

### INTRODUCTION

This section discusses the existing regional air quality conditions in the San Joaquin Valley and evaluates the proposed project's potential air quality impacts, which are then compared with the thresholds of significance and significance criteria established by the San Joaquin Valley Air Pollution Control District (SJVAPCD). A discussion of the applicable federal, state, regional, and local agencies that regulate, monitor, and control criteria pollutant air emissions, as well as the applicable SJVAPCD rules and regulations that pertain to the proposed project, is also provided. This section also includes a discussion of greenhouse gas regulations and the project's contribution of greenhouse gas emissions.

This impact analysis was prepared in accordance with the *California Environmental Quality Act (CEQA) Guidelines*<sup>1</sup> and the SJVAPCD's *Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI)*.<sup>2</sup> The other sources used to prepare this section are listed below.

- SJVAPCD 2004 *Extreme Ozone Attainment Demonstration Plan*<sup>3</sup>
- SJVAPCD 2006 *PM<sub>10</sub> Plan; San Joaquin Valley Strategy for Meeting Federal Air Quality Requirements for Particulate Matter 10 Microns and Smaller*<sup>4</sup>
- SJVAPCD 2007 *Ozone Plan*<sup>5</sup>
- SJVAPCD 2007 *PM<sub>10</sub> Maintenance Plan and Request for Redesignation*<sup>6</sup>
- SJVAPCD 2008 *PM<sub>2.5</sub> Plan*<sup>7</sup>
- SJVAPCD *Air Quality Guidelines for General Plans*<sup>8</sup>

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<sup>1</sup> California Public Resources Code, Title 14, Division 6, Chapter 3, *California Environmental Quality Act Guidelines*, Section 15123.

<sup>2</sup> San Joaquin Valley Air Pollution Control District, *Guide for Assessing and Mitigating Air Quality Impacts*, (2002).

<sup>3</sup> San Joaquin Valley Air Pollution Control District, *Extreme Ozone Attainment Demonstration Plan; San Joaquin Valley Air Basin Plan Demonstrating Attainment of Federal 1-hour Ozone Standards*, (2004).

<sup>4</sup> San Joaquin Valley Air Pollution Control District, *2006 PM<sub>10</sub> Plan; San Joaquin Valley Strategy for Meeting Federal Air Quality Requirements for Particulate Matter 10 Microns and Smaller*, (2006).

<sup>5</sup> San Joaquin Valley Air Pollution Control District, *2007 Ozone Plan*, (2007).

<sup>6</sup> San Joaquin Valley Air Pollution Control District, *2007 PM<sub>10</sub> Maintenance Plan and Request for Redesignation*, (2007).

<sup>7</sup> San Joaquin Valley Air Pollution Control District, *2008 PM<sub>2.5</sub> Plan*, (2008).

<sup>8</sup> San Joaquin Valley Air Pollution Control District, *Air Quality Guidelines for General Plans*, (2005).

- SJVAPCD *Extreme Ozone Attainment Demonstration Plan; San Joaquin Valley Air Basin Plan Demonstrating Attainment of Federal 1-hour Ozone Standards*<sup>9</sup>
- SJVAPCD *Guide for Assessing and Mitigating Air Quality Impacts*<sup>10</sup>
- SJVAPCD *Addressing Greenhouse Gas Emissions Impacts Under the California Environmental Quality Act*<sup>11</sup>

Copies of the modeling runs and supporting technical data are provided in **Appendix 5.1** of this draft environmental impact report (EIR).

### 5.1.1 SUMMARY OF 2030 GENERAL PLAN EIR FINDINGS

The EIR for the Porterville 2030 General Plan<sup>12</sup> concluded that the implementation of the general plan would result in an increase in criteria pollutant emissions, primarily due to motor vehicle trips, that would exceed the annual SJVAPCD thresholds for oxides of nitrogen and reactive organic gases.<sup>13</sup> The general plan includes policies to reduce automobile use and increase the use of alternative transportation, which commits the City to support federal, state, and SJVAPCD efforts to reduce mobile source emissions.<sup>14</sup> Stationary sources and area sources would result in reduced quantities of criteria pollutant emissions. Stationary sources and diesel-fueled mobile sources would also generate emissions of toxic air contaminants, including diesel particulate matter that could pose a health risk. The general plan EIR further found that implementation of the general plan would not create objectionable odors affecting a substantial number of people.<sup>15</sup>

### 5.1.2 AIR QUALITY EXISTING CONDITIONS

The project site is located in the San Joaquin Valley Air Basin (SJVAB). The following is an overview of the SJVAB, pollutants of concern in the SJVAB, the existing ambient air quality, and sensitive receptors that may be affected by adverse air quality conditions.

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<sup>9</sup> San Joaquin Valley Air Pollution Control District, *Extreme Ozone Attainment Demonstration Plan; San Joaquin Valley Air Basin Plan Demonstrating Attainment of Federal 1-hour Ozone Standards*, (2004).

<sup>10</sup> San Joaquin Valley Air Pollution Control District, *Guide for Assessing and Mitigating Air Quality Impacts*, (2002).

<sup>11</sup> San Joaquin Valley Air Pollution Control District, *Addressing Greenhouse Gas Emissions Impacts Under the California Environmental Quality Act*, (2009).

<sup>12</sup> City of Porterville, *2030 General Plan Program Final Environmental Impact Report*, (2008).

<sup>13</sup> City of Porterville, *2030 General Plan Program Final Environmental Impact Report*, (2008), 92.

<sup>14</sup> City of Porterville, *2030 General Plan, "Open Space and Conservation Element,"* (2008) 145–146.

<sup>15</sup> City of Porterville, *2030 General Plan Program Final Environmental Impact Report*, (2008) 92.

## Physical Setting

### *Regional Setting*

As a branch of the California Environmental Protection Agency (Cal/EPA), the California Air Resources Board (CARB) oversees air quality monitoring, planning, and control throughout California. In order to effectively do this, CARB has divided the state into regional air basins according to topographic features. As noted above, the project site is located within the SJVAB, which is the second largest air basin in the state, averaging approximately 250 miles long and 80 miles wide.<sup>16</sup>

The physical features, wind speed, wind direction, and air temperature gradients determine the movement and dispersion of pollutants within the SJVAB. Topographically, the SJVAB is defined by the Sierra Nevadas to the east, the Coast Range to the west, and the Tehachapi Mountains to the south, and it opens to the sea at the Carquinez Strait where the San Joaquin–Sacramento Delta empties into San Francisco Bay.

Although marine air generally flows into the SJVAB from the delta, the Coast Range hinders wind access into the SJVAB from the west, the Tehachapi Mountains prevent the southerly passage of airflow, and the Sierra Nevadas are a significant barrier to the east. These topographic features result in weak airflow, which is blocked vertically by high barometric pressure over the SJVAB. Most of the surrounding mountains are above the normal height of the summer inversion layer.<sup>17</sup> As a result, the majority of the SJVAB is highly susceptible to pollutant accumulation over time.

Wind speed and direction play an important role in the dispersion and transport of air pollutants. Ozone and inhalable particulates are classified as regional pollutants because they can be transported away from the emission source before concentrations peak. In contrast, local pollutants, such as carbon monoxide, tend to have their highest concentrations near the source of emissions. These local pollutants dissipate easily and, therefore, have the highest concentrations during low wind speeds.<sup>18</sup>

During the summer, winds usually originate at the northern end of the SJVAB and flow in a south/southeasterly direction through the Tehachapi Pass into the Mojave Desert Air Basin. During the winter, winds occasionally originate from the south end of the SJVAB and flow in a north/northwesterly direction. Also, during winter, the SJVAB experiences light, variable winds, typically less than 10 miles

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<sup>16</sup> San Joaquin Valley Air Pollution Control District, “Draft Staff Report – Amendments to Rule 4902,” [http://www.valleyair.org/workshops/postings/2009/01-13-09/R4902\\_W2\\_Staff\\_Report.pdf](http://www.valleyair.org/workshops/postings/2009/01-13-09/R4902_W2_Staff_Report.pdf). 2009.

<sup>17</sup> San Joaquin Valley Air Pollution Control District, *Guide for Assessing and Mitigating Air Quality Impacts*, (2002).

<sup>18</sup> U.S. Environmental Protection Agency, “Control Emissions Technology – Transport & Dispersion of Air Pollutants,” <http://www.epa.gov/apti/course422/ce1.html>. 2007.

per hour. Low wind speeds combined with low inversion layers in the winter create a climate conducive to high carbon monoxide and inhalable particulate concentrations.<sup>19</sup>

The vertical mixing of air pollutants is limited by the presence of persistent temperature inversions. Inversions may be either at ground level or elevated levels. Ground-level inversions occur frequently during early fall and winter (i.e., October through January). High concentrations of primary pollutants, which are those emitted directly into the atmosphere (e.g., carbon monoxide), are typically found during ground-level inversions. Elevated inversions act as a lid over the SJVAB and limit vertical mixing, and can result in severe air stagnation. Elevated inversions contribute to the occurrence of high levels of ozone during the summer months.<sup>20</sup>

The SJVAB enjoys an inland Mediterranean climate, averaging more than 260 sunny days per year. The valley floor is characterized by warm, dry summers and cooler winters. Average daily temperatures in the SJVAB range from 44.6 degrees Fahrenheit (°F) in January to 76.7°F in July. Summer highs often exceed 100°F, averaging in the low 90s in the northern valley and high 90s to the south. Maximum temperatures of 90°F or greater occur about 88 days per year. Although the SJVAB enjoys a high percentage of sunshine, a reduction in sunshine occurs during December and January due to fog and intermittent stormy weather. Temperatures of 32°F and below occur about 22 days per year. Nearly 90 percent of the annual precipitation in the SJVAB falls in the six months between November and April.<sup>21</sup>

### ***Local Setting***

The SJVAB is defined by the topographic horseshoe formed by the Diablo and Temblor ranges on the west, the Tehachapi Mountains on the south, and the Sierra Nevada range on the east and southeast. The SJVAB encompasses approximately 10.5 million acres, and its maximum length and width are about 170 miles and 140 miles, respectively. The valley floor is approximately 40 miles wide near its southern end, widening to a maximum of 90 miles near the Kaweah River.<sup>22</sup>

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<sup>19</sup> U.S. Environmental Protection Agency, "Control Emissions Technology – Transport & Dispersion of Air Pollutants," <http://www.epa.gov/apti/course422/ce1.html>. 2007.

<sup>20</sup> U.S. EPA, "Control Emissions Technology – Transport & Dispersion of Air Pollutants,"

<sup>21</sup> San Joaquin Valley Air Pollution Control District, "Natural Events Action Plan," [http://www.valleyair.org/air\\_quality\\_plans/docs/neap.pdf](http://www.valleyair.org/air_quality_plans/docs/neap.pdf). 2006.

<sup>22</sup> Central Valley Regional Water Quality Control Board, *Water Quality Control Plan for the Tulare Lake Basin Second Addition*, (2004).

Rainfall for the area averages approximately 11.5 inches per year, 95 percent of which occurs October through April;<sup>23</sup> although, rainfall can occur year round. In addition, this portion of the San Joaquin Valley is subject to dense fog, commonly called “tule fog,” from mid-November through February. The incidence and duration of this condition in Porterville are somewhat less than in the remainder of the San Joaquin Valley portion of Tulare County due to air currents created by the migration of cold air from the nearby foothills to the valley floor.

## Criteria Pollutants

The federal Clean Air Act (CAA)<sup>24</sup> requires the United States Environmental Protection Agency (U.S. EPA) to set ambient (outdoor) air quality standards for the nation for pollutants that are considered harmful to public health and the environment. These pollutants are referred to by the U.S. EPA as “criteria pollutants,” and they include carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), sulfur dioxide (SO<sub>2</sub>), respirable particulate matter (PM<sub>10</sub>), fine particulate matter (PM<sub>2.5</sub>), and lead.<sup>25</sup>

The U.S. EPA Office of Air Quality Planning and Standards has set primary and secondary National Ambient Air Quality Standards (NAAQS)<sup>26</sup> for these pollutants, which are considered to be the most prevalent and pose a hazard to human health. Primary standards are the maximum levels of ambient (outdoor) air pollutants considered safe, with an adequate margin of safety, for the public health and welfare. Secondary standards were set to protect against decreased visibility, and damage to animals, crops, vegetation, and buildings. The secondary standards are the same as the primary standards, with the exception of those established for CO and SO<sub>2</sub>, as there is no secondary standard for CO and the secondary standard for SO<sub>2</sub> is less restrictive than is the primary standard.

The California Health and Safety Code<sup>27</sup> authorizes CARB to set state ambient air quality standards to protect public health, safety, and welfare. The California Ambient Air Quality Standards (CAAQS)<sup>28</sup> apply to the federal criteria pollutants, as well as to sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride. In general, California standards are more restrictive than national standards.

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<sup>23</sup> City of Porterville, *2030 General Plan*, Chapter 6, “Open Space & Conservation Element,” (2008).

<sup>24</sup> U.S. Environmental Protection Agency, Clean Air Act, (2004).

<sup>25</sup> The term “criteria air pollutant” derives from the requirement that the U.S. EPA must describe the characteristics and potential health and welfare effects of these pollutants. This term is used by both the U.S. EPA and CARB.

<sup>26</sup> U.S. Environmental Protection Agency, “National Ambient Air Quality Standards (NAAQS),” <http://www.epa.gov/air/criteria.html>.

<sup>27</sup> California Air Resources Board, “California Air Pollution Control Laws: Health and Safety Code - Section 39606,” <http://www.arb.ca.gov/bluebook/bb00/toc00.htm>.

<sup>28</sup> California Air Resources Board, “California Ambient Air Quality Standards (CAAQS),” <http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm>, 2008.

A summary of state and federal primary ambient air quality standards and the relevant health effects of the pollutants are shown in **Table 5.1-1, State and Federal Ambient Air Quality Standards**.

**Table 5.1-1  
State and Federal Ambient Air Quality Standards**

Air Pollutant	Concentration/Averaging Time		Most Relevant Health Effects
	State Standard (CAAQS)	Federal Primary Standard (NAAQS)	
Ozone	0.09 ppm, 1-hr. avg. 0.070 ppm, 8-hr avg.	0.075 ppm, 8-hr avg. (three-year average of annual 4 <sup>th</sup> -highest daily maximum)	(a) Pulmonary function decrements and localized lung edema in humans and animals; (b) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) Increased mortality risk; (d) Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) Vegetation damage; and (f) Property damage
Nitrogen Dioxide <sup>1</sup>	0.18 ppm, 1-hr avg. 0.030 ppm, annual arithmetic mean	0.100 ppm, 1-hr avg. (three-year avg. of the 98 <sup>th</sup> percentile of the daily maximum 1-hr avg.) 0.053 ppm, annual arithmetic mean	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extrapulmonary biochemical and cellular changes and pulmonary structural changes; and (c) Contribution to atmospheric discoloration
Carbon Monoxide	20 ppm, 1-hr avg. 9.0 ppm, 8-hr avg.	35 ppm, 1-hr avg. (not to be exceeded more than once per year) 9 ppm, 8-hr avg. (not to be exceeded more than once per year)	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; and (d) Possible increased risk to fetuses
Sulfur Dioxide <sup>2</sup>	0.25 ppm, 1-hr. avg. 0.04 ppm, 24-hr avg.	0.075 ppm, 1-hr avg. (three-year avg. of the 99 <sup>th</sup> percentile).	Bronchoconstriction accompanied by symptoms, which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in person with asthma
Respirable Particulate Matter (PM <sub>10</sub> )	50 µg/m <sup>3</sup> , 24 hr avg. 20 µg/m <sup>3</sup> , annual arithmetic mean	150 µg/m <sup>3</sup> , 24-hr avg. (not to be exceeded more than once per year on average over three years)	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; and (c) Increased risk of premature death from heart or lung diseases in the elderly

Air Pollutant	Concentration/Averaging Time		Most Relevant Health Effects
	State Standard (CAAQS)	Federal Primary Standard (NAAQS)	
Fine Particulate Matter (PM <sub>2.5</sub> )	12 µg/m <sup>3</sup> , annual arithmetic mean	35 µg/m <sup>3</sup> , 24-hr avg. (3-year average of 98 <sup>th</sup> percentile) 15 µg/m <sup>3</sup> , annual arithmetic mean (3-year average)	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; and (c) Increased risk of premature death from heart or lung diseases in the elderly
Lead <sup>3</sup>	1.5 µg/m <sup>3</sup> , 30-day avg.	1.5 µg/m <sup>3</sup> , calendar quarter 0.15 µg/m <sup>3</sup> , 3-month rolling average	(a) Increased body burden, and (b) Impairment of blood formation and nerve conduction
Visibility-Reducing Particles	Reduction of visual range to less than 10 miles at relative humidity less than 70%, 8-hour avg. (10:00 AM–6:00 PM)	None	Visibility impairment on days when relative humidity is less than 70 percent.
Sulfates	25 µg/m <sup>3</sup> , 24-hr avg.	None	(a) Decrease in ventilatory function, (b) Aggravation of asthmatic symptoms, (c) Aggravation of cardio-pulmonary disease, (d) Vegetation damage, (e) Degradation of visibility, and (f) Property damage
Hydrogen Sulfide	0.03 ppm, 1-hr avg.	None	Odor annoyance
Vinyl Chloride <sup>3</sup>	0.01 ppm, 24-hr avg.	None	Known carcinogen

Source: South Coast Air Quality Management District, Final Program Environmental Impact Report for the 2007 Air Quality Management Plan, (2007) Table 3.1-1, p. 3.1-3.

