(i).

<sup>31</sup> Public Resources Code Section 21001(d).

<sup>32</sup> CEQA Guidelines Section 15064.4(b).

In determining thresholds of significance for GHG emissions, Section 15064.7 indicates that:

Each public agency is encouraged to develop and publish thresholds of significance that the agency uses in the determination of the significance of environmental effects. A threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant. Thresholds of significance to be adopted for general use as part of the lead agency's environmental review process must be adopted by ordinance, resolution, rule, or regulation, and developed through a public review process and be supported by substantial evidence. 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.

Finally, in considering mitigation measures related to GHG emissions, Section 15126.4 indicates that:

. . . lead agencies shall consider feasible means, supported by substantial evidence and subject to monitoring or reporting, of mitigating the significant effects of GHG emissions. Measures to mitigate the significant effects of GHG emissions may include, among others:

- Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency's decision;
- Reductions in emissions resulting from a project through implementation of project features, project design, or other measures;
- Off-site measures, including offsets that are not otherwise required, to mitigate a project's emissions; and
- Measures that sequester GHGs.

In the case of the adoption of a plan, such as a general plan, long range development plan, or plans for the reduction of GHG emissions, mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions."

#### ***Title 24, Part 6 of the California Code of Regulations (1978)***

The Energy Efficiency Standards for Residential and Nonresidential Buildings were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods.

**Assembly Bill (AB) 1493**

AB 1493 (the “Pavley Standard”), enacted in 2002, directs ARB to develop and implement regulations that achieve the “maximum feasible reduction” of GHG emissions from passenger vehicles, light-duty trucks, and other noncommercial vehicles. Pursuant to AB 1493, in 2004 ARB approved regulations limiting the amount of GHGs released from motor vehicles. On March 6, 2008, EPA published a Federal Register notice of its decision denying California’s request for Clean Air Act preemption waiver needed to allow California to implement its state motor vehicle GHG emission standards. California sued EPA seeking reversal of that decision. As noted above, on February 12, 2009, EPA published a Federal Register notice proposing to approve the California waiver, and in March 2009, it held public hearings on the matter. On June 30, 2009, EPA granted California’s waiver request.

**Executive Order S-01-07**

Executive Order S-01-07 (the Low Carbon Fuel Standard [LCFS], January 18, 2007) requires a 10 percent or greater reduction in the average fuel carbon intensity for transportation fuels in California regulated by ARB. ARB identified the LCFS as a Discrete Early Action item under AB 32, and the final resolution (09-31) was issued on April 23, 2009.<sup>33</sup> In 2009, ARB approved for adoption the LCFS regulation, which became fully effective in April 2010 and is codified at Title 17, CCR, Sections 95480-95490. The LCFS will reduce greenhouse gas emissions by reducing the carbon intensity of transportation fuels used in California by at least 10 percent by 2020. (Carbon intensity is a measure of the GHG emissions associated with the various production, distribution, and use steps in the “lifecycle” of a transportation fuel.)

On December 29, 2011, the US District Court for the Eastern District of California issued several rulings in the federal lawsuits challenging the LCFS. One of the district court’s rulings preliminarily enjoined the ARB from enforcing the regulation. In January 2012, ARB appealed that decision to the Ninth Circuit Court of Appeals. On September 18, 2013, the Ninth Circuit concluded that the LCFS ethanol and initial crude-oil provisions are not facially discriminatory, but remanded the case to the district court to determine whether the LCFS ethanol provisions are discriminatory in purpose and effect. Additionally, the Ninth Circuit remanded to the District Court with instructions to vacate the preliminary injunction against ARB’s enforcement of the regulation.

In a mostly-published 95-page opinion filed July 15, 2013, the Fifth District Court of Appeal reversed a trial court’s judgment and directed issuance of a writ of mandate setting aside Resolution 09-31 and two executive orders of the ARB approving LCFS regulations promulgated to reduce GHG emissions. (*POET, LLC v. ARB* (2013) 217 Cal.App.4<sup>th</sup> 1214.) However, despite its finding that ARB’s actions “ran afoul of several procedural requirements imposed by California Environmental Quality Act (CEQA) and the APA” and that “these procedural violations are not trivial,” the Court tailored its remedy to protect the public interest by “allow[ing] the LCFS regulations to remain operative while [C]ARB complies with the procedural requirements it failed to satisfy.” It stated: “In other words, we will avoid the irony of violations of an environmental protection statute being used to set aside a regulation that restricts the release of pollutants into the environment.”

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<sup>33</sup> ARB. 2009. Initial Statement of Reason for Proposed Regulation for The Management of High Global Warming Potential Refrigerant for Stationary Sources. October 23. Website: <http://www.arb.ca.gov/regact/2009/gwprmp09/isorref.pdf>. Accessed: May 2014.

### **Executive Order S-3-05**

On June 1, 2005, Governor Schwarzenegger signed Executive Order S-3-05, which established the following GHG emission reduction targets:

- By 2010, reduce GHG emissions to 2000 emission levels,
- By 2020, reduce GHG emissions to 1990 emission levels, and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

A Climate Action Team (CAT) was formed to implement GHG emission reduction programs and to report on progress made to meet the emission reduction targets. CAT is led by the Secretary of California Environmental Protection Agency and consists of representatives from several state agencies. A progress report on meeting the targets is issued every two years starting with the report issued in March 2006. The most recent report was issued in 2010.<sup>34</sup>

### **AB 32, California Global Warming Solutions Act (2006)**

In 2006, the California Global Warming Solutions Act of 2006 (AB 32), was signed into law by Governor Schwarzenegger. The law codified the State's goal to reduce statewide GHG emissions to 1990 levels by the year 2020. This reduction is being accomplished using several approaches, including a statewide cap on GHG emissions. AB 32 directs ARB to develop GHG regulations and establish a mandatory reporting system to track and monitor global warming emissions.

Under AB 32, GHGs are defined as CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, and CF<sub>6</sub>. The regulatory steps established in AB 32 require ARB to adopt early action measures to reduce GHGs; adopt mandatory reporting rules for significant sources of GHGs; and adopt a scoping plan indicating how emission reductions will be achieved via regulations, market mechanisms, and other actions.

AB 32 requires that ARB complete a GHG emissions inventory showing California's 1990 GHG emissions. On December 6, 2007, ARB approved this inventory, which showed 1990 emissions of 427 million metric tons of carbon dioxide equivalent (CO<sub>2</sub>e). ARB estimated that without any reduction measures (business as usual scenario), 2020 emission levels would be 596 million metric tons of carbon dioxide. Based on these estimates, ARB concluded that California's GHG emissions needed to be reduced by 173 million metric tons of CO<sub>2</sub>e (28% reduction) to meet the 427 million metric ton cap.<sup>35</sup>

To help achieve these reductions, ARB evaluated over 100 possible measures. On April 20, 2007, ARB published *Proposed Early Actions to Mitigate Climate Change in California*,<sup>36</sup> including 36 measures for ARB to pursue during the years 2007–2009. These measures are expected to reduce GHGs by 42 million metric tons of carbon dioxide equivalent by 2020, which is about 25 percent of the needed reduction.

AB 32 also required that ARB adopt a Scoping Plan by January 1, 2009. That plan shows how emissions reductions will be achieved using regulations, voluntary actions, monetary and

<sup>34</sup> Climate Action Team Reports. 2013. Website: [http://www.climatechange.ca.gov/climate\\_action\\_team/reports/index.html#2010](http://www.climatechange.ca.gov/climate_action_team/reports/index.html#2010). Accessed: December 21, 2014.

<sup>35</sup> Website: <http://www.arb.ca.gov/cc/inventory/1990level/1990level.htm>. Accessed: December 2014.

<sup>36</sup> Cal/EPA and ARB. 2007 Proposed Early Actions to Mitigate Climate Change in California. April.

nonmonetary incentives, market mechanisms, and other actions. ARB adopted the final Scoping Plan in December 2008. The Scoping Plan contains the main strategies California will implement to reduce CO<sub>2</sub>e emissions by 174 MMT, or approximately 30 percent, from the state's projected 2020 emissions level of 596 MMT of CO<sub>2</sub>e under a business-as-usual scenario. The Scoping Plan also breaks down the amount of GHG emissions reductions ARB recommends for each emissions sector of the state's GHG inventory. While ARB has identified a GHG reduction target of 15 percent for local governments themselves, it has not yet determined what amount of GHG emissions reductions it recommends from local government land use decisions. However, the Scoping Plan does state that successful implementation of the plan relies on local governments' land use planning and urban growth decisions because local governments have primary authority to plan, zone, approve, and permit land development to accommodate population growth and the changing needs of their jurisdictions. ARB further acknowledges that decisions on how land is used will have large effects on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors.

In August 2011, the Scoping Plan was re-approved by the ARB Board, and included a Final Supplement to the Scoping Plan Functional Equivalent Document (FED). The FED included an updated business as usual estimate of 507 million metric tons of CO<sub>2</sub>e by 2020. Consequently, a 16 percent reduction below the estimated BAU levels would be necessary to return to 1990 levels by 2020.

In early 2013, ARB initiated activities to update the AB 32 Scoping Plan. The Board approved the First Update to the Climate Change Scoping Plan on May 22, 2014. The First Update describes California's progress towards AB 32 goals, stating that "California is on track to meet the near-term 2020 greenhouse gas limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32." Specifically, "if California realizes the expected benefits of existing policy goals (such as 12,000 megawatts [MW] of renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under AB 758, and others) it could reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80 percent below 1990 levels by 2050." The first update recalculates 1990 GHG emissions using IPCC AR4 released in 2007. Using the AR4 global warming potentials GWPs, the 427 MTCO<sub>2</sub>e 1990 emissions level and 2020 GHG emissions limit would be slightly higher, at 431 MTCO<sub>2</sub>e. Based on the revised estimates of expected 2020 emissions identified in the first update to the Scoping Plan, which take into account reductions from measures currently in place, achieving the 1990 emission level would require a reduction of 78 MTCO<sub>2</sub>e or a reduction of approximately 15 percent to achieve in 2020 emissions levels in the BAU or NAT condition.<sup>37,38,39,40</sup>

<sup>37</sup> For comparison, the 2008 Scoping Plan calculation of the emissions reductions required by 2020 compared to the BAU scenario was 169 MTCO<sub>2</sub>e or 28.5%, calculated using GWPs from the IPCC Second Assessment Report SAR and assuming no reductions in the BAU scenario. This was updated to 118 MTCO<sub>2</sub>e, or a reduction of 21.7% taking into account the effects of the economic recession. An estimate which takes into account the reductions due to measures currently in place, including Pavley 1 and the Renewable Portfolios Standard was published in the Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document (FED 2011). The necessary reduction calculated in the FED was 80 MTCO<sub>2</sub>e or approximately 16%.

<sup>38</sup> ARB. 2011. Status of Scoping Plan Recommended Measures. July. Website: [http://www.arb.ca.gov/cc/scopingplan/status\\_of\\_scoping\\_plan\\_measures.pdf](http://www.arb.ca.gov/cc/scopingplan/status_of_scoping_plan_measures.pdf). Accessed: December 2014.