µg/m<sup>3</sup> = microgram per cubic meter.

ppm = parts per million by volume.

<sup>1</sup> On January 25, 2010, the US EPA promulgated a new 1-hour NO<sub>2</sub> standard. The new 1-hour standard is 0.100 parts per million (188 micrograms per cubic meter [µg/m<sup>3</sup>]) and became effective on April 12, 2010.

<sup>2</sup> On June 3, 2010, the US EPA issued a new 1-hour SO<sub>2</sub> standard. The new 1-hour standard is 0.075 parts per million (196 µg/m<sup>3</sup>). The US EPA also revoked the existing 24-hour and annual standards citing a lack of evidence of specific health impacts from long-term exposures. The new 1-hour standard becomes effective 60 days after publication in the Federal Register.

<sup>3</sup> CARB 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.

## Toxic Air Contaminants

In addition to criteria pollutants, CARB periodically assesses the health impacts and ambient levels of toxic air contaminants in California. The U.S. EPA assesses health impacts for hazardous air pollutants. A toxic air contaminant is defined by California Health and Safety Code:<sup>29</sup>

*“Toxic air contaminant” means an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health. A substance that is listed as a hazardous air pollutant pursuant to subsection (b) of Section 112 of the federal act (42 U.S.C. Sec. 7412(b)) is a toxic air contaminant.*

As noted in the definition above, all U.S. EPA hazardous air pollutants are considered to be toxic air contaminants. CARB has assessed inhalation cancer risk for the state and has provided risk maps based on the Assessment System for Population Exposure Nationwide (ASPEN)<sup>30</sup> dispersion model. The ASPEN model is used in the U.S. EPA’s National Air Toxics Assessment<sup>31</sup> study. The risk maps depict inhalation cancer risk due to modeled outdoor toxic pollutant levels, and do not account for cancer risk due to other types of exposure (i.e., direct or ingestion). Based on CARB’s assessment, the largest contributors to inhalation cancer risk are diesel engines, which is consistent with the result of other studies, such as the South Coast Air Quality Management District’s Multiple Air Toxics Exposure Study III (MATES III).<sup>32</sup> The following figures show the regional trends in estimated outdoor inhalable cancer risk from toxic air contaminants in Central California for 1990, 2001, and 2010. CARB has implemented a diesel risk reduction plan<sup>33</sup> with the goal of reducing diesel emissions by 75 percent from year 2000 levels by 2010. The estimated risk, assuming compliance with the diesel risk reduction plan, is also provided in the following figures. (See **Figures 5.1-1 through 5.1-4, CARB Regional Trends in Estimated Outdoor Inhalable Cancer Risk.**)

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<sup>29</sup> California Air Resources Board, “California Air Pollution Control Laws: Health and Safety Code - Section 39655,” <http://www.arb.ca.gov/bluebook/bb00/toc00.htm>.

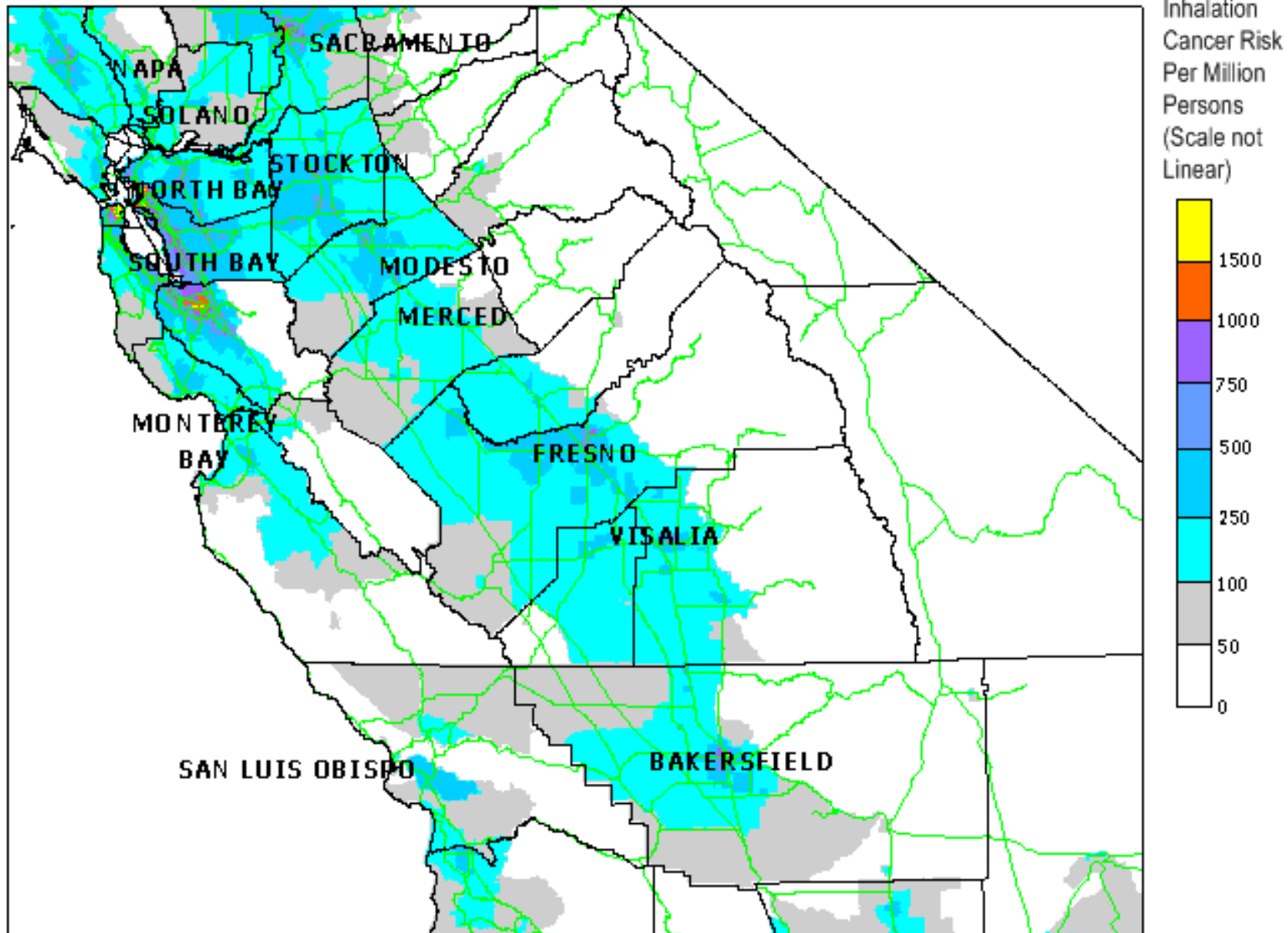
<sup>30</sup> U.S. Environmental Protection Agency, “The ASPEN Model,” <http://www.epa.gov/ttn/atw/nata/aspen.html>. n.d.

<sup>31</sup> U.S. Environmental Protection Agency, “National Air Toxics Assessments,” <http://www.epa.gov/ttn/atw/natamain/>. n.d.

<sup>32</sup> South Coast Air Quality Management District, “MATES III: Multiple Air Toxics Exposure Study,” <http://www.aqmd.gov/prdas/matesIII/matesIII.html>. 2008.

<sup>33</sup> California Air Resources Board, “Diesel Risk Reduction Plan,” <http://www.arb.ca.gov/diesel/documents/rrpapp.htm>. 2000.

**Total Risk (diesel + nondiesel)  
Central California: 1990 Cancer Risk Per Million  
All Sources**



See ARB web site list of sources not yet included in risk.  
ARB/EIB:SRF 6/18/2004

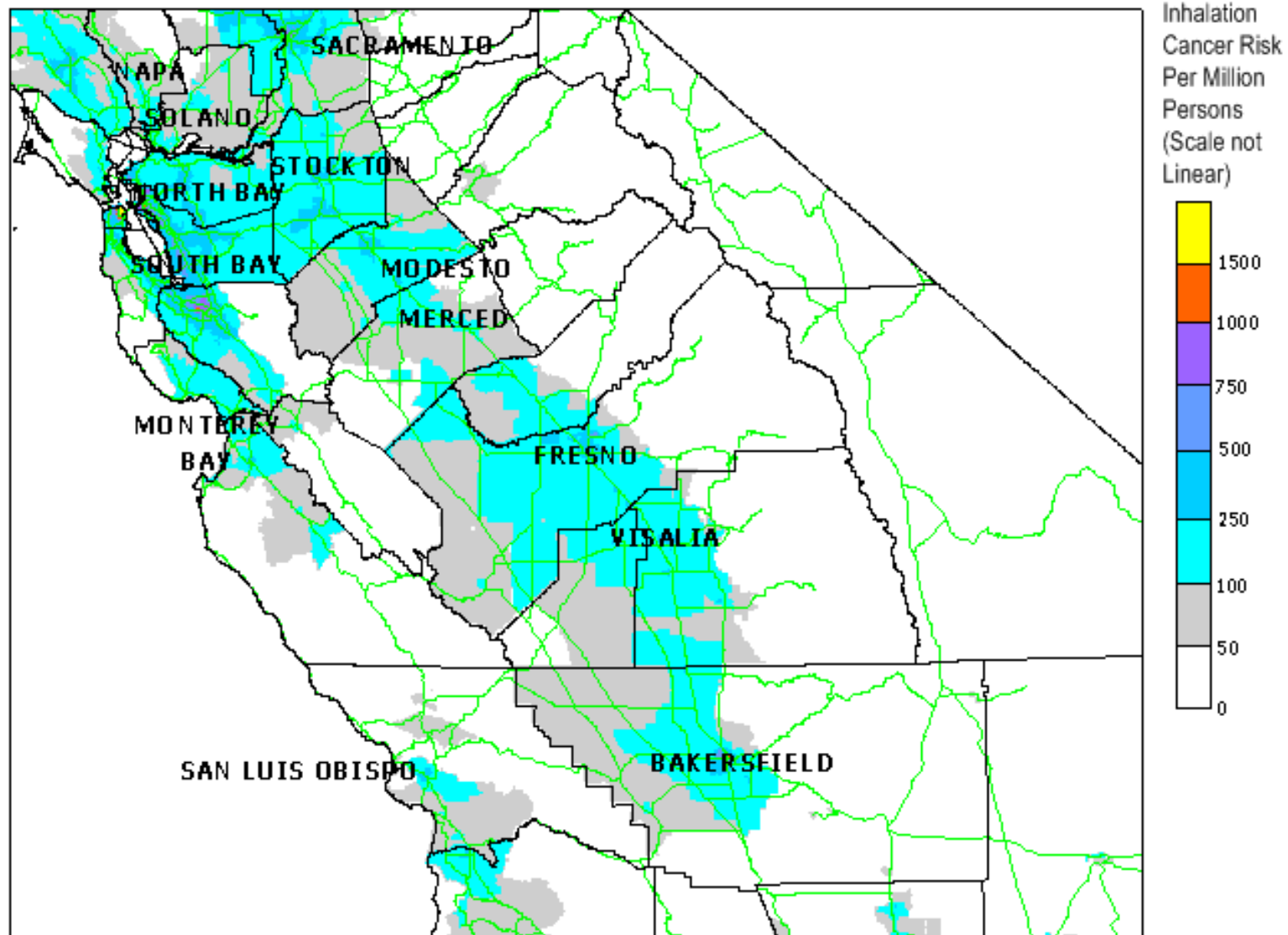


SOURCE: CARB 2004

FIGURE 5.1-1

CARB Regional Trends in Estimated Outdoor Inhalable Cancer Risk: Central California, 1990

**Total Risk (diesel + nondiesel)  
Central California: 2001 Cancer Risk Per Million  
All Sources**



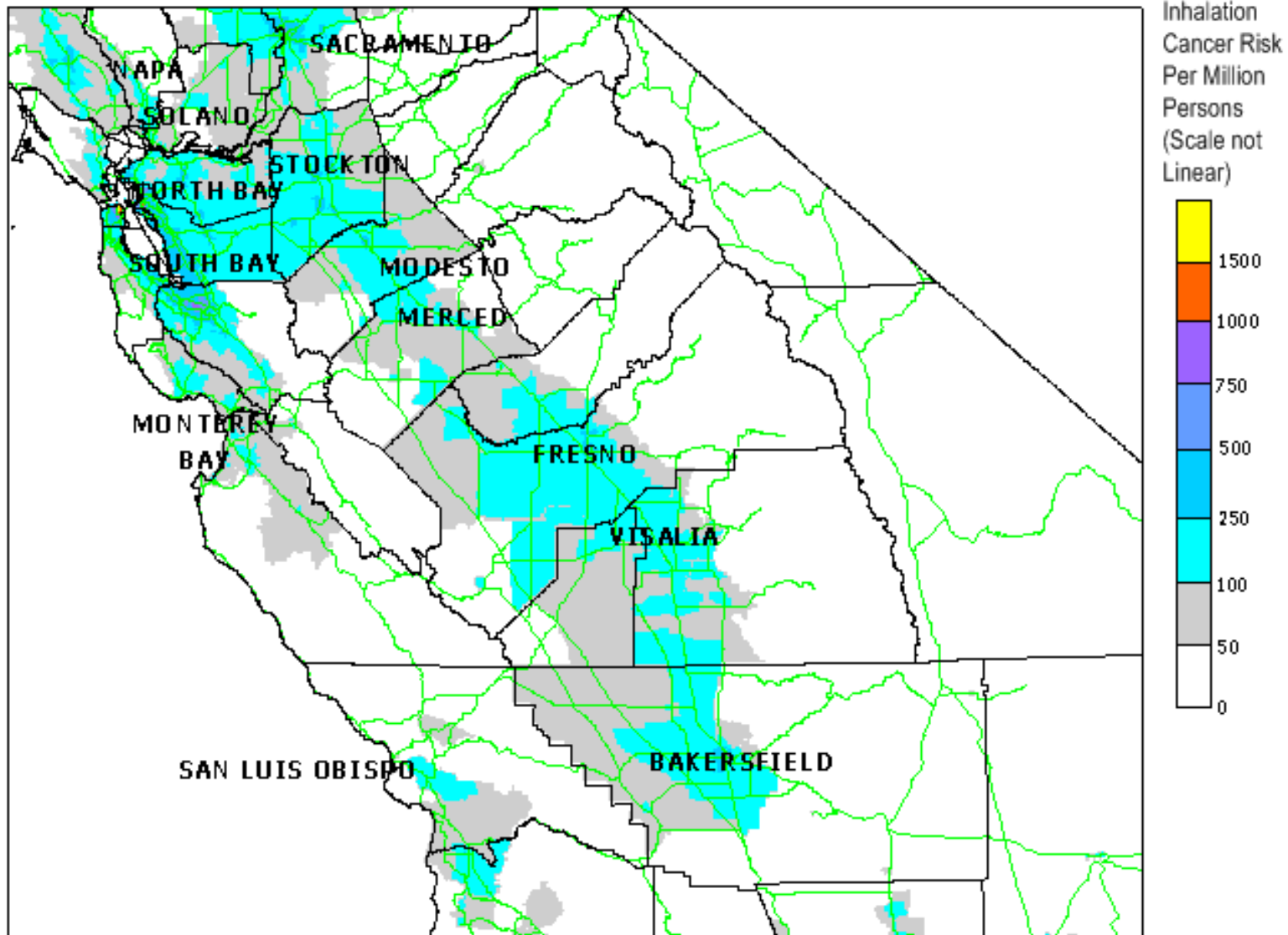
See ARB web site list of sources not yet included in risk.  
ARB:EIB:SRF 6/20/2004