<sup>39</sup> ARB. 2011. Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document. August. Website: [http://www.arb.ca.gov/cc/scopingplan/document/final\\_supplement\\_to\\_sp\\_fed.pdf](http://www.arb.ca.gov/cc/scopingplan/document/final_supplement_to_sp_fed.pdf). Accessed: December 2014.

<sup>40</sup> ARB. 2014. First Update to the Climate Change Scoping Plan. May. Website: [http://www.arb.ca.gov/cc/scopingplan/2013\\_update/first\\_update\\_climate\\_change\\_scoping\\_plan.pdf](http://www.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf). Accessed: December 2014.

### **Senate Bill (SB) 97**

SB 97, signed in August 2007, acknowledges that climate change is an important environmental issue that requires analysis under CEQA. This bill required the Governor's Office of Planning and Research (OPR) to prepare and develop guidelines for the feasible mitigation of GHG emissions. The California Natural Resources Agency adopted these amendments on December 30, 2009. They took effect on March 18, 2010, after review by the Office of Administrative Law and filing with the Secretary of State for inclusion in the California Code of Regulations.

**2008 OPR Technical Advisory.** On June 19, 2008, OPR published a technical advisory on CEQA and climate change. The advisory provided OPR's perspective on the emerging role of CEQA in addressing climate change and GHG emissions, while recognizing that approaches and methodologies for calculating GHG emissions and addressing environmental impacts through CEQA review are rapidly evolving. The advisory recognized that OPR will develop, and the Resources Agency will adopt, amendments to the CEQA Guidelines pursuant to SB 97. In the interim, the technical advisory "offers informal guidance regarding the steps lead agencies should take to address climate change in their CEQA documents."

The technical advisory pointed out that neither CEQA nor the CEQA Guidelines prescribe thresholds of significance or particular methodologies for performing an impact analysis. The advisory stated, "[t]his is left to lead agency judgment and discretion, based upon factual data and guidance from regulatory agencies and other sources where available and applicable." OPR recommended that, "the global nature of climate change warrants investigation of a statewide threshold of significance for GHG emissions." Until such a standard is established, OPR advises that each lead agency should develop its own approach to performing an analysis for projects that generate GHG emissions. OPR set out the following process for evaluating GHG emissions.

First, agencies should determine whether GHG emissions may be generated by a proposed project, and if so, quantify or estimate the emissions by type or source. Calculation, modeling, or estimation of GHG emissions should include the emissions associated with vehicular traffic, energy consumption, water usage, and construction activities.

Lead agencies should then assess whether the emissions are cumulatively considerable even though a project's GHG emissions may be individually limited. OPR states, "Although climate change is ultimately a cumulative impact, not every individual project that emits GHGs must necessarily be found to contribute to a significant cumulative impact on the environment. Individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice."

Finally, if the lead agency determines emissions are a cumulatively considerable contribution to a significant cumulative impact, the lead agency must investigate and implement ways to mitigate the emissions. OPR states, "Mitigation measures will vary with the type of project being contemplated, but may include alternative project designs or locations that conserve energy and water, measures that reduce vehicle miles traveled (VMT) by fossil-fueled vehicles, measures that contribute to established regional or programmatic mitigation strategies, and measures that sequester carbon to offset the emissions from the project." OPR concludes that, "A lead agency is not responsible for

wholly eliminating all GHG emissions from a project; the CEQA standard is to mitigate to a level that is less than significant.” The technical advisory includes a list of mitigation measures that can be applied on a project-by-project basis.

### **2008 California Air Pollution Control Officers Association (CAPCOA) White Paper**

In January 2008, the California Air Pollution Control Officers Association (CAPCOA) issued a white paper on evaluating and addressing GHGs under CEQA. This resource guide was prepared to support local governments as they develop their programs and policies around climate change issues. The paper was not a guidance document. It was not intended to dictate or direct how any agency chooses to address GHG emissions. Rather, it was intended to provide a common platform of information about key elements of CEQA as they pertain to GHG, including an analysis of different approaches to setting significance thresholds.

The paper noted that for a variety of reasons local agencies may decide not to have a CEQA threshold. Local agencies may also decide to assess projects on a case-by-case basis when the projects come forward. The paper also discussed a range of GHG emission thresholds that could be used. The range of thresholds discussed includes a GHG threshold of zero and several non-zero thresholds. Non-zero thresholds include percentage reductions for new projects that would allow the state to meet its goals for GHG emissions reductions by 2020 and perhaps 2050. These would be determined by a comparison of new emissions versus business as usual emissions and the reductions required would be approximately 30 percent to achieve 2020 goals and 90 percent (effectively immediately) to achieve the more aggressive 2050 goals. These goals could be varied to apply differently to new projects, by economic sector, or by region in the state.

### **SB 375, California’s Regional Transportation and Land Use Planning Efforts (2008)**

The transportation sector contributes approximately 40 percent of the GHG emissions in California, with automobiles and light trucks alone contributing almost 30 percent. While substantial reductions to GHG emissions from automobiles and light trucks can be achieved through new vehicle technology and by the increased use of low carbon fuel, the legislature determined that these reductions will not be enough to achieve the state’s AB 32 GHG emission reduction goals and that it will therefore be necessary, “to achieve additional significant GHG reductions from changed land use patterns and improved transportation.” To implement this concept, on September 30, 2008, Governor Schwarzenegger signed into law SB 375. SB 375 melds regional transportation and local land use planning in an effort to achieve GHG emission reductions from automobiles and light trucks by using transportation and land use planning to implement “smart growth” principles, thereby reducing vehicle trips and the resulting GHG emissions.

SB 375 creates a new regional planning mechanism—referred to as the sustainable communities strategy (SCS)—which promotes high density, transit-oriented development, and creates incentives for specifically defined, high-density development projects. The bill requires multiple State and regional agencies to work cooperatively to establish regional GHG emission reduction targets for the years 2020 and 2035. ARB approved the final targets on February 15, 2011.<sup>41</sup> The primary means by

<sup>41</sup> ARB. 2011. Executive Order No. G-11-024, Relating to Adoption of Regional Greenhouse Gas Emission Reduction Targets for Automobiles and Light Trucks Pursuant to SB 375. Website: [http://www.arb.ca.gov/cc/sb375/executive\\_order\\_g11024.pdf](http://www.arb.ca.gov/cc/sb375/executive_order_g11024.pdf). Accessed: December 21, 2014.

which the GHG reduction targets are to be met is through adoption of an SCS as an element of the regional transportation plans adopted by California's 18 metropolitan planning organizations. Each SCS must analyze existing land use conditions; forecast expected population and employment growth; identify sufficient areas to accommodate the affected region's housing needs; and identify a transportation network to service the transportation needs of the region (California Government Code, Section 65080(b)(2)). Most importantly, the SCS must "set forth a forecasted development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies, will reduce GHG emissions from automobile and light trucks to achieve, if there is a feasible way to do so, the GHG emission reduction targets approved by" the ARB (California Government Code, Section 65080(b)(2)(B)(vii)).

On July 18, 2013, the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC) adopted Plan Bay Area, an integrated transportation and land use strategy through 2040 that marks the nine-county Bay Area region's first long-range plan to meet the requirements of SB 375. In accordance with State law, the SCS must be updated every four years.

### **SB 1078**

SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010. In November 2008, Governor Schwarzenegger signed Executive Order S-14-08, which expands the State's Renewables Energy Standard to 33 percent renewable power by 2020. In April 2011, Governor Jerry Brown signed SB 2X, that created a legislative mandate codifying the 33 percent Renewables Portfolio Standard into law.

Electricity service is provided within the Bay Area by Pacific Gas and Electric (PG&E). Approximately 19 percent of PG&E's 2012 energy mix came from renewable energy sources that included wind, solar, biomass, small hydropower and geothermal sources.<sup>42</sup>

### **Advanced Clean Cars Program**

On January 27, 2012, the ARB adopted a package of new emissions rules for cars and light trucks through 2025. The Advanced Clean Cars (ACC) program combines the control of smog-causing pollutants and greenhouse gas emissions into a single coordinated package of requirements for model years 2017 through 2025. The new rules are intended to reduce emissions from gasoline and diesel-powered cars, and deliver increasing numbers of zero-emission technologies, such as full battery electric cars, newly emerging plug-in hybrid electric vehicles and hydrogen fuel cell cars. The package is also designed to ensure adequate fueling infrastructure is available for the increasing numbers of hydrogen fuel cell vehicles planned for deployment in California. The package includes four separate, related components: Greenhouse gas standard for cars and light trucks for model years 2017-2025, Reducing Smog-Forming Emissions (referred to together as the Low Emission Vehicle (LEV) III Regulations), Zero Emissions Vehicle (ZEV) Regulation, and the Clean Fuels Outlet program. While regulatory activity on the Clean Fuels Outlet program was suspended in December

<sup>42</sup> CPUC. 2013. Current Renewable Procurement Status, Pacific Gas and Electric. Website: <http://www.cpuc.ca.gov/PUC/energy/Renewables/index.htm>. Accessed: December 21, 2014.

2012, the remaining regulations comprising the ACC program were adopted by the Board in 2012.<sup>43,44, 45</sup>

### **Executive Order S-13-08 (2008)**

This Executive Order directed California agencies to assess and reduce the vulnerability of future construction projects to impacts associated with sea-level rise.

### **Executive Order B-30-15 (2015)**

On April 29, 2015, Executive Order B-30-15 set a statewide GHG reduction target of 40 percent below 1990 levels by 2030. The governor identified the following methods to achieve these reductions:<sup>46</sup>

- Incorporate climate change impacts into the state's Five-Year Infrastructure Plan;
- Update the Safeguarding California Plan—the state climate adaptation strategy—to identify how climate change will affect California infrastructure and industry and what actions the state can take to reduce the risks posed by climate change;
- Factor climate change into state agencies' planning and investment decisions; and
- Implement measures under existing agency and departmental authority to reduce greenhouse gas emissions.

The ARB is to update the Climate Change Scoping Plan with the 2030 target and the California Natural Resources Agency is to update Safeguarding California. In addition, all state agencies are to consider climate change and the goals of EO B-30-15 in their planning and investment decisions.

To support setting the target in Governor Brown's Executive Order, a study to evaluate the feasibility and cost of a range of greenhouse gas reduction scenarios in California was commissioned by the ARB, the California Energy Commission (CEC), the California Public Utilities Commission, and the California Independent System Operator. That study was recently summarized in a public presentation sponsored by the ARB.<sup>47</sup>

The study indicated that deep reductions in carbon, consistent with the Governor's targets could be achieved by a combination of activities, including increased energy efficiency, decarbonization of the electricity supply, and vehicle fuel switching to electric sources. The study was carried out under the following design principles: conservative assumptions about economy and lifestyles; only evaluating technology that is commercial or near-commercial; taking into account environmental sustainability (i.e., limits on biomass, hydropower consistent with what can exist); considering the timeframe in which infrastructure can be replaced; and ensuring electricity system reliability. Four cases were studied in the evaluation: a mixed fuels scenario, a high renewables scenario, a high nuclear

<sup>43</sup> Clean Fuels Outlet Regulation Activity. <http://www.arb.ca.gov/fuels/altfuels/cf-outlets/cf-outlets.htm>. Accessed: December, 2014.