SOURCE: CARB 2004

FIGURE 5.1-2

CARB Regional Trends in Estimated Outdoor Inhalable Cancer Risk: Central California, 2001

**Total Risk (diesel + nondiesel)  
Central California: 2010 Cancer Risk Per Million  
All Sources**



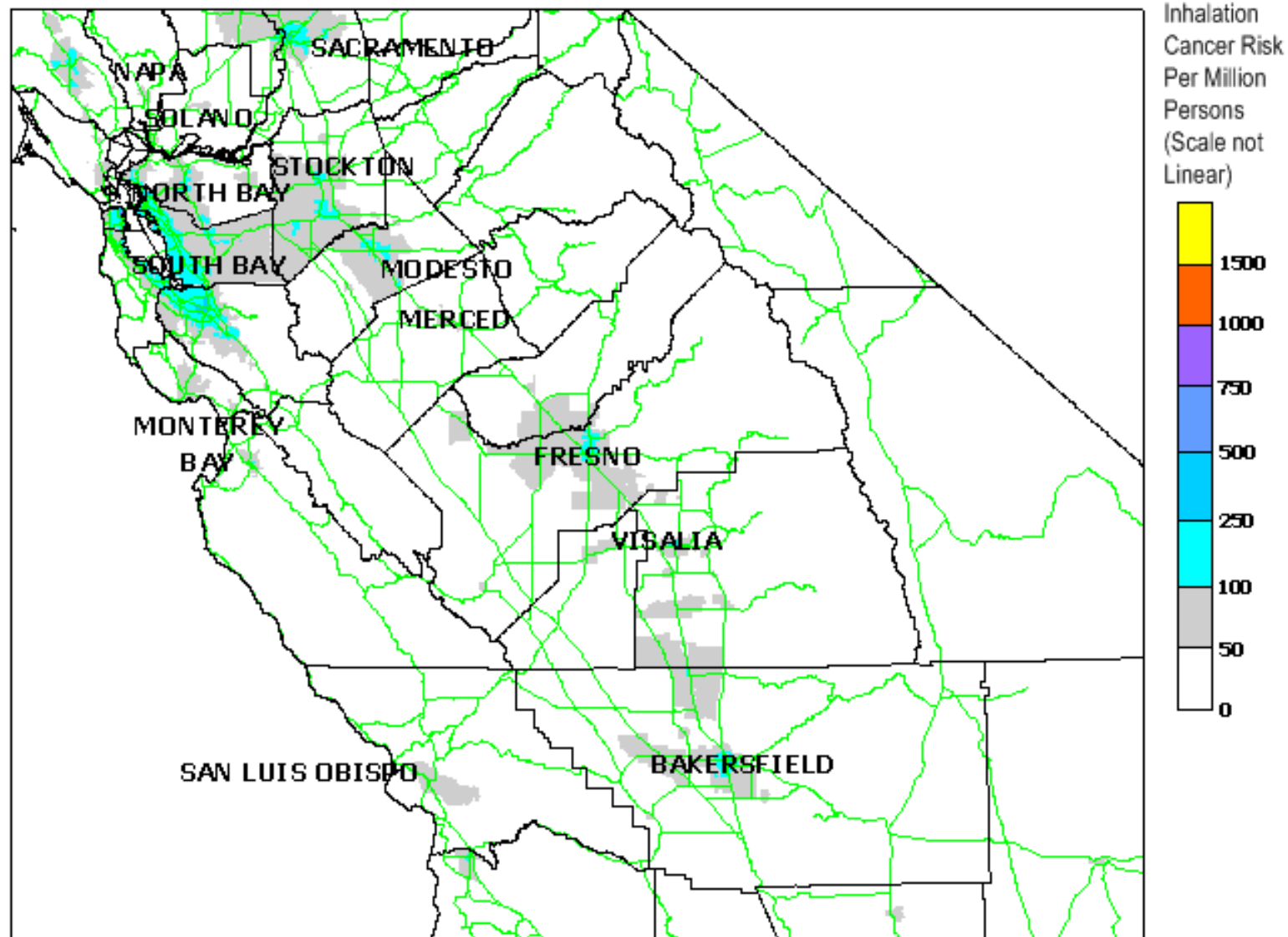
See ARB web site list of sources not yet included in risk.  
ARB/EIB:SRF 6/18/2004

SOURCE: CARB 2004

FIGURE 5.1-3

CARB Regional Trends in Estimated Outdoor Inhalable Cancer Risk: Central California, 2010

Total Risk (diesel + nondiesel)  
 Central California: 2010 (diesel risk reduced 75% from 2000)  
 All Sources



See ARB web site list of sources not yet included in risk.  
 ARB:EIB:SRF:5/12/2008



SOURCE: CARB 2004

FIGURE 5.1-4

CARB Regional Trends in Estimated Outdoor Inhalable Cancer Risk: Central California, 2010 with 75 percent reduction in diesel risk

## Air Quality Attainment Designations

The U.S. EPA is responsible for enforcing the federal CAA and the federal ambient air quality standards (i.e., the NAAQS). CARB is the state agency charged with coordinating efforts to attain and maintain the NAAQS and the CAAQS. Both agencies designate air basins as being in “attainment” or “nonattainment” for each of the criteria pollutants. The determination of whether an area meets the state and federal standards is based on long-term air quality monitoring data.

### *Attainment Areas*

Attainment areas are those with air quality that is better than the standards shown in **Table 5.1-2**. Under the California Clean Air Act (CCAA), an area is in attainment for a particular pollutant if the CAAQS for that pollutant was not violated at any site in the area for a three-year period.<sup>34</sup> Under the CAA, an area is in attainment for a particular pollutant if the area meets the national primary or secondary ambient air quality standard for that pollutant.<sup>35</sup>

### *Nonattainment Areas*

Under the CCAA, an area is in nonattainment for a particular pollutant if there was at least one violation of the CAAQS for that pollutant in the area.<sup>36</sup> Under the CAA, a nonattainment area for a pollutant is any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the primary or secondary NAAQS for that pollutant.<sup>37</sup> Air basins designated as nonattainment for the ozone 8-hour NAAQS are ranked as marginal, moderate, serious, severe, or extreme depending on the area’s 8-hour design value calculated using the most recent three years of data. Air basins designated as nonattainment for the CO NAAQS are ranked as not classified, moderate, or serious.<sup>38</sup> CARB has another subcategory referred to as nonattainment/transitional. This designation refers to nonattainment areas that are close to attaining the CAAQS for the pollutant in nonattainment.<sup>39</sup>

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<sup>34</sup> California Air Resources Board, “Area Designations,” <http://www.arb.ca.gov/desig/adm/Define.htm>. 2003.

<sup>35</sup> U.S. Environmental Protection Agency, “Green Book Designations,” <http://www.epa.gov/airprog/oar/oaqps/greenbk/define.html>. 2008.

<sup>36</sup> California Air Resources Board, “Area Designations,” <http://www.arb.ca.gov/desig/adm/Define.htm>. 2003.

<sup>37</sup> U.S. Environmental Protection Agency, “Green Book Designations,” <http://www.epa.gov/airprog/oar/oaqps/greenbk/define.html>. 2008.

<sup>38</sup> U.S. Environmental Protection Agency, “Green Book Designations,” <http://www.epa.gov/airprog/oar/oaqps/greenbk/define.html>. 2008.

<sup>39</sup> California Air Resources Board, “Area Designations,” <http://www.arb.ca.gov/desig/adm/Define.htm>. 2003.

## *Unclassified Areas*

Some areas are unclassified, which means there is insufficient monitoring data to support an attainment or nonattainment designation. Unclassified areas are typically treated as being in attainment. **Table 5.1-2, San Joaquin Valley Air Basin Attainment Status**, identifies the San Joaquin Valley Air Basin's (SJVAB) attainment status relative to the primary NAAQS and the CAAQS. Because each attainment or nonattainment designation is pollutant specific, an area may be classified as nonattainment for one pollutant and attainment for another. Similarly, because the state and federal ambient air quality standards differ, an area could be classified as attainment under the federal standards and as nonattainment under the state standards for the same pollutant. As shown in **Table 5.1-2**, the SJVAB is in nonattainment for the federal standards for ozone (8 hour), PM<sub>10</sub>, and PM<sub>2.5</sub>. The SJVAB is in nonattainment for the state standards for ozone (1 hour), ozone (8 hour), PM<sub>10</sub>, and PM<sub>2.5</sub>.<sup>40</sup>

States with air basins that are not in attainment with the NAAQS are required to submit a State Implementation Plan (SIP) that describes how the air basin will achieve the federal standards by specified dates. The SJVAPCD currently has four attainment plans that describe how attainment for ozone (8 hour), PM<sub>10</sub>, and PM<sub>2.5</sub> will be achieved.

## **Existing Ambient Air Quality**

CARB has established and maintains a network of sampling stations in conjunction with local air pollution control districts (APCDs) and air quality management districts (AQMDs), private contractors, and the National Park Service. The air quality sampling stations are referred to as the State and Local Air Monitoring Stations (SLAMS) network. The SLAMS network provides air quality monitoring data, including real-time meteorological data and ambient pollutant levels, as well as historical data. The SLAMS network in the SJVAB consists of 30 monitoring stations. In Tulare County, CARB measures CO, O<sub>3</sub>, NO<sub>2</sub>, and PM<sub>10</sub>. Data are collected at four monitoring stations in the County. The closest station to the City of Porterville and the project site is located to the northwest in the City of Visalia on North Church Street.<sup>41</sup> This station monitors ambient concentrations of NO<sub>2</sub>, O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. The closest monitoring station to Porterville that monitors CO is in Bakersfield at 1128 Golden State Highway. The closest station to monitor SO<sub>2</sub> is at the 1<sup>st</sup> Street station in Fresno (3425 N. First Street). This pollutant, however, has only been monitored at this location since 2007.<sup>42</sup>

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<sup>40</sup> San Joaquin Valley Air Pollution Control District, "Ambient Air Quality Standards & Valley Attainment Status," <http://www.valleyair.org/aqinfo/attainment.htm>.

<sup>41</sup> San Joaquin Valley Air Pollution Control District, <http://www.valleyair.org/index.htm>.

<sup>42</sup> San Joaquin Valley Air Pollution Control District, <http://www.valleyair.org/index.htm>.

**Table 5.1-3, Ambient Pollutant Concentrations Registered Nearest to the Project Site**, lists the measured ambient pollutant concentrations and the violations of state and federal standards that have occurred at the above-mentioned monitoring stations from 2007 through 2009. As shown, concentrations of O<sub>3</sub> at the station located in the City of Visalia exceeded state and federal standards all three years, and concentrations of PM<sub>10</sub> exceeded state standards all three years.

Ambient concentrations of CO, NO<sub>2</sub>, SO<sub>2</sub>,<sup>43</sup> lead, and sulfate have not exceeded state and federal standards within the SJVAB for several years. Values for lead and sulfate are not presented in **Table 5.1-3** since ambient concentrations are well below the state standards. Hydrogen sulfide, vinyl chloride, and visibility-reducing particles were not monitored by CARB or the SJVAPCD in the SJVAB during the period 2005–2009.

**Table 5.1-2**  
**San Joaquin Valley Air Basin Attainment Status (Tulare County)**

Pollutant	Federal Standards	State Standards
Ozone-1 hour	No federal standard <sup>1</sup>	Nonattainment-Severe
Ozone-8 hour	Nonattainment-Extreme <sup>2</sup>	Nonattainment
PM <sub>10</sub>	Attainment-Maintenance	Nonattainment
PM <sub>2.5</sub>	Nonattainment	Nonattainment
Carbon monoxide	Attainment/Unclassifiable	Attainment <sup>3</sup>
Nitrogen dioxide	Attainment/Unclassifiable	Attainment
Sulfur dioxide	Attainment/Unclassifiable	Attainment
Lead	Attainment/Unclassified	Attainment
Hydrogen sulfide	No federal standards	Unclassified
Sulfates	No federal standards	Attainment
Vinyl chloride	No federal standards	Unclassified
Visibility-reducing particulates	No federal standards	Unclassified

Source: United States Environmental Protection Agency. "Green Book Designations." <http://www.epa.gov/airprogmoar/oaqps/greenbk/define.html>. 2010.

<sup>1</sup> The 1-hour ozone NAAQS was revoked on June 15, 2005.

<sup>2</sup> Reflects voluntary request for reclassification from serious to extreme, which became effective on June 4, 2010.

<sup>3</sup> Kings County, Madera County, and Merced County are classified as unclassified for carbon monoxide. Tulare County is classified as attainment. (Source: California Code of Regulations, Title 17, Section 60202, <http://ccr.oal.ca.gov>.)

<sup>43</sup> San Joaquin Valley Air Pollution Control District, "Air Quality Monitoring," [http://www.valleyair.org/busind/pto/Tox\\_Resources/AirQualityMonitoring.htm](http://www.valleyair.org/busind/pto/Tox_Resources/AirQualityMonitoring.htm). 2009. The maximum recorded 24-hour concentration for SO<sub>2</sub> for 2007 was 0.067, which represents an unusual event in Fresno. On July 4 and 5, because of very stagnant meteorological conditions with high ambient temperatures, the 1<sup>st</sup> Street station was unduly affected by emissions from fireworks. Therefore, the SJVAPCD recommends that the value of 0.031 ppm should be used for the 2007 maximum 24-hour concentration.

**Table 5.1-3  
Ambient Pollutant Concentrations Registered Nearest to the Project Site**

Pollutant	Standards <sup>1</sup>	Year		
		2007	2008	2009
<b>OZONE (O<sub>3</sub>)</b>				
Maximum 1-hour concentration monitored (ppm)		0.107	0.130	0.120
Maximum 8-hour concentration monitored (ppm)		0.100	0.122	0.093
Number of days exceeding state 1-hour standard	0.09 ppm	11	44	23
Number of days exceeding state 8-hour standard	0.070 ppm	56	94	68
Number of days exceeding federal 8-hour standard <sup>2</sup>	0.075 ppm	31	60	48
<b>NITROGEN DIOXIDE (NO<sub>2</sub>)</b>				
Maximum 1-hour concentration monitored (ppm)		0.071	0.077	0.068
Annual average concentration monitored (ppm)		0.015	0.014	0.015
Number of days exceeding state 1-hour standard	0.18 ppm	0	0	0
<b>CARBON MONOXIDE (CO)</b>				
Maximum 1-hour concentration monitored (ppm)		2.8	3.5	NA
Maximum 8-hour concentration monitored (ppm)		1.97	2.17	1.51
Number of days exceeding 1-hour standard	20 ppm	0	0	0
Number of days exceeding 8-hour standard	9.0 ppm	0	0	0
<b>SULFUR DIOXIDE (SO<sub>2</sub>)</b>				
Maximum 1-hour concentration monitored (ppm) <sup>3</sup>		0.13	0.060	NA
Maximum 24-hour concentration monitored (ppm) <sup>3</sup>		0.031	0.003	0.005
Number of days exceeding state 1-hour standard	0.25 ppm	0	0	0
Number of days exceeding state 24-hour standard	0.04 ppm	0	0	0
<b>RESPIRABLE PARTICULATE MATTER (PM<sub>10</sub>)</b>				
Maximum 24-hour concentration monitored (µg/m <sup>3</sup> )		99.0	104.7	93.2
Annual average concentration monitored (µg/m <sup>3</sup> )		42.3	47.1	41.8
Number of samples exceeding state standard	50 µg/m <sup>3</sup>	15	26	20
Number of samples exceeding federal standard	150 µg/m <sup>3</sup>	0	0	0
<b>FINE PARTICULATE MATTER (PM<sub>2.5</sub>)</b>				
Maximum 24-hour concentration monitored (µg/m <sup>3</sup> )		71.0	68.2	63.5
Annual average concentration monitored (µg/m <sup>3</sup> )		22.5	19.8	16.6
Number of samples exceeding federal standard	35 µg/m <sup>3</sup>	18	17	8

Source: California Air Resources Board, "Air Quality Data Statistics," <http://www.arb.ca.gov/adam/>. 2010;

U.S. Environmental Protection Agency, "Air Data: Access to Air Pollution Data," <http://www.epa.gov/air/data/>. 2010.