<sup>44</sup> Low-Emissions Vehicles and GHG 2012 Regulatory Activity. <http://www.arb.ca.gov/regact/2012/leviiighg2012/leviiighg2012.htm>. Accessed: December 2014.

<sup>45</sup> Zero Emission Vehicles 2012 Regulatory Activity. <http://www.arb.ca.gov/regact/2012/zev2012/zev2012.htm>. Accessed: December 2014.

<sup>46</sup> <http://gov.ca.gov/news.php?id=18938>. Accessed: May 2015.

<sup>47</sup> <http://www.arb.ca.gov/research/lectures/speakers/williams/williams.htm>.

scenario, and a carbon capture and sequestration scenario. In all four cases, electrical vehicles comprise over 25% of the light duty vehicle fleet, indicating that the greater adoption of electric vehicles is critical to allowing California to achieve the targets recently set by Governor Brown.

## Local

### **City of American Canyon General Plan**

The City of American Canyon General Plan establishes the following goals, objectives and policies associated with air quality and greenhouse gas emissions that are relevant to the proposed project:

- **Goal 8F:** Reduce consumption of nonrenewable energy sources and support the development and utilization of new energy sources.
- **Objective 8.22:** Minimize transportation-related energy consumption.
- **Policy 8.22.3:** Require that Development Plans provide for linkages between bicycle and pedestrian circulation systems and transit and employment centers, in accordance with established area-wide plans.
- **Objective 8.23:** Reduce energy consumption in buildings.
- **Policy 8.23.1:** Require that developers employ energy-efficient subdivision and site planning methods as well as building design. Measures to be considered include building orientation and shading, landscaping, building reflectance, use of active and passive solar heating and hot water system, etc. In establishing these energy related design requirements, the City shall balance energy efficient design with good planning principles.

### **City of American Canyon Energy Efficiency Climate Action Plan**

The City of American Canyon developed an Energy Efficiency Climate Action Plan (EECAP), released in December 2012 and adopted in 2013. The EECAP is the first step in the development of a comprehensive Climate Action Plan, which is proposed to be consistent with the BAAQMD CEQA Guidelines. As stated in the EECAP, the City has adopted a community-wide emission reduction target of 15 percent below its 2005 baseline by the year 2020. The EECAP includes seven overarching strategies and 13 measures to help the City reduce its energy use and reach its energy-related GHG reduction target of 15 percent below 2005 baseline levels. Community Strategy 3 for new non-residential development is to “[e]nsure new development exceeds California’s Title 24 energy efficiency standard by 15 percent or more.” Strategy 3 encompasses two specific measures:

- Measure C-6: Savings By Design for New Non-Residential Construction
- Measure C-7: Require Energy Efficiency Beyond State Code for New Non-Residential Construction

Measure C-6 will require participation in PG&E’s Savings by Design program for all new construction projects after 2013, but will not require implementation of strategies suggested by the program. Measure C-7 will provide a streamlined permit process through 2016 for new non-residential construction projects incorporating energy improvements over Title 24. After 2017, new non-residential projects over a defined size threshold would be required to achieve Tier 1 of Title 24.

### 3.2.3 - Thresholds of Significance

According to the CEQA Guidelines' Appendix G Environmental Checklist, to determine whether impacts to air quality are significant environmental effects, the following questions are analyzed and evaluated.

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.

Would the project:

- a) Conflict with or obstruct implementation of the applicable air quality plan?
- b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?
- c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?
- d) Expose sensitive receptors to substantial pollutant concentrations?
- e) Create objectionable odors affecting a substantial number of people?

On February 16, 2010, the Office of Administrative Law filed the CEQA Guideline Amendments with the Secretary of State. The Amendments became effective on March 18, 2010. The CEQA Guidelines amendments included two new checklist questions pertaining to greenhouse gas emissions, listed below:

Would the project:

- a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

This analysis will follow the guidance in the CEQA Guideline Amendments.

While the final determination of whether or not a project is significant is within the purview of the lead agency pursuant to CEQA Guidelines Section 15064(b), the BAAQMD recommends that its quantitative and qualitative air pollution thresholds be used to determine the significance of project emissions. These thresholds are discussed under each impact section below.

#### **BAAQMD Criteria of Significance**

The BAAQMD is the primary agency responsible for comprehensive air pollution control in the entire San Francisco Bay Area Air Basin. In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA. These thresholds were designed to establish the level at

which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA and were posted on BAAQMD’s website and included in the Air District’s updated CEQA Guidelines (updated May 2012).<sup>48,49</sup>

The BAAQMD’s 2011 CEQA Air Quality Guidelines were challenged in the case *California Building Industry Association v. Bay Area Air Quality Management District* (2012). In 2012, the Alameda County Superior Court ruled that the BAAQMD’s adoption of thresholds of significance was a project under CEQA, and ordered the BAAQMD to set aside the thresholds until it complied with CEQA requirements. The BAAQMD appealed the Alameda County Superior Court’s decision and, in August 2013, California’s First District Court of Appeal reversed the Superior Court decision, upholding the BAAQMD’s adoption of the significance thresholds. On September 20, 2013, the California Building Industry Association filed a petition with the California Supreme Court for review of the appellate court’s decision. On November 26, 2013, the California Supreme Court granted the petition for review limited to the narrow issue of the circumstances under which CEQA requires an analysis of how existing environmental conditions will impact future residents or users (receptors) of a proposed project, which does not include greenhouse gas impacts. The California Supreme Court’s limitation of review to this narrow issue effectively allowed the significance thresholds for greenhouse gases to stand as upheld by the appellate court.

Although lead agencies are not required to follow the BAAQMD CEQA Guidelines, most do. The City of American Canyon believes the BAAQMD significance thresholds are supported by substantial evidence, and it has elected to apply the 2010 BAAQMD CEQA Guidelines and significance thresholds to evaluate the project. The significance thresholds identified by BAAQMD and used in this analysis are summarized in Table 3.2-5.

CEQA requires the analysis of potential adverse effects of a project on the environment. Potential effects of the environment on a project are legally not required to be analyzed or mitigated under CEQA.

**Table 3.2-5: BAAQMD Thresholds of Significance**

Pollutant	Construction Thresholds Average Daily Emissions (pounds/day)	Operational Thresholds	
		Average Daily Emissions (pounds/day)	Annual Average Emissions (tons/year)
<b>Criteria Air Pollutants</b>			
ROG	54	54	10
NO <sub>x</sub>	54	54	10
PM <sub>10</sub>	82	82	15
PM <sub>2.5</sub>	54	54	10
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	

<sup>48</sup> Bay Area Air Quality Management District (BAAQMD), 2010. CEQA Guidelines, May. Website: [http://www.baaqmd.gov/~media/Files/Planning%20and%20Research/CEQA/Draft\\_BAAQMD\\_CEQA\\_Guidelines\\_May\\_2010\\_Final.ashx?la=en](http://www.baaqmd.gov/~media/Files/Planning%20and%20Research/CEQA/Draft_BAAQMD_CEQA_Guidelines_May_2010_Final.ashx?la=en). Accessed March 2015

<sup>49</sup> Bay Area Air Quality Management District (BAAQMD), 2012. CEQA Guidelines, May. Website: [http://www.baaqmd.gov/~media/Files/Planning%20and%20Research/CEQA/BAAQMD%20CEQA%20Guidelines\\_Final\\_May%202012.ashx?la=en](http://www.baaqmd.gov/~media/Files/Planning%20and%20Research/CEQA/BAAQMD%20CEQA%20Guidelines_Final_May%202012.ashx?la=en). Accessed March 2015.

**Table 3.2-5 (cont.): BAAQMD Thresholds of Significance**

Pollutant	Construction Thresholds Average Daily Emissions (pounds/day)	Operational Thresholds	
		Average Daily Emissions (pounds/day)	Annual Average Emissions (tons/year)
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	Not Applicable	
<b>Greenhouse Gases</b>			
GHGs—Projects other than Stationary Sources	None	Compliance with Qualified GHG Reduction Strategy OR 1,100 MT of CO <sub>2</sub> e/year OR 4.6 MTCO <sub>2</sub> e/SP/year (residents+employees)	
GHGs—Stationary Sources	None	10,000 MT/year	
<b>Health Risks and Hazards for New Sources</b>			
Excess Cancer Risk	10 per one million	10 per one million	
Chronic or Acute Hazard Index	1.0	1.0	
Incremental annual average PM <sub>2.5</sub>	0.3 µg/m <sup>3</sup>	0.3 µg/m <sup>3</sup>	
<b>Health Risks and Hazards for Sensitive Receptors (Cumulative from All Sources within 1,000-Foot Zone of Influence) and Cumulative Thresholds for New Sources</b>			
Excess Cancer Risk	100 per 1 million		
Chronic Hazard Index	10.0		
Annual Average PM <sub>2.5</sub>	0.8 µg/m <sup>3</sup>		
<b>Accidental Release of Acutely Hazardous Air Pollutants</b>			
Accidental Release of Acutely Hazardous Air Pollutants	None	Storage or use of acutely hazardous materials locating near receptors or new receptors locating near stored or used acutely hazardous materials considered significant	
Notes: ROG = reactive organic gases, NO <sub>x</sub> = nitrogen oxides, PM <sub>10</sub> = course particulate matter or particulates with an aerodynamic diameter of 10 µm or less, and PM <sub>2.5</sub> = fine particulate matter or particulates with an aerodynamic diameter of 2.5 µm or less. Source: BAAQMD 2011			

**3.2.4 - Project Impacts and Mitigation Measures**

This section discusses potential impacts associated with the development of the proposed project and provides mitigation measures where appropriate.

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## Air Quality Management Plan Consistency

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

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### ***Impact Analysis***

The San Francisco Bay Area Air Basin is currently non-attainment for ozone (state and federal ambient standards) and particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>) (state ambient standard). While an air quality plan exists for ozone, none currently exists for particulate matter. A project would be judged to conflict with or obstruct implementation of the regional air quality plan if it would result in substantial new regional emissions not foreseen in the air quality planning process. Regional emissions forecasts in the air quality plan are based on population and employment forecasts derived from City and County General Plans.

As discussed in Section 3.8., Land Use, the proposed project is consistent with land use designations and applicable goals and policies of the American Canyon General Plan, site zoning, the Napa County Airport Industrial Area Specific Plan and other applicable land use regulatory documents. As such, the proposed project would be considered planned growth.

The proposed project would not result in a substantial unplanned increase in population, employment, or regional growth in vehicle miles traveled, so it would not conflict with or obstruct implementation of the air quality plan.

The BAAQMD's current CAP is the 2010 Clean Air Plan (CAP), although the BAAQMD is also currently developing the 2016 Clean Air Plan/Regional Climate Protection Strategy (CAP/RCPS) to replace the 2010 CAP. The 2010 CAP accounts for projections of population growth provided by Association of Bay Area Governments and vehicle miles traveled provided by the Metropolitan Transportation Commission, and it identifies strategies to bring regional emissions into compliance with federal and state air quality standards. The BAAQMD's Guidance provides two criteria for determining if a plan-level project is consistent with the current Air Quality Plan (AQP) control measures. However, the BAAQMD does not provide a threshold of significance for project-level consistency analysis. Therefore, the following criteria will be used for determining a project's consistency with the AQP:

- Criterion 1: Does the project support the primary goals of the AQP?
- Criterion 2: Does the project include applicable control measures from the AQP?
- Criterion 3: Does the project disrupt or hinder implementation of any AQP control measures?

### ***Criterion 1: Support Primary Goals of AQP***

The primary goals of the 2010 CAP, the current AQP to date, are to:

- Attain air quality standards;
- Reduce population exposure to unhealthy air and protecting public health in the Bay Area; and
- Reduce greenhouse gas emissions and protect the climate.

The project would comply with the City of American Canyon General Plan and would provide the project area with employment opportunities. As shown in Impact AIR-2, the project would not create a localized violation of state or federal air quality standards after incorporation of Mitigation

Measure AIR-2. As shown in Impact AIR-4, the project may expose sensitive receptors to substantial pollutant concentrations. As shown in Impact AIR-5, the project would not create objectionable odors affecting a substantial number of people after incorporation of mitigation measures. However, as detailed in Impact AIR-4, operation of the project would exceed the BAAQMD's regional thresholds of significance for the ozone precursors ROG and NO<sub>x</sub> after incorporation of Mitigation Measures AIR-3a and AIR-3b. Therefore, the project would result in a significant and unavoidable impact relative to Criterion 1.

*Criterion 2: Applicable Control Measures of AQP*

The 2010 CAP contains 55 control measures aimed at reducing air pollution in the Bay Area. Along with the traditional stationary, area, mobile source, and transportation control measures, the 2010 CAP contains a number of new control measures designed to protect the climate and promote mixed use, compact development to reduce vehicle emissions and exposure to pollutants from stationary and mobile sources.

None of the 18 stationary source control measures are applicable to the project. In addition, none of the 10 mobile source measures (MSMs) directly apply to the project. The project would not hinder or delay implementation of the MSMs. The following MSMs create funding mechanisms for improvements to goods movement and fleets, thereby indirectly providing options for future operators at the project site:

- MSM A-3 Green Fleets
- MSM B-1 Fleet Modernization for medium- & Heavy-Duty Trucks
- MSM B-2 Low NO<sub>x</sub> Retrofits in Heavy-Duty Trucks

Similarly, none of the 17 transportation control measures (TCMs) directly apply to the project. The project would not hinder or delay the implementation of the TCMs. The following TCMs create funding mechanisms for increasing employee trip reductions, as well as improvement to goods movement and fleets, thereby indirectly providing options for future operators at the project site:

- TCM B-4 Goods Movement Improvements & Emission Reduction Strategy
- TCM C-1 Voluntary Employer-Based Trip Reduction Program
- TCM C-3 Rideshare Services & Incentives

Of the six land use and local impact measures, the following applies to the project.

- **LUM 1 Goods Movement:** The purpose of this measure is to 1) reduce human exposure to diesel emissions from goods movement in the near term and 2) develop and support long-range strategies and partnerships to reduce emissions from the movement of freight in the Bay Area. The nearest sensitive receptor is the single-family residence located 50 feet away. In addition, the project is located in close proximity to existing highway infrastructure (SR 12-29) and there is the potential for Building H to be rail-served. Therefore, the project is consistent with this measure.

Relative to the Energy and Climate measures contained in the 2010 CAP, the project would be consistent with all applicable measures:

- **Energy Efficiency:** The project applicant would be required to conform to the energy efficiency requirements of the California Building Standards Code, also known as Title 24. Specifically, the project must implement the requirements of the most recent Building Energy Efficiency Standards, which is the current version of Title 24. The 2013 Building Efficiency Standards were adopted, in part, to meet an Executive order in the Green Building Initiative to improve the energy efficiency of buildings through aggressive standards.
- **Renewable Energy.** Pacific Gas and Electric Company (PG&E) provides electricity and natural gas service to American Canyon. PG&E facilities include nuclear, natural gas, and hydroelectric facilities. PG&E's 2012 power mix consisted of nuclear generation (21.0 percent), large hydroelectric facilities (11.0 percent) and renewable resources (19.0 percent), such as wind, geothermal, biomass and small hydro. The remaining portion came from natural gas (27.0 percent), and unspecified sources (21.0 percent).

In summary, the project would meet all of the applicable Land Use Measures and Energy and Climate Measures contained in the 2010 Clean Air Plan. The project would be consistent with this criterion.

#### *Criterion 3: Hinder or Disrupt AQP Control Measures*

The project will not preclude extension of a transit line or bike path, propose excessive parking beyond parking requirements, or otherwise create an impediment or disruption to implementation of any AQP control measures. Indeed, as shown above, the project incorporates several AQP control measures as project design features. The project would be consistent with this criterion.

#### *Impact Summary*

In summary, the project would comply with all applicable rules and regulations, including the 2016 CAP. To the extent that the City of American Canyon is participating in the BAAQMD's updates to the CAP/RCPS, the Project may be consistent with the BAAQMD 2016 Clean Air Plan, drafts of which are not yet available. However, the project would conflict with the AQP because its emissions exceed the BAAQMD significance thresholds for ROG and NO<sub>x</sub> during the project's operation (Criterion 1). Although Mitigation Measures AIR-2, AIR-3a, and AIR-3b are proposed to reduce the severity of this impact, implementation of these measures would not reduce the impact to a level of less than significant. Therefore, the residual significance of this impact of significant unavoidable impact.

#### **Level of Significance Before Mitigation**

Potentially significant impact.

#### **Mitigation Measures**

Implement Mitigation Measures AIR-2, AIR-3a, and AIR-3b.

#### **Level of Significance After Mitigation**

Significant unavoidable impact.

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## Air Quality Standard Violation

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**Impact AIR-2:**        **The project may violate an air quality standard or contribute substantially to an existing or projected air quality violation.**

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### *Impact Analysis*

This impact analyzes localized criteria pollutant impacts, also known as “hotspots.” Potential localized impacts would be exceedances of State or federal standards for particulate matter (PM<sub>10</sub>), or CO. PM<sub>10</sub> is of concern during construction because of the potential to emit fugitive dust during earth-disturbing activities (construction fugitive dust). CO emissions are of concern during project operation because operational CO hotspots are related to increases in on-road vehicle congestion. Each area of impact is discussed separately below.

#### *Construction Fugitive Dust*

During construction (grading), fugitive dust (PM<sub>10</sub>) would be generated from site grading and other earth-moving activities. The majority of this fugitive dust would remain localized and would be deposited near the project site.

The BAAQMD does not have a quantitative significance threshold for fugitive dust. The BAAQMD’s Air Quality Guidelines recommend that projects determine the significance for fugitive dust through application of Best Management Practices. The project construction activities would result in a potentially significant impact. Therefore, it is recommended that the fugitive dust control measures identified in the BAAQMD’s Air Quality Guidelines be included to reduce localized dust impacts to less than significant. Mitigation Measure AIR-2 requires the application of Best Management Practices for fugitive dust control. Implementation of Mitigation Measure AIR-2 reduces the project’s construction-generated fugitive dust impact to less than significant.

#### *Operational CO Hotspot*

Localized high levels of CO (CO hotspots) are associated with traffic congestion and idling or slow-moving vehicles. The BAAQMD recommends a screening analysis to determine if a project has the potential to contribute to a CO hotspot. The screening criteria identify when site-specific CO dispersion modeling is necessary. The project would result in a less than significant impact to air quality for local CO if the following screening criteria are met:

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans; or
- The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour; or
- The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

According to the traffic analysis contained in Section 3.11, Transportation, of this Draft EIR, Napa County does not have a congestion management agency. Napa County Transportation and Planning Agency works with the Metropolitan Transportation Commission to prepare the Napa County portion of the Regional Transportation Plan, which is a long-range development plan to allocate state and federal transportation funds.

Peak-hour traffic volumes are identified in Section 3.11 of this Draft EIR. The highest volume scenario is the Cumulative Plus Project Conditions. Specifically, the intersection of SR-29/Airport Boulevard is anticipated to facilitate 11,310 vehicles in the PM peak hour for Option 1 and 11,359 vehicles in the PM peak hour for Option 2. The anticipated vehicle volume at the highest volume intersection would be less than the BAAQMD's second and third screening criteria. Furthermore, the adjacent roadways are not located in an area where vertical or horizontal mixing, or the free movement of the air mass, is substantially limited by physical barriers such as bridge overpasses or urban or natural canyon walls.

Therefore, the project would not result in any impact related to these criteria and would result in a less than significant impact for CO hotspots.

### ***Level of Significance Before Mitigation***

Potentially significant impact.

### ***Mitigation Measures***

- MM AIR-2** All construction activity: During construction activities, the following air pollution control measures shall be implemented:
- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day, or more as needed.
  - All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
  - All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
  - All vehicle speeds on unpaved roads and surfaces shall be limited to 15 miles per hour.
  - All roadways, driveways, and sidewalks shall be paved as soon as possible.
  - Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
  - Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 2 minutes (beyond the 5 minute limit required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
  - All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.

- A publicly visible sign shall be posted with a name and telephone number of the applicant's representative for dust complaints. This person shall respond and take corrective action within 2 business days of a complaint or issue notification. The Bay Area Air Quality Management District's phone number shall also be visible to ensure compliance with applicable regulations.

### **Level of Significance After Mitigation**

Less than significant impact.

### **Cumulative Criteria Pollutants**

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**Impact AIR-3:** The project may result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

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### **Impact Analysis**

This impact responds to regional criteria pollutant impacts. The San Francisco Bay Area Air Basin is currently designated as a non-attainment area for PM<sub>10</sub> (state and federal), PM<sub>2.5</sub> (state and federal), and ozone (state and federal). Ozone is not emitted directly into the air, but is a regional pollutant formed by photochemical reactions in the atmosphere. Ozone precursors, ROG and NO<sub>x</sub>, react in the atmosphere in the presence of sunlight to form ozone. The BAAQMD does not have a recommended ozone threshold, but has regional thresholds of significance for ROG and NO<sub>x</sub>. Therefore, significant impact would result if the project's emissions of PM<sub>10</sub>, PM<sub>2.5</sub>, and ozone precursor emissions of VOC and NO<sub>x</sub> exceeded their respective emission significance thresholds. Construction and operational regional emissions are discussed separately below.

#### *Construction Emissions*

Construction is anticipated to begin mid-2016 and each proposed lot would be constructed based on market conditions; however, in order to provide a worst-case analysis, it was assumed that all of the proposed structures would be constructed simultaneously over 24 months in the CalEEMod model. The construction emissions modelling parameters and assumptions are provided in Appendix B. Table 3.2-6 provides the total project construction emissions and the average daily emissions rates for the construction period.