NA = not available

<sup>1</sup> Parts by volume per million of air (ppm), micrograms per cubic meter of air (µg/m<sup>3</sup>), or annual arithmetic mean (aam).

<sup>2</sup> The 8-hour federal O<sub>3</sub> standard was revised from 0.08 ppm to 0.075 ppm in March 2008. The statistics shown are based on the 2008 standard of 0.075 ppm.

<sup>3</sup> The maximum recorded 24-hour concentration for SO<sub>2</sub> in 2007 was 0.067 ppm, which represents an unusual event in Fresno. On July 4 and 5, because of very stagnant meteorological conditions with high ambient temperatures, the 1st Street station was unduly affected by emissions from fireworks. Therefore, the SJVAPCD recommends that the value of 0.031 ppm should be used for the 2007 background 24-hour concentration and 0.13 ppm for the 2007 background 1-hour concentration. San Joaquin Valley Air Pollution Control District. "Air Quality Monitoring." Online Review April 13, 2009. [http://www.valleyair.org/busind/pto/Tox\\_Resources/AirQualityMonitoring.htm](http://www.valleyair.org/busind/pto/Tox_Resources/AirQualityMonitoring.htm).

## Sensitive Receptors

Sensitive populations (sensitive receptors) are more susceptible to the effects of air pollution than the population at large. The SJVAPCD describes “sensitive receptors” as “facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants,” which include hospitals, schools, daycare centers, convalescent facilities, and residential areas.<sup>44</sup> Sensitive receptors that are near localized sources of toxic air contaminants and CO are of particular concern. For the purposes of impact assessment, the definition of sensitive receptors is typically expanded to include residences, playgrounds, rehabilitation centers, and athletic facilities. The project site is currently undeveloped; however, residences are located to the north and west of the site. The residences to the west, directly across Indiana Street, are located approximately 106 feet (32 meters) from the project site. The residences to the north, directly across Springville Drive, are located approximately 75 feet (23 meters) from the project site.

### 5.1.3 AIR QUALITY REGULATORY PLANS AND POLICIES

Air quality within the SJVAB is addressed through the efforts of various federal, state, regional, and local government agencies. These agencies work individually, as well as jointly, to improve air quality through legislation, regulations, planning, policymaking, education, and a variety of other programs. The agencies primarily responsible for improving the air quality within the SJVAB include the U.S. EPA, CARB, SJVAPCD, and the Regional Council of Governments. The City of Porterville also includes policies in its 2030 General Plan<sup>45</sup> that are designed to improve air quality. These agencies, their laws, regulations, rules, plans, and policies as they pertain to air quality and the proposed project are discussed below.

#### Federal

The U.S. EPA is responsible for enforcing the federal CAA<sup>46</sup> and the NAAQS.<sup>47</sup> These standards identify levels of air quality for seven criteria pollutants: O<sub>3</sub>, CO, NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and lead. Each of the criteria pollutants that are relevant to this project and that are of concern in the SJVAB is briefly described below. While reactive organic gases (ROGs) are not considered to be criteria air pollutants, they are widely emitted from land use development projects and undergo photochemical reactions in the atmosphere to form O<sub>3</sub>; therefore, ROGs are relevant to this project and are of concern in the SJVAB.<sup>48</sup>

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<sup>44</sup> San Joaquin Valley Air Pollution Control District, *Guide for Assessing and Mitigating Air Quality Impacts*, (2002).

<sup>45</sup> City of Porterville, *2030 General Plan*, “Open Space and Conservation Element,” 145–146.

<sup>46</sup> U.S. Environmental Protection Agency, *Clean Air Act*, (2004).

<sup>47</sup> U.S. Environmental Protection Agency, “National Ambient Air Quality Standards (NAAQS),” <http://www.epa.gov/air/criteria.html>.

<sup>48</sup> U.S. Environmental Protection Agency, “Ground-level Ozone,” <http://www.epa.gov/air/ozonepollution/>.

- *Carbon Monoxide (CO)*. CO is a colorless, odorless gas produced by the incomplete combustion of fuels. CO concentrations tend to be the highest during winter mornings, with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone, and motor vehicles operating at slow speeds are the primary source of CO in the basin, the highest ambient CO concentrations are generally found near congested transportation corridors and intersections.
- *Ozone (O<sub>3</sub>)*. O<sub>3</sub> is a gas that is formed when ROG<sub>s</sub> and oxides of nitrogen (NO<sub>x</sub>), both byproducts of internal combustion engine exhaust and other sources, undergo slow photochemical reactions in the presence of sunlight. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.
- *Nitrogen Dioxide (NO<sub>2</sub>)*. NO<sub>2</sub> is a reddish-brown, highly reactive gas that is formed in the ambient air through the oxidation of nitric oxide (NO). NO<sub>2</sub> is also a byproduct of fuel combustion. The principle form of NO<sub>x</sub> produced by combustion is NO, but NO reacts quickly to form NO<sub>2</sub>, creating the mixture of NO and NO<sub>2</sub> referred to as NO<sub>x</sub>. NO<sub>2</sub> acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NO<sub>x</sub> is only potentially irritating. NO<sub>2</sub> absorbs blue light, the result of which is a brownish-red cast to the atmosphere and reduced visibility.
- *Reactive Organic Gases (ROG<sub>s</sub>)*. ROG<sub>s</sub> are compounds comprised primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Adverse effects on human health are not caused directly by ROG<sub>s</sub>, but rather by reactions of ROG<sub>s</sub> to form secondary air pollutants, including ozone. ROG<sub>s</sub> are also referred to as reactive organic compounds (ROCs) or volatile organic compounds (VOCs). ROG<sub>s</sub> themselves are not “criteria” pollutants; however, they contribute to formation of O<sub>3</sub>.
- *Respirable Particulate Matter (PM<sub>10</sub>)*. PM<sub>10</sub> consists of extremely small, suspended particles or droplets 10 microns or smaller in diameter. Some sources of PM<sub>10</sub>, like pollen and windstorms, are naturally occurring. However, in populated areas, most PM<sub>10</sub> is caused by road dust, diesel soot, combustion products, abrasion of tires and brakes, and construction activities.
- *Fine Particulate Matter (PM<sub>2.5</sub>)*. PM<sub>2.5</sub> is particulate matter that is 2.5 micrometers or smaller in diameter. The sources of PM<sub>2.5</sub> include fuel combustion from automobiles, power plants, wood burning, industrial processes, and diesel-powered vehicles such as buses and trucks. These fine particles are also formed in the atmosphere when gases such as sulfur dioxide, NO<sub>x</sub>, and ROG<sub>s</sub> are transformed in the air by chemical reactions.
- *Sulfur dioxide (SO<sub>2</sub>)*. SO<sub>2</sub> is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of burning high-sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. When sulfur dioxide oxidizes in the atmosphere, it forms sulfates (SO<sub>4</sub>).

The 1990 Clean Air Act Amendments<sup>49</sup> were enacted to better protect the public's health and create more efficient methods of lowering pollutant emissions. The major areas of improvement from the amendments include new methods for regulating air basin designations, automobile/heavy-duty engine emissions, and hazardous air pollutants. The U.S. EPA designates air basins as being in "attainment," "nonattainment," or "unclassified" for each of the seven criteria pollutants. The NAAQS (other than O<sub>3</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. The NAAQS for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> are based on statistical calculations over one- to three-year periods, depending on the pollutant. Nonattainment air basins are ranked (marginal, moderate, serious, severe, or extreme) according to the degree of the threshold violation. The air basin is then required to submit a SIP that describes how the state will achieve the federal standards by specified dates. The stringency of emission control measures in a given SIP depends on the severity of the air quality within a specific air basin. The project site is located in the SJVAB, and the status of the SJVAB with respect to NAAQS attainment is summarized above in **Table 5.1-2**.

In response to rapid population growth and the subsequent rise in automobile operations, the 1990 Clean Air Act Amendments address tailpipe emissions from automobiles, heavy-duty engines, and diesel fuel engines. The 1990 Amendments established more stringent standards for hydrocarbons, NO<sub>x</sub>, and CO emissions in order to reduce ozone and carbon monoxide levels in heavily populated areas. Fuels became more strictly regulated by requiring new fuels to be less volatile, contain less sulfur (regarding diesel fuels), and have higher levels of oxygenates (oxygen-containing substances to improve fuel combustion). The U.S. EPA also has regulatory and enforcement jurisdiction over emission sources beyond state waters (outer continental shelf), and those that are under the exclusive authority of the federal government, such as aircraft, locomotives, and interstate trucking.

Due to the lack of toxic emissions reduction by the 1977 Clean Air Act, the 1990 Clean Air Act Amendments listed 189 hazardous air pollutants that are carcinogenic, mutagenic, and/or reproductive toxins to be reduced. This program involves identifying all major sources (greater than 10 tons/year of a single hazardous air pollutant or 25 tons/year of combined hazardous air pollutants) and area sources (i.e., non-major sources) in order to implement maximum achievable control technology (MACT) that will reduce health impacts.

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<sup>49</sup> U.S. Environmental Protection Agency, "Clean Air Act – 1990 Clean Air Act Amendments," <http://www.epa.gov/air/caa/>. 1990.

## State

CARB is a branch of Cal/EPA that oversees air quality planning and control throughout California. It is primarily responsible for ensuring implementation of the CCAA,<sup>50</sup> responding to the federal CAA requirements, and regulating emissions from motor vehicles and consumer products within California. CARB has established emission standards for vehicles sold in California and for various types of equipment available commercially. It also sets fuel specifications to further reduce vehicular emissions.

Enacted in 1988, the CCAA established a legal mandate for air basins to achieve the CAAQS by the earliest practicable date. These standards apply to the same seven criteria pollutants as the federal CAA and also include sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride. The state standards are more stringent than the federal standards and, in the case of PM<sub>10</sub>, far more stringent.

CARB supervises and supports the regulatory activities of local air quality districts as well as monitors air quality itself. The Health and Safety Code<sup>51</sup> requires CARB to establish and periodically review area designation criteria. These designation criteria provide the basis for CARB to designate areas of the state as “attainment,” “nonattainment,” or “unclassified” for the state standards. In addition, the Health and Safety Code<sup>52</sup> requires CARB to use the designation criteria to designate areas of California and to annually review those area designations. CARB makes area designations for 10 criteria pollutants: O<sub>3</sub>, CO, NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, sulfates, lead, hydrogen sulfide, and visibility-reducing particles.<sup>53</sup> Air quality of a region is considered to be in attainment of the state standards if the measured ambient air pollutant levels for O<sub>3</sub>, CO, NO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> (1- and 24-hour), and lead are not exceeded, and all other standards are not equaled or exceeded at any time in any consecutive three-year period. The status of the SJVAB with respect to attainment with the CAAQS is summarized above in **Table 5.1-2**.

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<sup>50</sup> California Air Resources Board, “Health and Safety Code – California Clean Air Act,” [http://www.arb.ca.gov/bluebook/bb06/HEA%5B14%5D/HEA\\_%5B14%5D.htm](http://www.arb.ca.gov/bluebook/bb06/HEA%5B14%5D/HEA_%5B14%5D.htm).

<sup>51</sup> California Air Resources Board, “California Air Pollution Control Laws: Health and Safety Code, Section 39607(e),” <http://www.arb.ca.gov/bluebook/bb00/toc00.htm>.

<sup>52</sup> California Air Resources Board, “California Air Pollution Control Laws: Health and Safety Code - Section 39608,” <http://www.arb.ca.gov/bluebook/bb00/toc00.htm>.

<sup>53</sup> California Air Resources Board, “Area Designations (Activities and Maps),” <http://www.arb.ca.gov/desig/desig.htm>. 2007. According to California Health and Safety Code, Section 39608, “state board, in consultation with the districts, shall identify, pursuant to subdivision (e) of Section 39607, and classify each air basin which is in attainment and each air basin which is in nonattainment for any state ambient air quality standard.” Section 39607(e) states that the state shall “establish and periodically review criteria for designating an air basin attainment or nonattainment for any state ambient air quality standard set forth in Section 70200 of Title 17 of the California Code of Regulations. California Code of Regulations, Title 17, Section 70200 does not include vinyl chloride; therefore, CARB does not make area designations for vinyl chloride.

CARB promulgates airborne toxic control measures (ATCMs) for a variety of mobile and stationary sources of air pollutants. Each ATCM is codified in the California Code of Regulations.<sup>54</sup> The following discusses several ATCMs that are relevant to the proposed project.

### ***Airborne Toxic Control Measures to Limit Commercial Truck Idling***

In July 2004, CARB adopted an ATCM to limit motor vehicle idling within California.<sup>55</sup> The control measure was adopted as part of a program to reduce public exposure to diesel engine particulate matter (DPM). Diesel particulate matter has been listed as a human carcinogen on the CARB's toxic air contaminants (TACs) list. The measure applies to all diesel-fueled vehicles over 10,000 pounds, regardless of the state in which they are registered. Effective 2008, all heavy-duty trucks are prohibited from idling to maintain comfortable sleeper berth conditions. Idling is not permitted in school areas or 100 feet from a restricted area for more than 5 minutes unless the vehicle is engaged in working activities. Consistent with the CARB ATCM, the project applicant shall comply with the measure and will enforce a maximum idling limit of 5 minutes per truck at the loading dock area on the north side of the building. The loading dock area will have an informational placard or sign indicating a 5 minute idling limit and loading dock personnel will be properly informed and trained as necessary.

### ***Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units and Generator Sets***

The ATCM for in-use diesel-fueled transport refrigeration units (TRUs) and TRU generator sets targets for TRUs.<sup>56</sup> TRUs are trailer-mounted units, powered by small diesel-fueled engines, which provide chilled air to trailers carrying perishable goods (e.g., produce, meats, and prescription drugs). The measure regulates particulate matter emission rates from TRUs powered by diesel internal combustion engines that range from 9 to 36 horsepower. According to the regulation, facilities with over 20 loading dock doors must submit a detailed report specifying the types of models and quantities of TRUs that would operate at the facility. The report is filed by the equipment operator and is submitted electronically to CARB. As of January 31, 2009, owners and operators of California-based TRUs are required to submit an application for a CARB identification number as part of the CARB Identification Numbering

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<sup>54</sup> California Office of Administrative Law, "Welcome to the online source for the California Code of Regulations," <http://ccr.oal.ca.gov/linkedslice/default.asp?SP=CCR-1000&Action=Welcome>.

<sup>55</sup> California Code of Regulations, Title 13, Chapter 10, Division 3, Section 2485, *Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling*, effective February 1, 2005.

<sup>56</sup> California Code of Regulations, Title 13, Chapter 9, Division 8, Section 2477, *Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets, and Facilities Where TRUs Operate*, effective December 10, 2004.

Requirements. The ATCM also applies to operators and owners of the TRUs on supply trailers whether registered out of state or in California.

The chief control measure is a gradual phase-in of low- and ultra-low-emission standard TRUs. The first phase—performance standards for low-emission TRUs—requires all TRUs that have under 25 horsepower to have an emission rate of 0.3 gram per horsepower-hour (g/hp-hr) of PM<sub>10</sub> or less (Level 2), and TRUs 25 horsepower or more to have an emission rate of 0.22 g/hp-hr PM<sub>10</sub> or less. All TRUs model year 2001 and older must comply with the low-emission standard by December 31, 2008, and model year 2002 and later must be in compliance by December 31, 2009. The ultra-low performance standard for in-use TRUs will apply to all future models. Compliance with the ultra-low standard will require engines with 25 horsepower or more to have emission rates of 0.02 g/hp-hr PM<sub>10</sub> or less (Level 3). The ultra-low-emission standard for models with 25 horsepower or less has not yet been developed. Model years 2001 and older must comply with the ultra-low-emission standard by December 2015, while 2002 models must comply by December 2016, and 2003 models must comply by 2010. All models subsequent to 2003 will be given seven years from the model year to comply with the ultra-low in-use performance standards.