**Table 3.2-6: Construction Criteria Air Pollutants Emissions Prior to Mitigation**

Parameter	Air Pollutants (Average Daily Rates)			
	ROG	NO <sub>x</sub>	PM <sub>10</sub> <sup>1</sup>	PM <sub>2.5</sub> <sup>1</sup>
<b>Option 1 Total Construction Emissions</b>				
Total Emissions (lbs) <sup>2</sup>	9,998	31,034	3,660	2,238
Average Daily Emissions (lbs/day) <sup>3</sup>	19.2	59.7	7.0	4.3
Significance Threshold	54	54	82	54

**Table 3.2-6 (cont.): Construction Criteria Air Pollutants Emissions Prior to Mitigation**

Parameter	Air Pollutants (Average Daily Rates)			
	ROG	NO <sub>x</sub>	PM <sub>10</sub> <sup>1</sup>	PM <sub>2.5</sub> <sup>1</sup>
Exceeds Significance Threshold?	No	Yes	No	No
<b>Option 2 Total Construction Emissions</b>				
Total Emissions (lbs) <sup>2</sup>	9,800	30,900	3,620	2,220
Average Daily Emissions (lbs/day) <sup>3</sup>	18.8	59.4	7.0	4.3
Significance Threshold	54	54	82	54
Exceeds Significance Threshold?	No	Yes	No	No
Notes: 1. Exhaust only 2. Calculated from non-rounded CalEEMod output. 3. Calculated by dividing the total project construction emissions (lbs) by total days of construction. lbs = pounds    ROG = reactive organic gases    NO <sub>x</sub> = oxides of nitrogen PM <sub>10</sub> = particulate matter 10 microns in diameter PM <sub>2.5</sub> = particulate matter 2.5 microns in diameter Source: FirstCarbon Solutions 2015, Appendix B				

Table 3.2-6, the BAAQMD’s regional emission thresholds for construction exhaust would be exceeded for NO<sub>x</sub>. ROG, PM<sub>10</sub> and PM<sub>2.5</sub> emissions would not exceed the regional thresholds during construction. Therefore, the project would have a potentially significant regional impact from project construction.

Mitigated emissions modelling output is provided in Table 3.2-7. Project construction emissions would be reduced to a level of less than significant with implementation of Mitigation Measure AIR-3a.

**Table 3.2-7: Mitigated Construction Criteria Air Pollutants Emissions**

Parameter	Air Pollutants (Average Daily Rates)			
	ROG	NO <sub>x</sub>	PM <sub>10</sub> <sup>1</sup>	PM <sub>2.5</sub> <sup>1</sup>
<b>Option 1 Total Construction Emissions</b>				
Total Emissions (lbs) <sup>2</sup>	7,700	17,928	3,660	2,238
Average Daily Emissions (lbs/day) <sup>3</sup>	14.8	34.5	7.0	4.3
Significance Threshold	54	54	82	54
Exceeds Significance Threshold?	No	No	No	No
<b>Option 2 Total Construction Emissions</b>				
Total Emissions (lbs) <sup>2</sup>	7,520	17,800	2,760	1,460
Average Daily Emissions (lbs/day) <sup>3</sup>	14.5	34.2	5.3	2.8

**Table 3.2-7 (cont.): Mitigated Construction Criteria Air Pollutants Emissions**

Parameter	Air Pollutants (Average Daily Rates)			
	ROG	NO <sub>x</sub>	PM <sub>10</sub> <sup>1</sup>	PM <sub>2.5</sub> <sup>1</sup>
Significance Threshold	54	54	82	54
Exceeds Significance Threshold?	No	No	No	No
Notes: <sup>1</sup> . Exhaust only <sup>2</sup> . Calculated from non-rounded CalEEMod output. <sup>3</sup> . Calculated by dividing the total project construction emissions (lbs) by total days of construction. lbs = pounds    ROG = reactive organic gases    NO <sub>x</sub> = oxides of nitrogen PM <sub>10</sub> = particulate matter 10 microns in diameter PM <sub>2.5</sub> = particulate matter 2.5 microns in diameter Source: FirstCarbon Solutions 2015, Appendix B				

*Operational Emissions*

Project operational emissions were estimated using CalEEMod version 2013.2.2. The CalEEMod model was developed in cooperation with the South Coast Air Quality Management District and other air districts throughout the state. CalEEMod is designed as a uniform platform for government agencies, land use planners and environmental professionals to quantify potential criteria pollutant and greenhouse gas emissions associated with construction and operation from a variety of land uses. The trip generation rates are from the Fehr & Peers Traffic Study prepared for the project and the assumptions and parameters previously discussed.

The operational emissions are shown in Table 3.2-8 for the total annual scenarios. As shown in Table 3.2-8, the project would exceed BAAQMD's annual significance thresholds for NO<sub>x</sub>. Heavy duty truck emissions account for the largest share of criteria pollutant emissions, and, therefore, Mitigation Measure AIR-3b is proposed to require the implementation of various measures intended to reduce these emissions. However, because the effectiveness of these measures is uncertain, this impact would remain significant and unavoidable after implementation of Mitigation Measure AIR-3b.

**Table 3.2-8: Project Operational Annual Emissions**

Source	Annual Emissions (tons)			
	ROG	NO <sub>x</sub>	PM <sub>10</sub> <sup>a</sup>	PM <sub>2.5</sub> <sup>a</sup>
<b>Option 1</b>				
Area	2.77	0.00	0.00	0.00
Energy <sup>b</sup>	0.01	0.11	0.01	0.01
Mobile	2.32	13.60	4.60	1.36
Total Emissions	5.10	13.71	4.60	1.37
Threshold of Significance	10	10	15	10

**Table 3.2-8 (cont.): Project Operational Annual Emissions**

Source	Annual Emissions (tons)			
	ROG	NO <sub>x</sub>	PM <sub>10</sub> <sup>a</sup>	PM <sub>2.5</sub> <sup>a</sup>
Significant Impact?	No	Yes	No	No
<b>Option 2</b>				
Area	2.70	0.00	0.00	0.00
Energy <sup>b</sup>	0.01	0.13	0.01	0.01
Mobile	6.30	33.98	10.69	3.18
Total Emissions	9.02	34.11	10.70	3.19
Threshold of Significance	10	10	15	10
Significant Impact?	No	Yes	No	No
Notes and Abbreviations: ROG = reactive organic gases                      PM <sub>10</sub> = particulate matter 10 microns and less in diameter NO <sub>x</sub> = nitrogen oxides                                PM <sub>2.5</sub> = particulate matter 2.5 microns and less in diameter <sup>a</sup> PM <sub>10</sub> and PM <sub>2.5</sub> emissions are for exhaust only. <sup>b</sup> Energy emissions are from natural gas combustion. Source: FirstCarbon Solutions 2015 (CalEEMod Output for year 2018) Source of thresholds: BAAQMD 2010.				

**Conclusion**

Project construction emissions would be less than the BAAQMD’s thresholds of significance for regional construction emissions with implementation of Mitigation Measure AIR-3a. Project operations would remain significant after incorporation of Mitigation Measure AIR-3b. As such, the residual significance of this impact is significant and unavoidable.

**Level of Significance Before Mitigation**

Potentially significant impact.

**Mitigation Measures**

**MM AIR-3a** During on-site construction activities, the applicant shall require the use of clean construction equipment. All diesel equipment shall be powered by Tier 3 engines or equivalent. In addition, all off-road equipment idling shall be limited to 2 minutes.

**MM AIR-3b** Prior to issuance of the final certificate of occupancy for each building, the following measures to reduce emissions from on-site heavy duty trucks shall be implemented:

- a) Post signs in all loading/unloading areas informing truck drivers California Air Resources Board (ARB) diesel anti-idling regulations. The signs shall include telephone numbers of the building facilities manager and the ARB to report violations.

- b) Require facility management to be trained in ARB anti-idling regulations. Anti-idling training shall be incorporated into the facility operations manual or equivalent document.
- c) Provide tenants with information about SmartWay or other organizations that seek to reduce air emissions associated with goods movement.

### ***Level of Significance After Mitigation***

Significant unavoidable impact.

### **Sensitive Receptors**

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**Impact AIR-4:**        **The project may expose sensitive receptors to substantial pollutant concentrations.**

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### ***Impact Analysis***

This discussion addresses whether the project would expose sensitive receptors to substantial pollutant concentrations of construction fugitive dust, operational CO, DPM, or other TACs of concern.

A sensitive receptor is defined by the BAAQMD as the following: “Facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples include schools, hospitals, and residential areas.”

Two scenarios have the potential for exposing sensitive receptors to TACs. The first is when a project includes a new or modified source of TACs and would be located near an existing or proposed sensitive receptor. The second scenario involves a residential or other sensitive receptor development locating near an existing or planned source of TACs. The project is not considered a sensitive receptor land use since it is industrial.

The BAAQMD guidance identifies the area within 1,000 feet of the project site as the zone of influence for TACs. The project’s zone of influence was reviewed to identify locations of sensitive receptors. The nearest sensitive receptor to the project site is a single-family home located on an one-acre lot adjacent to the east side of the project site with the single-family home structure located as near as 50 feet to the east of the project site. There is also a single-family home on Café Court that is located as near as 590 feet northeast of the project site.

### ***Construction Fugitive Dust***

During construction (grading), fugitive dust (PM<sub>10</sub>) is generated. As detailed in Impact AIR-2, the project would result in a less than significant dust impact after incorporation of Mitigation Measure AIR-1. Therefore, the project would not expose adjacent receptors to significant amounts of construction dust after incorporation of mitigation.

*Carbon Monoxide Emission Impacts*

As noted in the discussion of Impact AIR-2, the project is not expected to generate a CO hotspot. Therefore, the project would not expose receptors to substantial CO concentrations from operational activities.

*Community Health Risk Assessment*

Two sets of significance thresholds were used to evaluate this impact relative to sensitive receptors surrounding the project:

- 1) Project-level health risk and carbon monoxide significance thresholds;
  - a. Maximum incremental lifetime cancer risk greater than 10 in a million
  - b. Maximum non-cancer hazard index (project increment) greater than 1.0
  - c. Maximum ambient PM<sub>2.5</sub> increase of greater than 0.3 µg/m<sup>3</sup> annual average
- 2) Cumulative health risk significance thresholds
  - d. Maximum cumulative lifetime cancer risk greater than 100 in a million
  - e. Maximum non-cancer cumulative hazard index of greater than 10.0
  - f. Maximum ambient cumulative PM<sub>2.5</sub> increase of greater than 0.8 µg/m<sup>3</sup> annual average

**Project-Level Cancer Risk Impacts**

According to BAAQMD methodology (BAAQMD 2012) and OEHHA methodology (OEHHA 2015), health effects from carcinogenic air toxics are usually described in terms of individual cancer risk, which is the likelihood that a person exposed to concentrations of TACs over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. Table 3.2-9 provides a summary of the calculated DPM equivalent emission concentrations at the nearby sensitive receptors and associated cancer risks.

**Table 3.2-9: Project Only Annual DPM Concentrations and Cancer Risk Impacts**

Receptor Number	Receptor Description	Receptor Location <sup>1</sup>		Annual DPM Concentration (µg/m <sup>3</sup> )				Cancer Risk per Million People <sup>2</sup>
		X	Y	Construction	2018	2019–2032	2033–2086	
<b>Option 1</b>								
1	SFH on east side	565,010	4,228,954	0.2562	0.0061	0.0020	0.0012	39.0
2	SFH on Café Court	565,196	4,229,249	0.0921	0.0046	0.0014	0.0007	14.3
PMI <sup>3</sup>	Location varies	—	—	0.5853	0.0169	0.0055	0.0027	—
<b>Option 2</b>								
1	SFH on east side	565,010	4,228,954	0.0090	0.0028	0.0015	0.0090	39.3
2	SFH on Café Court	565,196	4,229,249	0.0165	0.0051	0.0022	0.0165	15.7
PMI <sup>3</sup>	Location varies	—	—	0.5853	0.01694	0.00547	0.00265	—
BAAQMD Cancer Risk Threshold								10.0

**Table 3.2-9 (cont.): Project Only Annual DPM Concentrations and Cancer Risk Impacts**

Receptor Number	Receptor Description	Receptor Location <sup>1</sup>		Annual DPM Concentration (µg/m <sup>3</sup> )				Cancer Risk per Million People <sup>2</sup>
		X	Y	Construction	2018	2019–2032	2033–2086	
Notes:								
SFR = single family residence      MFR = multiple family residence								
<sup>1</sup> Receptor location based on World Geodetic System 1984 (WGS84), Universal Transverse Mercator (UTM).								
<sup>2</sup> Cancer risk based on a residential receptor cancer risk of: = Cair(construction) * 149 (3rd trimester to 2) + Cair(2018) * 19 (3rd trimester to 2) + Cair(2019-2032) * 265 (2 to 16 years) + Cair(2033-2086) * 179 (16 to 69.75 years).								
Source: ISC-AERMOD View Version 9.1.0; FirstCarbon Solutions, 2015.								

Table 3.2-9 indicates that development of the proposed project would result in a cancer risk increase of up to 39.0 per million persons for Option 1 and 39.3 per million persons for Option 2 at Receptor 1 that is located at the single-family home that is as near as 50 feet east of the project site. The calculated project-related cancer risk from TAC emissions would exceed the BAAQMD cancer risk threshold of 10 per million at the two nearby homes. Therefore, the proposed project would create a significant cancer risk impact.

It should be noted that construction-only emissions would create a cancer risk of up to 38.1 per million persons for Option 1 and up to 38.2 per million persons for Option 2 at Receptor 1. The construction emissions represent 98 percent of the cancer risk for Option 1 and 97 percent of the cancer risk for Option 2. It should also be noted that this analysis is based on there being a mother in her third trimester living in the two nearby homes on the start of construction and the child living at that home for 70 years. If the analysis were revised so that the mother delivered the child two years later or earlier, then the cancer risk impacts would be less than significant.

The construction-related emissions calculated in this analysis are based on implementation of Mitigation Measure AIR-3a that requires all off-road construction equipment to be powered by Tier 3 engines or equivalent and to limit idling to 2 minutes. The Tier emissions standards were developed by the federal government for new diesel equipment. Tier 0 represents all equipment prior to the Tier standards, Tier 1 was phased in between 1996 to 2000, Tier 2 and 3 standards were phased in between 2000 and 2008, and Tier 4 standards were phased in between 2008 and 2015. Since there has only been one manufacturing year where all off-road equipment needs to meet the Tier 4 requirements, it is not feasible to require that the contractors working on the project site utilize Tier 4 equipment at this time, since some specialized off-road equipment may not be available. Therefore, there is no additional mitigation available to reduce the cancer risk impacts to less than significant levels. The proposed project would result in a significant unavoidable cancer risk impact.

*Project-Level Non-Cancer Risks*

In addition to the cancer risk from exposure to DPM, there is also the potential that DPM exposure may result in adverse health impacts from acute and chronic illnesses as well as exceed PM<sub>2.5</sub> concentrations, which are detailed below.

### Chronic Health Impacts

Chronic health effects are characterized by prolonged or repeated exposure to a TAC over many days, months, or years. Symptoms from chronic health impacts may not be immediately apparent and are often irreversible. The chronic hazard index is based on the most impacted sensitive receptor from the proposed project and is calculated from the annual average concentrations of DPM equivalent emissions. The relationship for non-cancer chronic health effects is given by the equation:

$$HI_{DPM} = C_{DPM}/REL_{DPM}$$

Where:

$HI_{DPM}$  = Hazard Index; an expression of the potential for non-cancer health effects

$C_{DPM}$  = Annual average diesel particulate matter concentration in  $\mu\text{g}/\text{m}^3$

$REL_{DPM}$  = Reference Exposure Level (REL) for diesel particulate matter; the diesel particulate matter concentration at which no adverse health effects are anticipated

The  $REL_{DPM}$  is  $5 \mu\text{g}/\text{m}^3$ . The OEHHA, as protective for the respiratory system, has established this concentration. From Table 3.2-9 above, the ISCST3 model found that the highest annual concentration at the PMI is  $0.5853 \mu\text{g}/\text{m}^3$  for DPM equivalent that would occur during construction at the point of maximum impact (PMI). The resulting Hazard Index is:

$$HI_{DPM} = 0.5853/5 = 0.1171$$

The BAAQMD's criterion for significance is a Chronic Hazard Index increase of 1.0 or greater. Therefore, the ongoing operations of the proposed project would result in a less than significant impact due to the non-cancer chronic health risk from TAC emissions created by the proposed project.

### Acute Health Impacts

Acute health effects are characterized by sudden and severe exposure and rapid absorption of a TAC. Normally, a single large exposure is involved. Acute health effects are often treatable and reversible. According to the OEHHA, no acute risk has been found to be directly created from DPM, so there is no AREL assigned to DPM, and, therefore, the acute analysis was based on a benzene equivalent emissions calculations. The relationship for non-cancer acute health effects is given by the equation:

$$AHI_{benzene} = C_{benzene}/AREL_{benzene}$$

Where:

$AHI_{benzene}$  = Acute Hazard Index; an expression of the potential for non-cancer health effects

$C_{benzene}$  = Maximum hourly concentration of benzene equivalent in  $\mu\text{g}/\text{m}^3$

$AREL_{benzene}$  = Acute Reference Exposure Level for benzene

The  $AREL_{benzene}$  is  $27 \mu\text{g}/\text{m}^3$ . The OEHHA as protective for the respiratory system has established this concentration. The benzene equivalent maximum one-hour model run is provided in Appendix J, which shows the maximum hourly concentration at  $2.244 \mu\text{g}/\text{m}^3$  for benzene equivalent acute non-cancer risk emissions. The resulting Hazard Index is. The resulting Hazard Index is:

$$AHI_{benzene} = 2.244/27 = 0.0831$$

The BAAQMD's criterion for significance is an Acute Hazard Index increase of 1.0 or greater. Therefore, the ongoing operations of the proposed project would result in a less than significant impact due to the non-cancer acute health risk from TAC emissions created by the proposed project.

### PM<sub>2.5</sub> Concentrations

The final non-cancer significance threshold examined relates to the maximum annual PM<sub>2.5</sub> concentrations created from the proposed project. Table 3.2-9 above shows that the maximum annual average DPM concentrations at the nearby homes are 0.2562 µg/m<sup>3</sup>, which is a combination of PM<sub>2.5</sub> and other TAC emission concentrations. The annual PM<sub>2.5</sub> concentration criterion for significance is an increase of 0.3 µg/m<sup>3</sup>, which has been detailed above in Section 6.1. Therefore, a less than significant impact from project-related PM<sub>2.5</sub> concentrations risk is anticipated at the sensitive receptors located near the project site.

### Cumulative Community Health Risk Impacts from Existing Sources

Health impacts from existing sources of TACs within 1,000 feet of the project were evaluated together with the project-generated impacts in order to assess the cumulative health impacts of the project and existing sources. According to the BAAQMD's website, the cumulative sources that are located within 1,000 feet of the proposed project include vehicle emissions from SR-29, and Napa Valley Petroleum located approximately 1,000 feet northeast of the project site at 257 S Kelly Road. However, it should be noted that the types of emissions from Napa Valley Petroleum are not described in the BAAQMD data, and the data shows that the cancer risk, hazard risk, and PM<sub>2.5</sub> risks are all 0. Therefore, the cumulative emissions analysis has been limited to the cumulative impacts from SR-29.

Consistent with the methodology provided by the BAAQMD, this EIR has analyzed the cumulative cancer, noncancer chronic and acute health impacts, and PM<sub>2.5</sub> concentrations to the most impacted off-site sensitive receptor from all sources of TAC emissions located within 1,000 feet of the project site. The cumulative health risk impacts to the representative off-site sensitive receptor analyzed separately below.

### Cumulative Cancer Risk Impacts

A summary of the cumulative cancer risk impacts to the analyzed off-site sensitive receptors and possible on-site receptors is shown in Table 3.2-10.

**Table 3.2-10: Cumulative Cancer Risk Impacts**

Receptor Number	Receptor Description	Receptor Location <sup>1</sup>		Cancer Risk per Million Persons		
		X	Y	SR-29	Project	Total Cumulative
1	SFH on east side	565,010	4,228,954	4.1	39.3	43.4
2	SFH on Café Court	565,196	4,229,249	13.1	15.7	28.8
BAAQMD Cumulative Cancer Risk Threshold						100

Notes:

<sup>1</sup> Receptor location based on World Geodetic System 1984 (WGS84), Universal Transverse Mercator (UTM).

<sup>2</sup> Consistent with BAAQMD methodology, health risk impacts from project to project are not required to be analyzed.

Source: BAAQMD, 2011; ISC-AERMOD View Version 9.1.0.

Table 3.2-10 shows that the greatest cumulative cancer impact of 43.4 per million persons would occur at Receptor 1. This would be within the BAAQMD cumulative cancer risk threshold of 100 per million persons. Impacts would be less than significant.

**Cumulative Non-Cancer Risks**

In addition to the cumulative cancer risk from TAC emissions there is also the potential cumulative TAC emissions exposure may result in adverse health impacts from acute and chronic illnesses, as well as exceed PM<sub>2.5</sub> concentrations, which are detailed below.

*Cumulative Noncancer Chronic Health Index*

A summary of the cumulative noncancer chronic health index to the analyzed off-site sensitive receptors is shown in Table 3.2-11.

**Table 3.2-11: Cumulative Noncancer Chronic Impacts**

Receptor Number	Receptor Description	Receptor Location <sup>1</sup>		Chronic Health Index		
		X	Y	SR-29	Project	Total Cumulative
1	SFH on east side	565,010	4,228,954	0.004	0.117	0.121
2	SFH on Café Court	565,196	4,229,249	0.013	0.117	0.13
BAAQMD Cumulative Noncancer Chronic Health Index Threshold						10
Notes:						
<sup>1</sup> Receptor location based on World Geodetic System 1984 (WGS84), Universal Transverse Mercator (UTM).						
<sup>2</sup> Consistent with BAAQMD methodology, health risk impacts from project to project are not required to be analyzed.						
Source: BAAQMD, 2011; ISC-AERMOD View Version 9.1.0.						