Manufacturers and operators can meet these standards by producing and using engines that have been tested and certified by CARB. TRU operators can also comply by equipping TRU engines with the required level of Verified Diesel Emission Control Strategies.<sup>57</sup> In addition to producing and purchasing cleaner TRU engines, the measure also encourages the use of alternative technologies to diesel-fueled TRUs, such as electric standby power, cryogenic temperature control systems (or a hybrid), alternative-fuel engines, fuel-cell-powered temperature control systems, and more.

## Local

The SJVAPCD has jurisdiction over most air quality matters<sup>58</sup> within the SJVAB, which includes San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, and Tulare counties and the valley portion of Kern County. The district regulates most air pollutant sources in the SJVAB (including stationary sources at industrial and commercial facilities), maintains ambient air quality monitoring stations at numerous locations throughout the SJVAB, and prepares the air quality management/attainment plans for the SJVAB that are required under the CAA and CCAA. As a local air district, the SJVAPCD has the

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<sup>57</sup> California Air Resources Board, *Regulation for the Verification Procedure for In-use Strategies to Control Emissions from Diesel Engines*, adopted May 16, 2002.

<sup>58</sup> SJVAPCD does not regulate air pollutants from motor vehicles, locomotives, aircraft, agriculture equipment, and marine vessels.

responsibility and authority to adopt transportation control and emission reduction programs for indirect and areawide emission sources.

### ***SJVAPCD Air Quality Plans***

As shown in **Table 5.1-2**, the SJVAB is in nonattainment for the federal standards for ozone (8 hour), PM<sub>10</sub>, and PM<sub>2.5</sub>. The SJVAB is also in nonattainment for the state standards of ozone (1 hour), ozone (8 hour), PM<sub>10</sub>, and PM<sub>2.5</sub>. In order to demonstrate achievement of the state and federal ambient air quality standards for ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>, the SJVAPCD has prepared attainment plans for the SJVAB. The attainment plans have been approved by CARB and the U.S. EPA, and have been incorporated into the SIP. The most recent plans include:

- *Extreme Ozone Attainment Demonstration Plan; San Joaquin Valley Air Basin Plan Demonstrating Attainment of Federal 1-hour Ozone Standards*<sup>59</sup>
- *2007 Ozone Plan*<sup>60</sup>
- *2007 PM<sub>10</sub> Maintenance Plan and Request for Redesignation*<sup>61</sup>
- *2008 PM<sub>2.5</sub> Plan*<sup>62</sup>

The SJVAPCD must continuously monitor its progress in implementing these attainment plans and periodically report to CARB and the U.S. EPA. It must also periodically revise its attainment plans to reflect new conditions and requirements in accordance with schedules mandated by the CAA and the CCAA. The following sections provide an overview of these four plans.

#### ***One-Hour Extreme Ozone Attainment Demonstration Plan***

The SJVAPCD's *Extreme Ozone Attainment Demonstration Plan*<sup>63</sup> sets forth the emission reductions and timeline for attaining the 1-hour ozone ambient air quality standards in the SJVAB by November 15, 2010. The SJVAPCD, in conjunction with CARB, the U.S. EPA, and the eight regional transportation-planning agencies in the San Joaquin Valley, developed the plan to meet the state and federal ambient ozone requirements. State and federal agencies committed to controls—primarily on mobile sources—between

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<sup>59</sup> San Joaquin Valley Air Pollution Control District, *Extreme Ozone Attainment Demonstration Plan; San Joaquin Valley Air Basin Plan Demonstrating Attainment of Federal 1-hour Ozone Standards*, (2004).

<sup>60</sup> San Joaquin Valley Air Pollution Control District, *2007 Ozone Plan*, (2007).

<sup>61</sup> San Joaquin Valley Air Pollution Control District, *2007 PM<sub>10</sub> Maintenance Plan and Request for Redesignation*, (2007).

<sup>62</sup> San Joaquin Valley Air Pollution Control District, *2008 PM<sub>2.5</sub> Plan*, (2008).

<sup>63</sup> San Joaquin Valley Air Pollution Control District, *Extreme Ozone Attainment Demonstration Plan; San Joaquin Valley Air Basin Plan Demonstrating Attainment of Federal 1-hour Ozone Standards*, (2004).

2005 and 2010 that will reduce emissions in the SJVAB by approximately 105 tons per day. Additionally, the expanded time frame allowed the SJVAPCD's incentive-based programs to take effect. These programs provide financial incentives to users of heavy-duty engines to implement cleaner alternatives and to valley residents to purchase hybrid electric-gasoline automobiles and electric lawn mowers. The plan also allowed time for the development and implementation of the SJVAPCD's indirect source mitigation fee, which requires a new development project to mitigate a portion of its emissions from vehicle trips.

In 1997, the U.S. EPA determined that the 1-hour ozone ambient air quality standard was not needed to protect public health given the promulgation of the new 8-hour ozone ambient air quality standard. On April 15, 2004, the U.S. EPA issued a final rule revoking the 1-hour standard in lieu of the 8-hour standard, effective June 15, 2005. Nonetheless, anti-backsliding provisions require the SJVAB to meet its reduction commitments for extreme nonattainment in the plan.

On April 30, 2007, the SJVAPCD adopted the *2007 Ozone Plan*<sup>64</sup> that demonstrates attainment of the federal 8-hour O<sub>3</sub> standard by 2023. The plan calls for a substantial reduction of NO<sub>x</sub> (an ozone precursor) by implementing regulatory measures for mobile and stationary sources and by providing incentives for emission reductions and the deployment of advanced technologies. The plan also calls for moderate reductions of ROG emissions, which are also ozone precursors. The SJVAPCD expects to adopt all proposed local measures in the plan by 2012 and to expeditiously adopt measures that require advanced technologies or incentive funding as they become available. The SJVAPCD expects that, by 2020, 90 percent of the population living in the SJVAB will reside in areas meeting the federal ozone standard.<sup>65</sup> The remaining areas, east of the City of Arvin and northwest of the City of Fresno (both of which typically experience the highest ozone concentrations in the SJVAB), are expected to meet the standard between 2020 and 2023 as newer technologies become available and are put in use.

The plan also requested that the U.S. EPA reclassify the SJVAB from serious to extreme nonattainment status with a 2024 attainment date. In September 2007, CARB modified the mobile source control strategies contained in the state portion of the SIP to accelerate emission reductions from mobile sources. In addition, CARB created a task force to identify ways to meet the federal O<sub>3</sub> standard before 2024. The task force presented findings to CARB on November 7, 2007, that demonstrated that the emission rate in excess of the attainment emission rate in the SJVAB would be reduced from 202 tons per day to 49 tons per day by 2017. With these findings, the SJVAPCD and CARB expect to demonstrate attainment by 2017 instead of 2024. Additional recommendations aimed at achieving the federal ozone standard by

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<sup>64</sup> San Joaquin Valley Air Pollution Control District, *2007 Ozone Plan*, (2007).

<sup>65</sup> San Joaquin Valley Air Pollution Control District, *2007 Ozone Plan*, (2007).

2017 are being developed, including a recommendation that valley cities and counties incorporate air quality considerations into their development projects. Nonetheless, the SJVAPCD expects the U.S. EPA to redesignate the SJVAB from serious to extreme nonattainment by the end of 2009.<sup>66</sup>

### ***2007 PM<sub>10</sub> Maintenance Plan and Request for Redesignation***

On June 19, 2003, the SJVAPCD adopted the *2003 PM<sub>10</sub> Plan*,<sup>67</sup> which demonstrates attainment of the federal 24-hour and annual average standards for PM<sub>10</sub>. CARB subsequently adopted the plan and submitted it to the U.S. EPA on August 19, 2003. The U.S. EPA approved the plan into the SIP, and it became effective June 25, 2004.

The SJVAPCD subsequently adopted *2006 PM<sub>10</sub> Plan*<sup>68</sup> – *San Joaquin Valley Strategy for Meeting Federal Air Quality Requirements for Particulate Matter 10 Microns and Smaller* on February 16, 2006. This plan reevaluated the overall PM<sub>10</sub> control strategy in the *2003 PM<sub>10</sub> Plan* using updated emissions information, air quality monitoring data from 2003 through 2005, and air quality modeling. The updated information demonstrated that the SJVAB was on track in attaining the federal PM<sub>10</sub> ambient air quality standard before the 2010 deadline. This plan was not adopted by CARB or forwarded to the U.S. EPA; however, based on this information, the U.S. EPA issued a final determination in 2006 that the SJVAB had attained the federal PM<sub>10</sub> ambient air quality standards and would redesignate the SJVAB to attainment upon approval of a PM<sub>10</sub> maintenance plan.

In 2007, the SJVAPCD prepared, adopted, and submitted the *2007 PM<sub>10</sub> Maintenance Plan and Request for Redesignation*<sup>69</sup> to CARB for review and approval. CARB approved the plan on October 27, 2007, and submitted it to the U.S. EPA. The U.S. EPA approved the plan and the redesignation on September 25, 2008.

This plan demonstrates continued attainment with the federal PM<sub>10</sub> ambient air quality standards using additional monitoring data from 2006. Although the U.S. EPA revoked the annual PM<sub>10</sub> standard (effective December 18, 2006), the plan, nonetheless, provides for continued attainment of both the 24-hour and annual PM<sub>10</sub> NAAQS since both standards were included in the *2003 PM<sub>10</sub> Plan*, which the U.S. EPA approved into the SIP.

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<sup>66</sup> San Joaquin Valley Air Pollution Control District, *2007 Ozone Plan*, (2007).

<sup>67</sup> San Joaquin Valley Air Pollution Control District, *2003 PM<sub>10</sub> Plan*, (2003).

<sup>68</sup> San Joaquin Valley Air Pollution Control District, *2006 PM<sub>10</sub> Plan*, (2006).

<sup>69</sup> San Joaquin Valley Air Pollution Control District, *2007 PM<sub>10</sub> Maintenance Plan and Request for Redesignation*, (2007).

The plan notes that NO<sub>x</sub> and PM<sub>10</sub> will be reduced substantially in the SJVAB due to emission reductions contained in the *2007 Ozone Plan* and the *2008 PM<sub>2.5</sub> Plan* (discussed below). NO<sub>x</sub> participates in the formation of particulate matter; therefore, the emission reduction measures in the *2007 Ozone Plan* will also reduce PM<sub>10</sub> concentrations from current levels. The maintenance demonstration in the plan indicates that concentrations of PM<sub>10</sub> will be reduced across the SJVAB through the projected year of 2020.

### ***2008 San Joaquin Valley PM<sub>2.5</sub> Plan***

In July 1997, the U.S. EPA revised the primary federal (health-based) particulate matter standards by adding a new annual PM<sub>2.5</sub> standard. PM<sub>2.5</sub> includes particles up to an aerodynamic diameter of 2.5 microns, which makes it a subset of PM<sub>10</sub>. Health studies demonstrate that PM<sub>2.5</sub> is considered to have a greater adverse effect on human health than larger particulate matter because it has the potential to be deeply inhaled into the lungs. In 1997, the annual PM<sub>2.5</sub> standard was set at 15 micrograms per cubic meter (µg/m<sup>3</sup>) and a new 24-hour PM<sub>2.5</sub> standard set at 65 µg/m<sup>3</sup>; and the U.S. EPA designated the SJVAB as nonattainment for that standard. In 2006, the U.S. EPA lowered the 24-hour standard to 35 µg/m<sup>3</sup> while retaining the original annual standard. Additional rule making by the U.S. EPA is required before states are required to submit plans for the revised standard.

In order to attain the federal PM<sub>2.5</sub> ambient air quality standards, the SJVAPCD Board adopted the *2008 PM<sub>2.5</sub> Plan*<sup>70</sup> on April 30, 2008. The plan builds on the *2007 Ozone Plan* to bring the SJVAB into attainment with the 1997 PM<sub>2.5</sub> standards. Control of O<sub>3</sub> precursors as a method to control PM<sub>2.5</sub> is important because PM<sub>2.5</sub> can be directly emitted or generated via atmospheric reaction with NO<sub>x</sub> or SO<sub>2</sub>. The *2008 PM<sub>2.5</sub> Plan* demonstrates attainment of the 1997 PM<sub>2.5</sub> standards by 2014, primarily by controlling NO<sub>x</sub> emissions, which tend to dominate the generation of PM<sub>2.5</sub> in the SJVAB. Additional controls of directly emitted PM<sub>2.5</sub> and SO<sub>2</sub> will help to expedite compliance with the standard.

### ***SJVAPCD Rules and Regulations***

The SJVAPCD's primary means of implementing its attainment plans is through its adopted rules and regulations. The proposed project would be subject to the following rules adopted by the SJVAPCD<sup>71</sup> that are designed to reduce and control pollutant emissions throughout the SJVAB.

- **Rule 2010 (Permits Required).** This rule requires that any project constructing, altering, replacing, or operating any source operation, the use of which emits, may emit, or may reduce emissions to obtain an Authority to Construct (ATC) and a Permit to Operate (PTO). This rule applies to the construction

<sup>70</sup> San Joaquin Valley Air Pollution Control District, *2008 PM<sub>2.5</sub> Plan*, (2008).

<sup>71</sup> San Joaquin Valley Air Pollution Control District, "Current District Rules and Regulations," <http://www.valleyair.org/rules/1ruleslist.htm>.

and operation of new or modified processes and equipment, except those specifically exempted from permitting requirements.

- **Rule 2201 (New and Modified Stationary Source Review).** This rule applies to all new and modified stationary sources that would emit, after construction, a criteria pollutant for which there is an established NAAQS or CAAQS. The rule provides mechanisms by which an Authority to Construct (ATC) can be granted without interfering with the basin's attainment with ambient air quality standards. These mechanisms offer methods to generate no net increases in emissions of nonattainment pollutants over specific thresholds as detailed in the rule.
- **Rule 2520 (Federally Mandated Operating Permits).** This rule requires that major sources of criteria pollutants or hazardous air pollutants (HAPs) obtain a Title V federal operating permit within one year after becoming a major source. This rule would apply to the project if the total facility emissions of criteria pollutants from permitted stationary sources exceed the major source thresholds in Rule 2201 or the major source thresholds for HAPs as defined in the CAA.
- **Rule 4102 (Nuisance).** This rule applies to any source operation that emits or may emit air contaminants or other materials. In the event that the project or construction of the project creates a public nuisance, it could be in violation and be subject to district enforcement action.
- **Rule 4306 (Boilers, Steam Generators and Process Heaters – Phase 3).** This rule limits the NO<sub>x</sub> and CO emissions from boilers, steam generators, and process heaters with heat input ratings greater than 5 million British thermal units per hour (MMBtu/hr). The source must also comply with the monitoring and reporting requirements specified in the rule.
- **Rule 4601 (Architectural Coatings).** This rule limits ROG emissions from architectural coatings by specifying architectural coatings storage, cleanup, and labeling requirements and applies to any person who supplies, sells, offers for sale, applies, or solicits the application of any architectural coating.
- **Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving, and Maintenance Operations).** Asphalt paving operations are subject to Rule 4641. This rule applies to the manufacture and use of rapid and medium cure cutback asphalt, slow cure asphalt, and emulsified asphalt for paving and maintenance operations. The user or manufacturer of cutback, slow cure, and emulsified asphalt must comply with the record-keeping requirements specified in Rule 4641.
- **Rule 4702 (Internal Combustion Engines – Phase 2).** This rule limits the emissions of NO<sub>x</sub>, CO, and ROGs emitted from internal combustion engines. The rule is applicable to any internal combustion engine with a rated brake horsepower greater than 50. Emission standards for the three pollutants are specified for each category of engine along with compliance dates for each standard. The source must also comply with the monitoring methods and other requirements specified in the rule.

- **Regulation VIII (Fugitive PM<sub>10</sub> Prohibitions).** Regulation VIII (Rules 8011–8081) is a series of rules designed to reduce PM<sub>10</sub> emissions (predominantly dust and dirt) generated by human activity, including construction, road construction, bulk materials storage, landfill operations, etc. A dust control plan must be prepared for all non-residential sites of 5 acres or more. The following rules would be applicable to the proposed project:
  - Rule 8021 (Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities) The purpose of this rule is to limit fugitive dust emissions from construction, demolition, excavation, extraction, and other earthmoving activities by utilizing dust control measures specified in this rule. Under this rule, no person shall perform any construction, demolition, excavation, extraction, or other earthmoving activities unless the appropriate requirements described under this rule are sufficiently implemented to limit visible dust emissions (VDE) to 20 percent opacity and comply with the conditions for a stabilized surface area when applicable.
  - Rule 8031 (Bulk Materials) The purpose of this rule is to limit fugitive dust emissions from the outdoor handling, storage, and transport of bulk materials by utilizing dust control measures specified in this rule. Under this rule, no person shall perform any outdoor handling, storage, and transport of bulk materials unless the appropriate requirements described under this rule are sufficiently implemented to limit VDE to 20 percent opacity or to comply with the conditions for a stabilized surface as defined in Rule 8011.<sup>72</sup>
  - Rule 8041 (Carryout and Trackout) The purpose of this rule is to prevent or limit fugitive dust emissions from carryout and trackout activities by utilizing dust control measures specified in this rule. Under this rule, an owner/operator shall sufficiently prevent or cleanup carryout and trackout as specified under this rule. The use of blower devices, or dry rotary brushes or brooms, for removal of carryout and trackout on public roads is expressly prohibited. The removal of carryout and trackout from paved public roads does not exempt an owner/operator from obtaining state or local agency permits that may be required for the cleanup of mud and dirt on paved public roads.
  - Rule 8051 (Open Areas) The purpose of this rule is to limit fugitive dust emissions from open areas by utilizing dust control measures specified in this rule. Under this rule, whenever open areas are disturbed or vehicles are used in open areas, an owner/operator shall implement one or a combination of control measures indicated under this rule to comply with the conditions of a stabilized surface at all times and to limit VDE to 20 percent opacity.
  - Rule 8061 (Paved and Unpaved Roads) The purpose of this rule is to limit fugitive dust emissions from paved and unpaved roads by implementing control measures and design criteria described in greater detail under this rule's document.
  - Rule 8071 (Unpaved Vehicle/Equipment Traffic Areas) The purpose of this rule is to limit fugitive dust emissions from unpaved vehicle and equipment traffic areas by implementing control measures and design criteria described in greater detail under this rule's document.
- **Rule 9410 (Employer Based Trip Reduction).** The purpose of this rule is to reduce vehicle miles traveled (VMT) from private vehicles used by employees to commute to and from their worksites to

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<sup>72</sup> Rule 8011 describes the general requirements of Regulation VIII (Fugitive PM<sub>10</sub> Prohibitions).

reduce emissions of NO<sub>x</sub>, ROG, and particulate matter (PM). Rule 9410 applies to each employer in the San Joaquin Valley Air Basin with at least 100 Eligible Employees at a worksite for at least 16 consecutive weeks during the employer's previous fiscal year, that is located either within an incorporated city with a population of at least 10,000, or within an incorporated city with a population of less than 10,000 where more than 50 percent of their employees work at least 2,040 hours per year, or within the unincorporated area of a county, and more than 50 percent of their employees work at least 2,040 hours per year, as determined by the Demographic Research Unit of the Department of Finance. Employers shall implement an Employer Trip Reduction Implementation Plan for each worksite with 100 or more eligible employees by January 1, 2014, implementing measures which would meet point targets of 44 points for Tier 1 worksites (100 to 249 employees) and 66 points for Tier 2 worksites (250 or more employees). The list of measures that employers may choose is contained within the text of the Rule.

- **Rule 9510 (Indirect Source Review).** The purpose of this rule is to fulfill the district's emission reduction commitments in the PM<sub>10</sub> and ozone attainment plans. Rule 9510 applies to any application that seeks final discretionary approval for a development project, or any portion thereof, which upon full buildout will include 2,000 square feet of commercial space.

An "indirect source" is defined as "any facility, building, structure, or installation, or combination thereof, which attracts or generates mobile source activity that results in emissions of any pollutant, or precursor thereof, for which there is an ambient state standard." Indirect source emissions contain many pollutants, principally PM<sub>10</sub>, ROG, and NO<sub>x</sub>. The SJVAPCD included a requirement in the adopted 2003 PM<sub>10</sub> Plan and the Extreme Ozone Attainment Demonstration Plan to develop and implement an indirect source rule (ISR) by July 2004, with implementation to begin in 2005. The SJVAPCD adopted Rule 9510 (Indirect Source Review) on December 15, 2005, and it became effective March 2006.

#### **Compliance with Rule 9510 (Indirect Source Review)**

Several sources are exempt from Rule 9510, including transportation projects, transit projects, reconstruction projects that result from a natural disaster, and development projects that have *primary* sources of emissions that are subject to SJVAPCD Rule 2201 (New and Modified Stationary Source Review) and Rule 2010 (Permits Required). Any development project that has a mitigated baseline below two tons per year (tpy) for NO<sub>x</sub> and two tpy for PM<sub>10</sub> is also exempt from the mitigation requirements of the rule. The primary source of pollutant emissions from the proposed project are mobile source emissions, which are not regulated by the SJVAPCD, per state and federal law. In accordance with the Clean Air Act, only CARB and the U.S. EPA have regulatory authority over mobile source emissions. Therefore, the proposed project is not exempt from Rule 9510.

Developers with projects that are subject to Rule 9510 are required to reduce emissions occurring during construction and operational phases of their projects. During construction, exhaust emissions from construction equipment of NO<sub>x</sub> and PM<sub>10</sub> are to be reduced by 20 percent and 45 percent, respectively, compared to the statewide average. Operational emissions of NO<sub>x</sub> and PM<sub>10</sub> are to be reduced by 33.3

percent and 50 percent, respectively, of the project's baseline emissions for a period of 10 years. Baseline emissions are defined in the rule as the unmitigated NO<sub>x</sub> or PM<sub>10</sub> emissions as calculated by the air pollution control officer-approved model.

Developers are encouraged to reduce as much air pollution as possible through on-site mitigation, such as incorporating design features into the project that achieve the aforementioned emissions reductions. Some examples of on-site mitigation measures include bicycle facilities and sidewalks; traditional street design; locating development near bus stops and bicycle paths; providing convenient and safe access from on-site commercial land uses to public bus stops; locating commercial development near different land use zones, such as residential; implementing a parking fee structure; and increasing energy efficiency. If on-site mitigation does not completely meet the required reductions under the Rule 9510, the rule provides a mechanism by which a developer can pay an off-site mitigation fee to the district. A full 100 percent of all off-site mitigation fees received by the district go towards its Emission Reduction Incentive Program. Activities financed by this program include retirement and crushing of gross polluting cars, replacement of older diesel engines and diesel-powered vehicles, and implementing programs that would encourage the replacement of gas-powered lawn mowers with electric lawn mowers.

### ***Local Government***

Within the State of California, local governments have the authority and responsibility to reduce air pollution through their police power and land use decision-making authority. The City of Porterville regulates land uses through its general plan and entitlement process, and coordinates with the SJVAPCD in the review and permitting of land use projects.

In general, a first step toward implementation of a local government's responsibility is accomplished by identifying goals, policies, and implementation measures that would accomplish this task in its general plan. The Porterville 2030 General Plan (adopted on March 4, 2008) includes a number of policies that reduce emissions criteria pollutants, TACs, and greenhouse gases. These policies, as identified in the general plan<sup>73</sup> are listed below:

Policy C-I-7	Require street tree planting as part of an urban forestry program.
Policy OSC-I-33	Protect, revitalize and expand Porterville's urban forest through public education, sensitive regulation, and a long-term financial commitment that is adequate to protect this resource.

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<sup>73</sup> City of Porterville, *2030 General Plan*, "Open Space and Conservation Element," 145–146.

Policy OSC-I-34	Continue to require street tree planting in new development and support the City's tree planting fund.
Policy OSC-I-58	<p>Continue to assess air quality impacts through environmental review and require developers to implement best management practices to reduce air pollutant emissions associated with the construction and operation of development projects.</p> <p>The City will use the San Joaquin Valley Air Pollution Control District (SJVAPCD) Guidelines for Assessing and Mitigating Air Quality Impacts for determining and mitigating project air quality impacts and related thresholds of significance for use in environmental documents. The City shall cooperate with the SJVAPCD in the review of development proposals.</p> <p>BMPs could include transportation demand management strategies for large development projects such as:</p> <ul style="list-style-type: none"><li>• Providing bicycle access and parking facilities;</li><li>• Providing preferential parking for high-occupancy vehicles, carpools, or alternative fuels vehicles;</li><li>• Establishing telecommuting programs or satellite work centers;</li><li>• Allowing alternative work schedules;</li><li>• Subsidizing public transit costs for employees; and</li><li>• Scheduling deliveries at off-peak traffic periods.</li></ul>
Policy OSC-I-60	Require dust control measures as a condition of approval for subdivision maps, site plans, and all grading permits.
Policy OSC-I-61	Coordinate air quality planning efforts with other local, regional, and state agencies.
Policy OSC-I-62	Be proactive in educating the public about the linkages between land use, transportation and air quality.
Policy OSC-I-63	Notify local and regional jurisdictions of proposed projects that may affect regional air quality.

Policy OSC-I-64 Investigate replacing City vehicles with low-emission technology.

Policy OSC-I-65 When asbestos has been identified in the preliminary soils report, require all new development and public works projects to comply with all provisions of state and regional ATCM regulations for control of airborne asbestos emissions relating to construction, road maintenance, and grading activities.

The City will establish Best Management Practices for construction, grading, and road maintenance in areas with naturally occurring asbestos, consistent with State and regional regulations for Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations. BMPs may include but are not limited to:

- wetting soil during excavation and other dust suppression measures;
- wetting roads, excavated materials and rinsing equipment;
- limiting vehicle speeds within construction areas;
- creating wind breaks and berms;
- suspending activities when wind creates visible dust;
- prohibiting rock-crushing of asbestos-containing materials;
- monitoring dust levels;
- posting warning signs;
- replanting; and
- paving or other permanent sealants or covers.

## 5.1.4 THRESHOLDS OF SIGNIFICANCE

### General Thresholds

Appendix G (Environmental Checklist Form), of the *State CEQA Guidelines*<sup>74</sup> contains analysis guidelines for the assessment of air quality impacts. These guidelines have been used as thresholds of significance for this analysis. As stated in Appendix G, a project may create a significant environmental impact if it results in one or more of the following:

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

The City's general plan designates the project site as Retail Center, which is established for regional shopping centers located at major roadway intersections. As noted on the City's zoning map, the site was zoned PD(C)-2 Central Commercial Zone with a Planned Development overlay.<sup>75</sup> On May 4, 2010 the City of Porterville adopted a new Development Ordinance and Map, which became effective on June 4, 2010 (Ordinance No. 1764). Since the Riverwalk Marketplace Phase II project has been in the planning stages long before adoption of the new code, the Porterville City Council has authorized this project to continue to be reviewed under the provisions of the prior zoning code. Current zoning under the new code is Planned Development. The proposed development would not require a general plan amendment or a zone change. The SJVAPCD has prepared attainment plans for the SJVAB in order to demonstrate achievement of the state and federal ambient air quality standards for ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>. The attainment plans are based on, among other things, future growth in the SJVAB based on adopted general plans. Since the proposed project is consistent with the City's general plan, it would not conflict with or obstruct implementation of the SJVAPCD's attainment plans.

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<sup>74</sup> California Public Resources Code, Title 14, Division 6, Chapter 3, *California Environmental Quality Act Guidelines*, Section 15123.

<sup>75</sup> City of Porterville, Municipal Code, Appendix A.

The City's general plan EIR did not identify areas of potential CO hotspots. Furthermore, as shown previously in **Table 5.1-3**, CO concentrations in the City of Bakersfield/Golden State Highway monitoring station (closest location to monitor CO) have been well below state and federal ambient air quality standards for at least the past five years. Therefore, no CO hotspot analysis was conducted for this project, as it is unlikely that the project by itself or cumulatively would result in CO emissions that exceed the standards.

### **San Joaquin Valley Air Pollution Control District Thresholds**

The GAMAQI includes significance thresholds for air quality impacts. If project NO<sub>x</sub>, ROG, and/or PM<sub>10</sub> emissions would exceed the pollutants' respective emissions threshold, as listed in **Table 5.1-4, SJVAPCD Air Quality Significance Thresholds**, a significant air quality impact would occur. The threshold for ozone precursors (NO<sub>x</sub> and ROG) is 10 tons per year (tpy). The threshold for PM<sub>10</sub> is 15 tpy.<sup>76</sup> The thresholds are applied to both construction and operational air quality impacts.

For cumulative ozone impacts, the GAMAQI recommends that lead agencies use the thresholds for ROG and NO<sub>x</sub> in **Table 5.1-4**. For cumulative PM<sub>10</sub> impacts, GAMAQI recommends that lead agencies examine the potential exposure of nearby sensitive receptors to fugitive PM<sub>10</sub> emissions from project construction activities and those of any nearby projects that may be under construction at the same time as the proposed project. If warranted, enhanced dust control measures listed in the GAMAQI should be used to reduce the cumulative PM<sub>10</sub> impact to less than significant.

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<sup>76</sup> San Joaquin Valley Unified Air Pollution Control District, *Guide for Assessing and Mitigating Air Quality Impacts*, (2002).

**Table 5.1-4  
SJVAPCD Air Quality Significance Thresholds**

<b>Mass Emissions Thresholds</b>	
<b>Pollutant</b>	<b>Construction/Operation</b>
NO <sub>x</sub>	10 tpy
ROG	10 tpy
PM <sub>10</sub>	15 tpy
PM <sub>2.5</sub>	—
SO <sub>x</sub>	—
CO	—
Lead	—
<b>Toxic Air Contaminants and Odor Thresholds</b>	
TACs	Probability of contracting cancer for the Maximally Exposed Individual (MEI) <sup>1</sup> exceeds 10 in 1 million; or Ground-level concentrations of non-carcinogenic toxic air contaminants would result in a Hazard Index greater than 1 for the MEI.
Odor	Any project with the potential to frequently expose members of the public to objectionable odors will be deemed to have a significant impact.
<b>Ambient Air Quality for Attainment Criteria Pollutants of Concern</b>	
NO <sub>2</sub>	In attainment; significant if project causes or contributes to an exceedance of either of the following standards:
1-hour average	0.18 parts per million (state)
annual average	0.030 parts per million (state)
CO	In attainment; significant if project causes or contributes to an exceedance of either of the following standards:
1-hour average	20 parts per million (state)
8-hour average	9.0 parts per million (state)

Source: San Joaquin Valley Air Pollution Control District. Guide for Assessing and Mitigating Air Quality Impacts, (2002).

Note: The SJVAPCD's approach to assessing construction air quality impacts is to require implementation of effective and comprehensive control measures rather than to require detailed quantification of emission concentrations for modeling of direct impacts. The SJVAPCD has determined that compliance with Regulation VIII for all sites and implementation of all other control measures indicated in Tables 6-2 and 6-3 of the GAMAQI (as appropriate, depending on the size and location of the project site) would constitute sufficient mitigation to reduce PM<sub>10</sub> impacts to less than significant.

<sup>1</sup> A hypothetical individual who – because of proximity, activities, or living habits – could potentially receive the maximum possible dose of radiation or of a hazardous chemical from a given event or process.

### 5.1.5 AIR QUALITY PROJECT IMPACTS

CEQA requires lead agencies to assess air quality impacts and to condition projects to mitigate significant impacts (if any) through discretionary permits. The lead agency is also required to ensure that the

mitigation measures are implemented through monitoring and reporting. To facilitate compliance with CEQA requirements within its jurisdiction, the SJVAPCD published the GAMAQI,<sup>77</sup> which is an advisory document that provides local jurisdictions with procedures for addressing air quality impacts in environmental documents. The guide includes methods for assessing air quality impacts, thresholds of significance, and recommended mitigation measures.

The following describes the methodology used in this impact analysis and the assumptions made wherever a lack of information exists to quantify project air emissions.

## Methodologies

URBEMIS2007, Version 9.2.4, a computer model designed to estimate regional air emissions from new development projects in California, was used to estimate the construction and operational emissions from the proposed project. Construction subphases include grading (fine grading and trenching for utilities, and excavation as necessary for dock wells, etc.), paving and asphalt installation, building construction, and architectural coating. Construction scheduling was provided by the applicant's representative. Fugitive dust control measures during all grading operations would comply with SJVAPCD Regulation VIII. Vehicle trip rates used to calculate project operational emissions are from the project traffic study. Otherwise, URBEMIS2007 defaults for the SJVAB/Tulare County for construction equipment and emissions were used.