Table 3.2-11 shows that the greatest cumulative chronic health index impact of 0.121 would occur at Receptor 1. This would be within the BAAQMD cumulative noncancer chronic health index threshold of 10. Impacts would be less than significant.

*Cumulative Noncancer Acute Health Index*

A summary of the cumulative noncancer acute health index to the analyzed off-site sensitive receptors is shown in Table 3.2-12.

**Table 3.2-12: Cumulative Noncancer Acute Impacts**

Receptor Number	Receptor Description	Receptor Location <sup>1</sup>		Acute Health Index		
		X	Y	SR-29	Project	Total Cumulative
1	SFH on east side	565,010	4,228,954	0.007	0.083	0.090
2	SFH on Café Court	565,196	4,229,249	0.014	0.083	0.097
BAAQMD Cumulative Noncancer Acute Health Index Threshold						10
Notes:						
<sup>1</sup> Receptor location based on World Geodetic System 1984 (WGS84), Universal Transverse Mercator (UTM).						
<sup>2</sup> Consistent with BAAQMD methodology, health risk impacts from project to project are not required to be analyzed.						
Source: BAAQMD, 2011; ISC-AERMOD View Version 9.1.0.						

Table 3.2-12 shows that the greatest cumulative acute health index impact of 0.097 would occur at Receptor 2. This would be within the BAAQMD cumulative noncancer acute health index threshold of 10. Impacts would be less than significant.

*Cumulative PM<sub>2.5</sub> Concentrations*

A summary of the cumulative PM<sub>2.5</sub> concentrations to the analyzed off-site sensitive receptors is shown in Table 3.2-13.

**Table 3.2-13: Cumulative PM<sub>2.5</sub> Concentrations**

Receptor Number	Receptor Description	Receptor Location <sup>1</sup>		PM <sub>2.5</sub> Concentration (µg/m <sup>3</sup> )		
		X	Y	SR-29	Project	Total Cumulative
1	SFH on east side	565,010	4,228,954	0.007	0.256	0.263
2	SFH on Café Court	565,196	4,229,249	0.014	0.256	0.270
BAAQMD Cumulative PM <sub>2.5</sub> Concentration Threshold						0.8
Notes:						
<sup>1</sup> Receptor location based on World Geodetic System 1984 (WGS84), Universal Transverse Mercator (UTM).						
<sup>2</sup> Consistent with BAAQMD methodology, health risk impacts from project to project are not required to be analyzed.						
Source: BAAQMD, 2011; ISC-AERMOD View Version 9.1.0.						

Table 3.2-13 shows that the greatest cumulative PM<sub>2.5</sub> concentration of 0.270 µg/m<sup>3</sup> would occur at Receptor 2. This would be within the BAAQMD cumulative PM<sub>2.5</sub> threshold of 0.8 µg/m<sup>3</sup>. Impacts would be less than significant.

**Level of Significance Before Mitigation**

Potentially significant impact.

**Mitigation Measures**

Implement Mitigation Measure AIR-3a.

**Level of Significance After Mitigation**

Significant unavoidable impact.

**Objectionable Odors**

**Impact AIR-5: The project would not create objectionable odors affecting a substantial number of people.**

**Impact Analysis**

The BAAQMD does not have a recommended odor threshold for operational activities, but does recommend screening criteria based on distance between types of sources known to generate odor and the receptor. For projects outside the screening distance, and with no known potential odor sources, no additional analysis is required. For projects within the screening distances, the BAAQMD uses the following threshold for project operations:

An odor source with five (5) or more confirmed complaints per year averaged over three years is considered to have a significant impact on receptors within the screening distance shown in the Bay Area Air Quality Management District's guidance, Table 3-3.

During construction, the various diesel powered vehicles and equipment in use on-site would create localized odors. These odors would be temporary and not likely to be noticeable for extended periods of time much beyond the project's site boundaries.

The BAAQMD 2010 Guidelines identify wastewater treatment plants, oil refineries, asphalt plants, chemical manufacturing, painting/coating operations, coffee roasters, food processing facilities, recycling operations and metal smelters as odor sources of particular concern, and includes screening distances for consideration along with odor parameters and complaint history in analysis of potential odor impacts.<sup>50</sup> The proposed project is not anticipated to include any of the uses that are known to create odors. Impacts would be less than significant.

**Level of Significance Before Mitigation**

Less than significant impact.

**Mitigation Measures**

No mitigation is necessary.

**Level of Significance After Mitigation**

Less than significant impact.

**Potential Accidental Release of Acutely Hazardous Air Pollutants**

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**Impact AIR-6:           The proposed project may result in significant impacts from potential accidental release of acutely hazardous air pollutants.**

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**Impact Analysis**

The BAAQMD CEQA thresholds consider "Storage or use of acutely hazardous materials locating near receptors or new receptors locating near stored or used acutely hazardous materials" to be a significant impact. Proposed manufacturing and warehouse uses associated with the project may require use or storage of acutely hazardous air pollutants. As such, this impact is considered potentially significant.

To mitigate this impact, any project storage or use of acutely hazardous materials will require a consultation with the California Emergency Management Agency (or Office of Emergency Services, OES) on the most recent guidelines and regulations for the storage of hazardous materials. The OES Hazardous Materials Section administers the California Accidental Release Prevention Program. California Accidental Release Prevention (CalARP) is implemented at a local level by a Certified Unified Program Agency (CUPA). The Napa County Division of Environmental Health is the CUPA responsible for CalARP in the project area. CalARP requires facilities that handle more than a

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<sup>50</sup> BAAQMD 2010 CEQA Guidelines. Table 3-3 Odor Screening Distances.

threshold quantity of a regulated substance to develop a Risk Management Plan (RMP). An RMP is a detailed engineering analysis of the potential accident factors present at a facility and the mitigation measures that can be implemented to reduce this accident potential. In order to mitigate the potential significant impact of storage of acutely hazardous materials, the facility will conduct an analysis of the storage and use of acutely hazardous materials consistent with CalARP. A Risk Management Plan will be developed if the storage thresholds are exceeded.

According to Appendix G, Environmental Checklist of the CEQA Guidelines, hazards and hazardous materials impacts resulting from the implementation of the proposed project would be considered significant if the project would “create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment.” An evaluation of the potential for reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment is discussed in detail in Impact HAZ-1 and Impact HAZ-2 in Section 3.6, Hazards and Hazardous Materials. Implementation of Mitigation Measure HAZ-1b would reduce impacts to a level of less than significant.

***Level of Significance Before Mitigation***

Less than significant impact.

***Mitigation Measures***

No mitigation is necessary.

***Level of Significance After Mitigation***

Less than significant impact.

**Greenhouse Gas Emissions**

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**Impact AIR-7:            Implementation of the proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted to reduce the emissions of greenhouse gases.**

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***Impact Analysis***

The project would generate a variety of greenhouse gases during construction and operation, including carbon dioxide, methane, and nitrous oxide.

This analysis is restricted to greenhouse gases identified by AB 32, which include carbon dioxide, methane, and nitrous oxide, as well as hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The project may also emit greenhouse gases that are not defined by AB 32. For example, the project may generate aerosols. Aerosols are short-lived particles, as they remain in the atmosphere for about 1 week. Black carbon is a component of aerosol. Studies have indicated that black carbon has a high global warming potential; however, the Intergovernmental Panel on Climate Change states that this conclusion has a low level of scientific certainty. Water vapor could be emitted from evaporated water used for landscaping, but this is not a significant impact because water vapor concentrations in the upper atmosphere are primarily due to climate feedbacks rather

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

An upstream emission source (also known as life cycle emissions) refers to emissions that were generated during the manufacture of products to be used for construction of the project. Upstream emission sources for the project include, but are not limited to, emissions from the manufacture of cement, emissions from the manufacture of steel, and/or emissions from the transportation of building materials to the seller. The upstream emissions were not estimated because they are not within the control of the project and to do so would be speculative. Additionally, the California Air Pollution Control Officers Association White Paper on CEQA and Climate Change supports this conclusion by stating, "The full life-cycle of GHG [greenhouse gas] emissions from construction activities is not accounted for . . . and the information needed to characterize [life-cycle emissions] would be speculative at the CEQA analysis level." Therefore, pursuant to CEQA Guidelines Sections 15144 and 15145, upstream/life cycle emissions are speculative and no further discussion is necessary.

#### *City of American Canyon Energy Efficiency Climate Action Plan*

The project is within the jurisdiction of the City of American Canyon, which has adopted an EECAP as discussed above in the Regulatory Framework section. The EECAP outlines a course of action to reduce community-wide GHG emissions generated within the City of American Canyon. The EECAP includes two measures to reduce energy-related emissions from new non-residential projects: (1) Participation in PG&E's Savings by Design program for non-residential construction programs and (2) incorporation of energy efficiency improvements over Title 24 for new non-residential construction. The City would impose the requirements of these measures as applicable through the project Conditions of Approval.

#### *AB 32, Executive Order S-3-05, and Executive Order B-30-15*

The adopted AB 32 Scoping Plan includes proposed GHG reductions from direct regulations, alternative compliance mechanisms, monetary and nonmonetary incentives, voluntary actions, and market-based mechanisms such as cap-and-trade systems. The project would be subject to all applicable permit and planning requirements in place or adopted by the City of American Canyon or State of California. Specifically, the City of American Canyon EECAP is designed to be consistent with the AB-32 goal of a 29 percent reduction below 1990 levels by 2020. Through compliance with the EECAP and all applicable state regulations, the project will not conflict with AB 32 goals.

As discussed Executive Order S-3-05 establishes the following GHG emission reduction targets:

- By 2010, reduce GHG emissions to 2000 emission levels,
- By 2020, reduce GHG emissions to 1990 emission levels, and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

The text of Executive Order S-3-05 does not explain how the targets should be applied to individual development projects. At this time, no specific strategies have been identified to reach the 2050 goal. In addition, Executive Order B-30-15 sets a goal for 2030 to reduce GHG emissions to 40 percent below 1990 levels. Executive Order B-30-15 similarly does not explain how the targets should be applied to individual development targets, but mandates actions for state agencies. The City of American Canyon EECAP is designed to be consistent with Executive Order S-3-05. Through compliance with the EECAP and all applicable state regulations, the project will not conflict with Executive Order S-3-05 goals.

#### *Construction Emissions*

The project would emit greenhouse gas emissions during construction from the off-road equipment, worker vehicles, and any hauling that may occur. BAAQMD does not presently provide a construction-related greenhouse gas generation threshold, but it does recommend that construction-generated greenhouse gases be quantified and disclosed. BAAQMD also recommends that lead agencies (in this case, the City of American Canyon) make a determination of the level of significance of construction-generated greenhouse gas emissions in relation to meeting AB 32 greenhouse gas reduction goals. Greenhouse gas emissions from project construction equipment and worker vehicles from all phases of construction are shown in Table 3.2-14. Construction of Option 1 for the proposed project is estimated to generate approximately 2,048 metric tons of carbon dioxide equivalent (MTCO<sub>2</sub>e) and construction of Option 2 for the proposed project is estimated to generate approximately 2,025 MTCO<sub>2</sub>e. Construction-related GHG emissions would occur prior to the year 2020, which is the year by which the State of California is required to reduce its emissions to 1990 levels. Additionally, construction activities would be temporary; therefore, GHG emissions generated from construction activity would be less than significant.