## Construction Impacts

**Impact 5.1-1:**                    **The proposed project would result in short-term construction emissions but would not exceed the threshold of significance for ROG, NO<sub>x</sub>, and PM<sub>10</sub>. Less than significant impact.**

Project development would require fine grading, trenching for utilities and excavation for dock wells; pavement and asphalt installation; building and hardscape construction; and architectural coating. The URBEMIS2007 environmental management software was used to quantify construction emissions generated during each phase of project construction listed above. URBEMIS2007 is a land-use- and transportation-based computer model designed to estimate regional air emissions from new development projects. The model accounts for certain meteorological conditions that characterize specific air basins in California.

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<sup>77</sup> San Joaquin Valley Air Pollution Control District, *Guide for Assessing and Mitigating Air Quality Impacts*, (2002).

A number of variables are input into the model, including the construction schedule, the type of construction equipment required to build the project, and emission factors for each piece of equipment. The approximate construction schedule is provided in **Section 3.0, Project Description**. The number and types of construction equipment that would operate on any given day during each construction phase were based on SJVAPCD-accepted default values contained in the URBEMIS2007 program. The emission factors for each type of construction equipment and activity were obtained from CARB's EMFAC2007 model and OFFROAD2007<sup>78</sup> model, both of which are incorporated as part of the URBEMIS2007 model. The EMFAC2007 model generated emissions factors for on-road mobile sources (e.g., passenger vehicles) and the OFFROAD2007 model generates emission factors for off-road source (e.g., construction equipment). Other emission factors, such as for fugitive dust emissions, are based on SJVAPCD-approved factors, also incorporated into the URBEMIS2007 model. All of the construction equipment and activities are assumed to operate during the workday between 6 and 8 hours. These equipment operating estimates are conservative (i.e., an overestimate) and are based on surveys conducted by several air districts during the development of the URBEMIS2007 model on the number of hours construction equipment operate on typical construction sites in a given day. In reality, construction equipment often operates cyclically for only a fraction of each workday.

The emission calculations also assume the use of standard construction practices such as compliance with watering requirements to minimize fugitive dust emissions. In the URBEMIS2007 model, the emission calculations take into account compliance with watering by incorporating the watering of exposed surfaces and unpaved roads twice daily, which is estimated to reduce fugitive dust emissions (both PM<sub>10</sub> and PM<sub>2.5</sub>) by a maximum of 55 percent, per guidance from the SJVAPCD. Other best available control measures to minimize fugitive dust emissions may also be required; however, they are not accounted for in the URBEMIS2007 model.

Construction emissions would occur either on site or off site. On-site emissions would principally be NO<sub>x</sub>, SO<sub>x</sub>, CO, ROG, PM<sub>10</sub>, and PM<sub>2.5</sub> from heavy-duty construction equipment exhaust; PM<sub>10</sub> and PM<sub>2.5</sub> fugitive dust from fine grading, trenching, and excavation; and ROG from asphalt paving and architectural coating. Off-site emissions during construction normally consist of exhaust emissions and entrained paved road dust (PM<sub>10</sub> and PM<sub>2.5</sub>) from construction equipment delivery, construction waste hauling to separation for recycling and/or disposal facilities, material delivery, and construction worker commute trips. The results of the URBEMIS2007 modeling for project construction are shown in **Table 5.1-5, Estimated Construction Emissions**.

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<sup>78</sup> California Air Resources Board, <http://www.arb.ca.gov/msei/msei.htm>.

**Table 5.1-5  
Estimated Construction Emissions**

Emissions	Emissions in Tons per Year					
	ROG	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Year 2010	0.43	2.30	2.47	0.00	0.52	0.22
Year 2011	2.20	0.36	0.56	0.00	0.03	0.02
SJVAPCD Threshold	10	10	—	—	15	—
Exceeds Threshold?	NO	NO	—	—	NO	—

Source: Impact Sciences, Inc., (2010). Emissions calculations are provided in *Appendix 5.1*.

As shown in **Table 5.1-5**, the construction emissions would be less than the SJVAPCD's thresholds of significance for ROG, NO<sub>x</sub>, and PM<sub>10</sub>. The air basin is an attainment area for CO, SO<sub>x</sub>, and PM<sub>2.5</sub>, therefore the SJVAPCD has not established significance thresholds for CO, SO<sub>x</sub>, and PM<sub>2.5</sub>. The SJVAPCD recognizes that construction equipment emits these pollutants; however, the SJVAPCD has determined that these emissions may cause a significant air quality impact only in the cases of very large or very intense construction projects. The SJVAPCD will advise lead agencies on quantification procedures and significance on a case by case basis. Therefore, project construction emissions would be less than significant.

Regulation VIII measures are SJVAPCD mandated requirements for any type of ground moving activity and would be adhered to during the construction of the project. These requirements are listed below. Implementation of Regulation VIII measures would reduce any construction related PM<sub>10</sub> emission impacts to less than significant.

- The proposed project shall include in all construction contracts the measures specified in SJVAPCD Regulation VIII (as it may be amended for application to all construction projects generally) to reduce fugitive dust impacts. These measures include, but are not limited to the following:
  - All disturbed areas, including storage piles, which are not being actively utilized for construction purpose, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, or vegetative ground cover.
  - All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or a chemical stabilizer/suppressant.
  - All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing the application of water or by presoaking.

- When materials are transported off site, all materials shall be covered, effectively wetted to limit visible dust emissions, or at least 6 inches of freeboard space from the top of the container shall be maintained.
  - All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at least once every 24 hours when operations are occurring. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden.)
  - Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, storage piles shall be effectively stabilized of fugitive dust emissions by utilizing sufficient water or chemical stabilizer/suppressant
2. Equipment used during grading activities shall include one of the following:
    - Diesel oxidation catalysts or other amendment to achieve a 15 percent reduction in NOx emissions
    - An engine tier of three or higher
    - An engine of year 2006 or newer
  3. During all phases of project construction, construction equipment shall be properly maintained in accordance with the manufacturer's specifications; maintenance shall include proper tuning and timing of engines. Equipment maintenance records and equipment design specification data sheets shall be kept on site during construction and subject to inspection by the SJVAPCD.
  4. During all phases of project construction, the developer shall require all contractors to turn off all construction equipment and delivery vehicles when not in use.
  5. During all phases of project construction, on-site electrical hookups shall be provided for electric construction tools, including saws, drills, and compressors, to eliminate the need for diesel-powered electric generators.

### **Mitigation Measures**

No mitigations required.

### **Residual Impacts**

Impacts will be less than significant.

## *Operational Impacts*

**Impact 5.1-2:**            **The proposed project at full buildout would not result in operational emissions that exceed the threshold of significance for ROG, NO<sub>x</sub>, and PM<sub>10</sub> and would result in a less than significant air quality impact. *Less than significant impact.***

Operational air emissions would be from stationary and mobile sources. Stationary sources include “point sources,” which have one or more fixed emission sources at a single facility, and “area sources,” which include many small point sources from many different land uses. Point sources are usually associated with manufacturing and industrial uses, examples of which include refinery boilers or combustion equipment that produces electricity or processes heat. No large stationary sources are anticipated in any phase of the proposed development. Individually, an area source may have a less than significant impact on air quality; however, area sources could collectively have a significant impact. Examples of area sources for the project would include water heaters, painting operations, and landscape maintenance equipment. “Mobile sources” refer to operational and evaporative emissions from motor vehicles.

Project implementation would involve the operation of approximately 202,854 square feet of commercial space. Operational emissions would be generated by both stationary and mobile sources as a result of normal day-to-day activity on the project site. Daily operational emissions were calculated using the data and methodologies identified in the GAMAQI and the URBEMIS2007 program.

### **Stationary Source Emissions**

Stationary emissions would be generated by the consumption of natural gas for space and water heating devices, the operation of fossil-fueled landscape maintenance equipment, and from the use of consumer products and architectural coatings (for touch-up or repainting). At a minimum, the project would comply with the energy efficiency requirements required by the Title 24 (2008) Building Standards Code. As the URBEMIS2007 model was released prior to the adoption of the Title 24 (2008) standards, reductions in natural gas consumption were taken into account. According to data from the California Energy Commission (CEC), new nonresidential buildings consume approximately 9.40 percent less natural gas than buildings certified to the previous standard.<sup>79</sup> Therefore, a 9.40 percent reduction to natural gas emissions was applied in URBEMIS2007.

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<sup>79</sup> California Energy Commission, *Impact Analysis: 2008 Update to the California Energy Efficiency Standards*, (2007) 6.

## Mobile Source Emissions

Mobile emissions would be generated by motor vehicles traveling to and from the project site. Trip generation rates used in URBEMIS2007 were obtained from data contained in the traffic study for the proposed project.<sup>80</sup> The trip rates applied in the URBEMIS2007 model were 30.93 average daily trips (ADTs) per 1,000 square feet of freestanding discount store space (Walmart) and 61.10 ADTs per 1,000 square feet of regional shopping center (outlots). The ADT rates took into account a 13 percent reduction due to the internal capture rate, as indicated in the traffic study.<sup>81</sup> The ADT rates also took into account a 15 percent reduction due to pass-by trips, as indicated in the traffic study.<sup>82</sup> Additional trip reductions for the Walmart portion of the project were taken into account based on the sustainability features. These features include measures to encourage bicycle use (e.g., bicycle parking racks, bicycle lockers) and measures to encourage pedestrian activity (e.g., pedestrian path of access to all store fronts on the project site, landscaped or shaded parking lots to provide pedestrian connectivity). The project also provides retail land uses within close proximity to residential areas and is considered an infill development. Therefore, trip reductions associated with mixed uses and infill developments were taken for both Walmart and the outlots. Information regarding the project's sustainability features and associated trip reduction amounts are provided in **Appendix 5.1**.

The project site is served by the Porterville Transit System. Route 6 originates from the Downtown Transit Center and provides a stop at the Lowes shopping center, adjacent to the project site. According to the schedule posted on the Porterville Transit System's website, 18 daily stops are provided. The traffic study for the project did not account for any trip reductions associated with the use of transit services. Therefore, the emission reductions associated with the use of transit services were included in the URBEMIS2007 estimates by utilizing the model's built in transit service option. According to the URBEMIS2007 model, trip reductions from daily weekday buses stopping within 0.25 mile of a project site may be counted as a transit enhancing infrastructure measure. Since the stop noted above is within 0.25 mile of the project site, it was included as a transit enhancing infrastructure measure. The level of emissions reductions are based on the number of daily buses stopping within 0.25 mile of a project site. Therefore, a value of 18 was entered into the URBEMIS2007 model, which corresponds to the number of weekday daily buses stopping at this location. The reductions from weekday daily buses are small on a percentage basis, which would be consistent with the low number of weekday daily buses stopping within 0.25 mile of the project site. **Table 5.1-6, URBEMIS2007 Emissions Reductions from Weekday Daily Buses** below represents the reductions of the proposed project from the Porterville Transit System.

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<sup>80</sup> Ruetters & Schuler Civil Engineers, *Traffic Study Riverwalk Marketplace Phase 2*, (2010).

<sup>81</sup> Ruetters & Schuler Civil Engineers, *Traffic Study Riverwalk Marketplace Phase 2*, (2010), 11.

<sup>82</sup> Ruetters & Schuler Civil Engineers, *Traffic Study Riverwalk Marketplace Phase 2*, (2010), 11.

**Table 5.1-6**  
**URBEMIS2007 Emissions Reductions from Weekday Daily Buses**

Emissions Source	Emissions in Tons per Year					
	ROG	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Mobile – without Weekday Daily Buses	10.20	12.69	116.82	0.09	14.73	2.85
Mobile – with Weekday Daily Buses	10.17	12.64	116.47	0.08	14.69	2.84
Reduction	0.03	0.05	0.35	0.01	0.04	0.01
Percent Reduction	0.29%	0.39%	0.30%	11.11%	0.27%	0.35%

Source: Impact Sciences, Inc., (2010).

Note: The information presented in this table was provided in Appendix 5.1 of the Draft EIR. Data excludes emissions associated with medium- and heavy-duty trucks serving the Walmart portion of the proposed project.

Abbreviations: ROG = reactive organic gases; NO<sub>x</sub> = nitrogen oxides; CO = carbon monoxide; SO<sub>x</sub> = sulfur oxides; PM<sub>10</sub> = coarse particulate matter; PM<sub>2.5</sub> = fine particulate matter.

As previously discussed, the URBEMIS2007 model incorporates the most recent version of the EMFAC model, which is EMFAC2007. The Tulare County Association of Governments (TCAG) is the local agency responsible for providing growth assumptions in the Regional Transportation Plan (RTP) that demonstrates conformity with the SIP. The 2007 Tulare County RTP utilized the EMFAC2002 model, which was the U.S. EPA-approved model at the time the RTP was developed. The EMFAC2007 model estimates slightly lower annual VMT for Tulare County than the EMFAC2002 model since it incorporates updated mileage accrual rates and speed distributions for all vehicle classes. CARB revises the model when new data becomes available and iterations of the model become refined; hence the more recent version supersedes the older model.

The primary way of determining consistency with the Air Quality management Plan (AQMP) assumptions is determining consistency with the applicable General Plan to ensure that the project's population density and land use are consistent with the growth assumptions used in the AQMP for the air basin. In general, projects that are considered to be consistent with the applicable attainment plans do not interfere with attainment and do not contribute to the exceedance of an existing air quality violation because the growth associated with the project is included in the projections utilized in the formulation of the plans. As required by California law, city and county general plans contain a land use element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and that designates locations for land uses to regulate growth. Growth estimates used in a general plan often come from the State of California's Department of Finance. The TCAG uses the growth projections and land use information in adopted general plans to estimate future average daily trips and then VMT, which are then provided to SJVAPCD to estimate future emissions in the AQMPs. Existing and future pollutant emissions computed in the AQMP were based on land uses and growth projections

from area general plans. These emissions form the emissions budget used by the TCAG to demonstrate air quality conformity for the RTP. AQMPs detail the control measures and emission reductions required for reaching attainment of the air standards.

The City's General Plan designates the project site Retail Center. The proposed project would be consistent with the allowed uses and development intensity of the Retail Center land use designation. Furthermore, the project is not anticipated to result in substantial direct or indirect population growth. Therefore, because the project is consistent with the land use designations in the General Plan and because the project-level VMT is assessed based on methodologies consistent with the RTP and recommendations by the SJVAPCD, the project's VMT assumptions are consistent with the assumptions contained in the applicable attainment plans.

### **Diesel-Fueled Truck and Equipment Emissions**

Emissions associated with medium- and heavy-duty trucks that would supply the Walmart portion of the project were calculated separately based on the number of medium- and heavy-duty trucks required. The estimated delivery schedule by truck type and size would be as follows:

- Four axle with transport refrigeration units, two units a day or 13 units a week;
- Four axle without transport refrigeration units, six units a day or 38 units a week; and
- Two axle/vendor deliveries, nine units per day or 44 units a week (no deliveries on Wednesday or Sunday).

The trucks with transport refrigeration units would travel from Nevada (the McCarran area) to the project site. The trucks would travel along Highway 15 and State Routes 58 and 65; therefore, approximately 80 miles of a one-way trip would occur in the SJVAB. The trucks without transport refrigeration units would travel from the Walmart Distribution Center located in Porterville, California, which is less than 3 miles from the project site. Separate URBEMIS2007 model files were set up to estimate medium- and heavy-duty truck emission based on the data above. The model files are provided in **Appendix 5.1**.

Since the project is subject to Rule 9510, which was promulgated in response to state requirements outlined in the California Health and Safety Code, Section 40604 and the SIP, it will be required to submit an Air Impact Assessment (AIA). An AIA includes an analysis of the proposed project's unmitigated and mitigated construction and operation emissions of NO<sub>x</sub> and PM<sub>10</sub>, as well as estimated operational baseline emissions. Rule 9510 contains SJVAPCD-approved general mitigation requirements to reduce construction and operational emissions. Construction mitigation requirements include reducing exhaust

emissions from construction equipment greater than 50 horsepower by the following amounts: 20 percent of the total NO<sub>x</sub> emissions, and 45 percent of the total PM<sub>10</sub> exhaust emissions. On-site construction emissions can also be reduced by using less-polluting construction equipment achieved by utilizing add-on controls, cleaner fuels, or newer lower emitting equipment. Operational mitigation requirements include reducing NO<sub>x</sub> emissions by 33.3 percent from the project's operational baseline NO<sub>x</sub> emissions and PM<sub>10</sub> emissions by 50 percent from the project's operational baseline PM<sub>10</sub> emissions over a period of 10 years. While projects must demonstrate compliance for a 10-year period, the selected SJVAPCD-approved project design features and mitigation measures are expected to be implemented for the life of the project, resulting in long term operational emissions reductions. The SJVAPCD has determined that a 10-year demonstration is sufficient to show compliance with the state and federal requirements contained in the applicable air quality plans.<sup>83</sup> The requirements for construction and operational emissions can also be met through any combination of on-site emission reduction measures or off-site fees. The AIA would quantify off-site fees if necessary to achieve the target reductions. The project will be required to work with the SJVAPCD when developing the AIA, once detailed project information is known. Rule 9510 requires the applicant to submit an application to the District when applying for the development's last discretionary approval and to pay any applicable off-site mitigation fees before issuance of the first building permit.