**Table 3.2-14: Project Construction Greenhouse Gas Emissions**

Scenario	Emissions (MTCO <sub>2</sub> e)
Option 1 Construction	2,048
Option 2 Construction	2,025
Note: MTCO <sub>2</sub> e = metric tons of carbon dioxide equivalents Source: see Appendix A CalEEMod output. Source: FirstCarbon Solutions 2015, Appendix B	

#### *Operational Emissions*

As addressed above, the City of American Canyon adopted a final Energy Efficiency Climate Action Plan (EECAP) on December 2012, which contains a 2005 baseline greenhouse gas emissions inventory and future year forecasts for both community sources and City operations. The EECAP proposes a community-wide target for energy-related GHG emissions of 15 percent below its 2005 emissions by the year 2020, consistent with the First Update to the Climate Change Scoping Plan. The ARB and the BAAQMD deemed that their reduction target was consistent with the statewide AB 32 goal of reducing GHG emissions to 1990 levels. Pursuant to the California Supreme Court decision, *Center for Biological Diversity v. California Department of Fish and Wildlife* (November 30,

2015, Case No. 2177763), the Supreme Court ruled on a number of issues including upholding the use of the business-as-usual significance methodology as a yardstick for determining the significance of future emissions associated with a project; however, the Court cautioned that energy-efficient buildings would not be a basis for finding that transportation emissions are less that significant. The Supreme Court also stated that lead agencies could also demonstrate compliance with locally adopted climate plans. Therefore, in addition to comparison to all applicable state regulations and the BAAQMD thresholds of significance for GHG, this operational greenhouse gas emissions analysis has been prepared in order to also demonstrate compliance with the EECAP.

The EECAP addresses only energy emissions, but not on-road mobile, area source, waste-related, and water-related GHG emissions. The BAAQMD significance thresholds for GHG cover stationary source emissions, which have a threshold of 10,000 MTCO<sub>2</sub>e/year, and land-use emissions, which can be compared to either the threshold of 1,100 MTCO<sub>2</sub>e/year or a per-Service Population threshold of 4.6 MTCO<sub>2</sub>e/Service Population-year. (Service Population represents the users of the proposed project). Therefore, the GHG emissions from the Project are summed and compared to both the bright-line 1,100 MTCO<sub>2</sub>e/year threshold and the per-service population threshold.

Table 3.2-15 provides a summary of the greenhouse gas emissions generated by the project for both year 2005 business-as-usual conditions and year 2020 conditions with implementation of statewide regulations to reduce greenhouse gas emissions. Table 3.2-15 also provides the percent reduction between the year 2005 and year 2020 emissions for each source of greenhouse gas emissions. Although the EECAP only addresses energy emissions, in order to provide a conservative analysis, all sources of greenhouse gas emissions were analyzed based on the same 15 percent reduction over year 2005 business-as-usual standard.

**Table 3.2-15: Project Operational Greenhouse Gas Emissions**

Emission Source	Greenhouse Gas Emissions (MTCO <sub>2</sub> e per Year)		Percent Reduction	Meets EECAP 15% Reduction Threshold?
	Year 2005	Year 2020		
<b>Option 1</b>				
Area	0	0	—	—
Energy	1,783	1,381	23%	Yes
Mobile	8,030	5,857	27%	Yes
Waste	245	122	50%	Yes
Water	373	298	20%	Yes
<b>Total Emissions</b>	<b>10,431</b>	<b>8,046</b>	<b>23%</b>	<b>Yes</b>
<b>Option 2</b>				
Area	0	0	—	—
Energy	1,781	1,381	22%	Yes
Mobile	9,266	7,937	14%	<b>No</b>

**Table 3.2-15 (cont.): Project Operational Greenhouse Gas Emissions**

Emission Source	Greenhouse Gas Emissions (MTCO <sub>2</sub> e per Year)		Percent Reduction	Meets EECAP 15% Reduction Threshold?
	Year 2005	Year 2020		
Waste	249	125	50%	Yes
Water	363	252	31%	Yes
<b>Total Emissions</b>	<b>11,658</b>	<b>9,695</b>	<b>17%</b>	Yes

Source: FirstCarbon Solutions 2015, Appendix B

Table 3.2-15 shows that for the year 2020 with implementation of statewide regulations to reduce greenhouse gas emissions, Option 1 total emissions would result in a 23 percent reduction from business-as-usual building energy emissions and Option 2 total emissions would result in a 22 percent reduction from business-as-usual building energy emissions. Both Option 1 and Option 2 are consistent with the American Canyon EECAP, the local climate plan, since they reduce building energy emissions by 15% from a business-as-usual scenario.

Mitigation Measure AIR-7a has been provided that if Option 2 is developed, would require the installation of a minimum of four electric vehicle charging stations on the project site that are available for use by the public, since Option 2 does not reduce on-road mobile GHG emissions from the business-as-usual scenario as much as Option 1 does, and Mitigation Measure AIR-7b has been provided that if Option 2 is developed, would require the project applicant to provide an on-site sidewalk system that provides connectivity between the proposed warehouse parcels and the proposed restaurant and mini-mart.

The greenhouse gas emissions reductions associated with the implementation of Mitigation Measures AIR-7a and AIR-7b have been quantified through use of the CalEEMod model, which found that Option 2 Mobile greenhouse gas emissions would be 6,838 MTCO<sub>2</sub>e per year with implementation of Mitigation Measures AIR-7a and AIR-7b.

The BAAQMD GHG thresholds of significance are specific to the 2020 GHG emissions target under AB32. With either Option 1 or Option 2 and Mitigation Measures AIR-7a and AIR-7b, Project GHG emissions are above the bright-line BAAQMD threshold of 1,100 MTCO<sub>2</sub>e/year, but that is not the only BAAQMD threshold. The alternative BAAQMD threshold is 4.6 MT CO<sub>2</sub>e/Service Population. The Service Population is the residents and employees of a project, but the Napa Airport Corporate Center employee population, estimated to be 286 for Option 1 and 287 for Option 2, does not include all users of the site. Specifically, truck drivers constitute a commercial user set of people who are not direct employees of the Project. Excluding truck drivers from the employee population, based on a projected employee count of 286 for Option 1, the GHG emissions of this project per Service Population are 28.1 MTCO<sub>2</sub>e/Service Population-year and based on a projected employee count of 287 for Option 2, the GHG emissions of Option 2 are 30.0 MTCO<sub>2</sub>e/Service Population-year, both above the BAAQMD threshold of 4.6 MTCO<sub>2</sub>e/Service Population-year. While this is above the BAAQMD threshold, the project incorporates building efficiency measures and is consistent with the

American Canyon EECAP. The BAAQMD threshold does not account for the consistent contribution to Project emissions by truck drivers who are not Project employees.

The ARB is implementing statewide plans to meet the AB32, Executive Order S-3-05, and Executive Order B-30-15 goals. ARB is preparing an update to the AB32 Scoping Plan that addresses the 2030 Target (the “2030 Target Scoping Plan”). ARB workshops discussing development of the 2030 Target Scoping Plan have covered major emissions categories, which are discussed here in the context of the Project. Table 3.2-16 shows how each source of project emissions is covered under AB32 and what reduction policies apply.

**Table 3.2-16: Emissions Reduction Summary**

Emissions Sector	Percent of Total Option 1 Emissions	Percent of Total Option 2 Emissions	AB32 Controls
Transportation (trucks, cars)	79.2%	81.7%	Cap and Trade for Transportation Fuels Low Carbon Fuel Standard Pavley Standards (AB1493) Advanced Clean Cars Program SB375 Sustainable Communities Zero Emissions Vehicles (ZEV) in Trucking ZEV Action Plan Phase I Heavy-Duty GHG, Truck and Bus Rule Drayage Regulation Tractor-Trailer Regulation SB99 Active Transport Biofuels production
Electricity, including electricity to supply, distribute, and treat water	18.1%	15.7%	Renewable Portfolio Standard Building Energy Efficiency Standards (SB350 and Title 24) Building Electrification Water Conservation Act of 2009
Natural Gas	1.3%	1.4%	Cap and Trade for Natural Gas Renewable Portfolio Standard Building Energy Efficiency Standards (SB350 and Title 24) Building Electrification
Waste	1.4%	1.3%	Landfill Methane Control Measure California’s 75 Percent Recycling Initiative
Total	100%	100%	—

The largest source of GHG emissions statewide is transportation, which includes cars and trucks. Similarly, the greatest source of Project GHG emissions is mobile (transportation) sources. The 2030 Target Scoping Plan includes transportation fuels as part of the Cap and Trade program. Many other statewide programs aim to reduce GHG from cars and trucks, specifically the Pavley Act (AB1493), the Low Carbon Fuel Standard, the Advanced Clean Cars program, and the Phase I Heavy-Duty GHG,

Truck and Bus Rule. The mechanisms of AB32 will cap and incrementally reduce statewide, and consequently Project, GHG emissions from transportation fuels through at least 2030. The Project will not conflict with statewide policies to reduce GHG emissions from transportation.

Following transportation, electricity use is the second-largest source of GHG emissions statewide. Electricity use is reflected in Project emissions from “Energy,” along with natural gas, and also in the GHG emissions from water supply, treatment, distribution, and wastewater treatment. Both electricity and natural gas usage in the State of California are part of the AB32 Cap and Trade. Statewide, and therefore project, electricity usage will be reduced via the Renewables Portfolio Standard, Zero Net Energy building programs, building electrification, and building energy efficiency standards such as Title 24. As with GHG emissions from transportation, GHG emissions from electricity and natural gas use will be reduced via Cap and Trade through at least 2030. The Project will not conflict with statewide policies to reduce GHG emissions from electricity and natural gas.

GHG emissions from waste are included in the 2030 Target Scoping Plan, although they are not covered under Cap and Trade. However, there are statewide regulations to reduce GHG emissions from waste, such as the Landfill Methane Control Measure and California’s 75 Percent Recycling Initiative. While the Landfill Methane Control Measure does not apply directly to the Project, the Project will not conflict with statewide policies to reduce GHG emissions from waste.

No aspect of the project would conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gas. The project is also consistent with the applicable policies in the City’s EECAP. Therefore, the project is consistent with the applicable local plans, policies, and regulations and would not conflict with the provisions of AB 32, the applicable air quality plan, or any other state or regional plan, policy, or regulation of an agency adopted for the purpose of reducing greenhouse gas emissions. However, to acknowledge the BAAQMD thresholds of significance, this could be a significant and unavoidable impact under CEQA.

### ***Level of Significance Before Mitigation***

Potentially significant impact.

### ***Mitigation Measures***

- MM AIR-7a** If Option 2 is developed, the project applicant shall require the installation of a minimum of four electric vehicle charging stations on the project site that are available for use by the public.
- MM AIR-7b** If Option 2 is developed, the project applicant shall provide an on-site sidewalk system that provides connectivity between the proposed warehouse parcels and the proposed restaurant and mini-mart.

### ***Level of Significance After Mitigation***

Significant unavoidable impact