### **Employer Trip Reduction Implementation Plan**

The proposed project is also subject to comply with Rule 9410, which would require reduction in VMT from private vehicles used by employees to commute to and from the worksite. Under this rule, the project shall implement an Employer Trip Reduction Implementation Plan by January 1, 2014, that contains specific measures to reduce VMT. Compliance with the rule is based on implementing measures, which are rated on a point scale, that achieve a certain number of points based on the employer size. In accordance with Rule 9410, the project would fall in the Tier 2 worksite category since it is estimated to have approximately 300 employees. The point target for the project would be 66 points. The Rule allows for flexibility in that the employer can choose which measures to put in place to achieve the point target. Rule 9410 includes measures such as comprehensive vanpool, carpool, and bicycle programs, flex time schedules, bicycle, transit, and vanpool subsidies.<sup>84</sup> The proposed project would include project design features such as bike lockers and shaded bicycle racks along storefronts to encourage employee and patron bicycle use. Specific details regarding the project are not known at the time of this analysis;

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<sup>83</sup> Mark Montelongo, San Joaquin Valley Air Pollution Control District, Permits, personal communication with Alan Sako, Impact Sciences Inc., June 1, 2010.

<sup>84</sup> San Joaquin Valley Air Pollution Control District, "Current District Rules and Regulations, Rule 9410 – Employer Based Trip Reduction," <http://www.valleyair.org/rules/1ruleslist.htm>. 2010.

therefore, it is not yet known which measures the project would comply with to meet the 66 point target. As a result, emissions reductions cannot be fully quantified (a detailed discussion of the reductions taken into account is provided later in **subsection 5.1.10**). However, the proposed project would comply with the Rule as required and would reduce NO<sub>x</sub> and PM operational emissions. The project will be required to work with the SJVAPCD when developing the Employer Trip Reduction Implementation Plan and shall implement the plan by the deadline of January 1, 2014.

### Operational Emissions Summary

The anticipated operational emissions are based upon build out of all land uses associated with the project and are reflected in **Table 5.1-7, Estimated Operational Emissions**. Reductions in NO<sub>x</sub> and PM<sub>10</sub> due to compliance with SJVAPCD Rule 9510 are taken into account below. Reductions due to compliance with Rule 9410 are not included below.

**Table 5.1-7  
Estimated Operational Emissions**

Emissions Source	Emissions in Tons per Year					
	ROG	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Operational (Mobile) Sources	8.99	12.82	102.30	0.07	12.98	2.55
Area Sources <sup>1</sup>	0.26	0.32	0.55	0.00	0.00	0.00
Emissions Total	9.25	13.14	102.85	0.07	12.98	2.55
Rule 9510 Emission Reduction <sup>2</sup>	—	-4.34	—	—	-6.49	—
<b>Total Emissions</b>	9.25	8.80	102.85	0.07	6.49	2.55
<b>SJVAPCD Threshold</b>	10	10	—	—	15	—
<b>Exceeds Threshold?</b>	NO	NO	—	—	NO	—

Source: Impact Sciences, Inc., (2010). Emissions calculations are provided in **Appendix 5.1**.

<sup>1</sup> Title 24 (2008) reduction of 9.4 percent applied to area sources.

<sup>2</sup> Rule 9510 requires a reduction of NO<sub>x</sub> by 33.3 percent and a reduction of PM<sub>10</sub> by 50 percent.

**Table 5.1-7** demonstrates that operational emissions would not exceed the SJVAPCD's thresholds of significance for any of the criteria pollutants and would have a less than significant air quality impact.

### Mitigation Measures

No mitigations required.

## Residual Impacts

Impacts would be less than significant.

**Impact 5.1-3:               The proposed project would not expose sensitive receptors to substantial pollutant concentrations. *Less than significant impact.***

The project would not expose sensitive receptors to substantial pollutant concentrations. Emissions of ROG contributes to regional ozone; however, the effect of the project's ROG emissions on regional ozone concentrations cannot be determined for a single project, that is, no model exists to estimate such impacts. The project would not violate ambient air quality standards or contribute considerably to an existing or projected air quality violation if it is consistent with the region's attainment plans. As previously discussed, the City's general plan designates the project site as Retail Center, which is established for regional shopping centers located at major roadway intersections. The proposed development would not require a general plan amendment or a zone change. The SJVAPCD has prepared attainment plans for the SJVAB in order to demonstrate achievement of the state and federal ambient air quality standards for ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>. The attainment plans are based on, among other things, future growth in the SJVAB based on adopted general plans. Since the proposed project is consistent with the City's general plan, it would not conflict with or obstruct implementation of the SJVAPCD's attainment plans.

With respect to other pollutants of concern, the California Air Toxics Program establishes the process for the identification and control of toxic air contaminants and includes provisions to make the public aware of significant toxic exposures and for reducing risk. Diesel particulate matter (DPM) emissions from diesel-fueled engines have been determined by CARB to be toxic air contaminants as defined under Section 39655 of the Health and Safety Code. Since it is expected that the truck deliveries to the project site during construction and after buildout would be diesel fueled, DPM emissions are discussed below.

The SJVAPCD GAMAQI recommends that the following be used to determine the potential to expose off-site receptors to TACs and the significance of associated health impacts from project operations:<sup>85</sup>

- Criterion 1: a lifetime probability of contracting cancer greater than 10 in 1 million ( $10 \times 10^{-6}$ ); and
- Criterion 2: a health hazard index of 1 for evaluating the noncarcinogenic effects of toxic air contaminants.

These thresholds apply to the Maximally Exposed Individual (MEI), which is the receptor that is exposed to the highest concentration of TACs as determined by dispersion modeling. The thresholds are assessed

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<sup>85</sup> San Joaquin Valley Air Pollution Control District, *Guide to Assessing and Mitigating Air Quality Impacts*, (2002) 28.

using the methodologies described in the Office of Environmental Health Hazard Assessment (OEHHA) *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*<sup>86</sup> (OEHHA Guidance). The OEHHA Guidance recommends that a 70-year exposure duration be used for determining lifetime residential cancer risks.<sup>87</sup> This ensures that a person residing in the vicinity of a facility for a lifetime will be included in the evaluation of risk posed by that facility. While the Walmart would operate 24 hours per day, seven days per week (24/7), a single employee would not work a 24/7 schedule. OEHHA has established a full time schedule for evaluating health impacts of employees based on the time that a full-time employee can be expected to work in California. The standard default assumption for workplace receptors is 5 days per week, 49 weeks per year, for 40 years.<sup>88</sup>

As previously mentioned, truck deliveries to Walmart would be via Springville Avenue. Merchandise would be unloaded at the truck docks on the north side of the building. The estimated delivery schedule by truck type and size would be as follows:

- Four axle with transport refrigeration units, two units a day or 13 units a week;
- Four axle without transport refrigeration units, six units a day or 38 units a week; and
- Two axle/vendor deliveries, nine units per day or 44 units a week (no deliveries on Wednesday or Sunday).

One loading dock planned for the Walmart Store would be located along the northern portion of the Walmart building containing four loading bays. The loading dock well would be a depressed concrete driveway enclosed within the loading bay and would be located approximately 150 feet from the nearest single-family residence north of Springville Avenue. Direct line of sight to the loading bays from the nearby residences would be blocked by a 12-foot masonry wall atop a 3-foot earthen berm planned along the northern perimeter of the site. Therefore, sensitive receptors would not be directly exposed to emissions from truck exhaust as the trucks travel along Springville Avenue and at the loading dock. As a conservative measure, the mitigating effects of the wall were not taken into account when assessing potential health impacts.

The calculation of health impacts are based on the methodologies described in the Office of Environmental Health Hazard Assessment (OEHHA) *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*<sup>89</sup> (OEHHA Guidance). The health impacts are calculated by

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86 California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, (2003).

87 California EPA, *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, 8-3.

88 California EPA, *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, 8-5.

89 California EPA, *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*.

multiplying the dose by inhalation potency factor. The Unit Risk Value for DPM recommended by the Scientific Review Panel is  $3.0 \times 10^{-4}$  per microgram per cubic meter ( $\mu\text{g}/\text{m}^3$ ).<sup>90</sup> This value corresponds to a Cancer Potency Factor of 1.1 per milligram/kilogram (body weight) per day (mg/kg/day). The Unit Risk Value means that for receptors with an annual average concentration of  $1 \mu\text{g}/\text{m}^3$  in the ambient air, the probability of contracting cancer over a 70-year lifetime of exposure is 300 in 1 million. This Unit Risk Value considers exposure via inhalation only. The potential exposure through other pathways (e.g., ingestion) requires substance and site-specific data, and the specific parameters for diesel exhaust are not known for these pathways.<sup>91</sup> The Unit Risk Value also assumes that a person is exposed continuously for 70 years. This approach is intended to result in conservative (i.e., health protective) estimates of health impacts and is used for the sensitive receptors previously identified.

In order to assess the impacts to nearby sensitive receptors, diesel emissions occurring in the vicinity of the project must be quantified. Diesel trucks and TRUs would travel and idle on site as part of daily operations. The DPM factors for the vehicles were determined using the CARB vehicle emission inventory program, EMFAC2007. The four-axle delivery trucks coming to the project site were represented by the heavy-heavy-duty truck (HHDT) vehicle class in EMFAC2007. The two-axle vendor trucks coming to the project site were represented by the medium-heavy-duty truck (MHDT) vehicle class in EMFAC2007. EMFAC2007 can generate total emissions and total vehicle-miles traveled (VMT) for a motor vehicle class within a specified region for a particular study year. For this analysis, Tulare County was selected for the emission factor modeling region. TRU emissions were calculated based on CARB's TRU measure, which is outlined in the document, *TRU Low Emission Standard from Airborne Toxic Control Measure (ATCM) for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets, and Facilities Where TRUs Operate*.<sup>92</sup> This measure prescribes performance standards for NO<sub>x</sub> and PM<sub>10</sub> that TRUs must meet by specified deadlines.

The AERMOD model<sup>93</sup> was used to model the DPM concentrations of DPM emissions from the project's annual truck and TRU operations. AERMOD is a steady-state plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain. The AERMOD

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<sup>90</sup> California Environmental Protection Agency Office of Environmental Health Hazard Assessment, *Initial Statement of Reasons for Rulemaking, Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant*, June 1998.

<sup>91</sup> California Air Resources Board, *Report to the Air Resources Board on the Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant, Part A Exposure Assessment (as approved by the Scientific Review Panel)*, April 1998.

<sup>92</sup> California Air Resources Board, "TRU Low Emission Standard from Airborne Toxic Control Measure (ATCM) for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets, and Facilities Where TRUs Operate," <http://www.arb.ca.gov/regact/trude03/fro1.pdf>.

<sup>93</sup> Lakes Environmental ISC-AERMOD VIEW Software (Version 6.2.0).

model can estimate the air quality impacts of single or multiple sources using regional meteorological data. Meteorological data from the Porterville Municipal Airport monitoring station for 2005, 2006, 2007, and 2008, made available by the SJVAPCD, was used in AERMOD. A fence-line Cartesian grid was spaced at 25-meter intervals up to 250 meters from the project site, as measured from the property boundary (closest to the nearest residential land use) of the combined Riverwalk Marketplace Phase I and Phase II project sites. Additional receptors were spaced at 50-meter intervals from 250 meters out to 500 meters from the property boundary. Workplace receptors were placed throughout the Riverwalk Marketplace Phase I site at 25-meter intervals. The overall receptor grid was designed to cover nearby areas of existing and future off-site sensitive receptor exposure. Sources of emissions from diesel trucks and TRUs were modeled using the line source and volume source options in AERMOD. The line sources, which represent driving emissions, were positioned over the pathways and roads where trucks would drive (i.e., Highway 190, Jaye Street, and Springville Avenue). The volume sources, which represent idling emissions, were positioned over the two loading dock areas on the north-facing side of the store.

**Table 5.1-8, Summary of Maximum Modeled Cancer Risks of Diesel Exhaust Particulate Matter from the Proposed Project Operations**, shows the maximum modeled cancer risk for the maximally exposed individual resulting from the project-related DPM emissions.

**Table 5.1-8  
Summary of Maximum Modeled Cancer Risks of Diesel Particulate Matter  
from the Proposed Project Operations**

Receptor	Cancer Risk (in 10 million)
Residential <sup>1</sup>	9.76
Workplace <sup>2</sup>	0.68

Source: Impact Sciences, Inc., (2010). Detailed calculations are available in **Appendix 5.1**.

<sup>1</sup> Maximally exposed individual is located near the intersection of Springville Avenue and Chess Terrace Street.

<sup>2</sup> Maximally exposed individual is located at the fence line between the project site and the Riverwalk Marketplace I site.

According to the model results, the maximally exposed individual was located near the intersection of Springville Avenue and Chess Terrace Street to the north of the project site. The other nearby residential neighborhoods were determined to result in less health impacts. Workplace receptors were also determined to result in less health impacts. The values shown in **Table 5.1-8** are the highest modeled values using meteorological data from 2005 through 2008, as provided by the SJVAPCD, and indicate that the cancer risk as a result of the proposed project at the maximally exposed individual is less than 10 in 1 million. This is considered a less than significant impact.

In addition to the potential cancer risk, DPM has chronic (i.e., long term) non-cancer health impacts. The chronic non-cancer inhalation-hazard indices for the proposed project were calculated by dividing the modeled annual average concentrations of DPM, using the 2011 emission rates, by the Reference Exposure Level (REL). These DPM concentrations represent the worst-case year; therefore, the chronic noncancer hazard indices for 2011 represent the maximum impacts. The detailed calculations are provided in **Appendix 5.1**.

The California Environmental Protection Agency's Office of Environmental Health Hazard Assessment has recommended an ambient concentration of 5 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) as the chronic inhalation REL for diesel exhaust.<sup>94</sup> The REL is the concentration at or below which no adverse health effects are anticipated. The inhalation REL for acute (i.e., short-term) effects from DPM is currently under study and OEHHA has not determined a value to be used to estimate acute DPM health impacts. Therefore, acute health impacts have not been estimated.

The maximum chronic Hazard Index at the maximally exposed individual is shown in **Table 5.1-9, Summary of Maximum Non-Cancer Health Impacts of Diesel Exhaust Particulate Matter from the Proposed Project Operations**. The chronic Hazard Index at the maximally exposed individual is much less than the SJVAPCD's significance threshold of 1 for non-cancer health impacts.

**Table 5.1-9**  
**Summary of Maximum Non-Cancer Health Impacts**  
**of Diesel Particulate Matter from the Proposed Project Operations**

Receptor	Chronic Health Impact
Residential <sup>1</sup>	0.0232
Workplace <sup>2</sup>	0.0078

*Source: Impact Sciences, Inc., (2010). Detailed calculations are available in Appendix 5.1.*

<sup>1</sup> Maximally exposed individual is located near the intersection of Springville Avenue and Chess Terrace Street.

<sup>2</sup> Maximally exposed individual is located at the fence line between the project site and the Riverwalk Marketplace I site.

According to the model results, the maximally exposed individual was located near the intersection of Springville Avenue and Chess Terrace Street to the north of the project site. The other nearby residential neighborhoods were determined to result in less health impacts. Workplace receptors were also determined to result in less health impacts. The values shown in **Table 5.1-9** are the highest modeled values using meteorological data from 2005 through 2008, as provided by the SJVAPCD, indicate that the

<sup>94</sup> Office of Environmental Health Hazard Assessment, "Air Toxicology and Epidemiology," <http://oehha.ca.gov/air/allrels.html>. 2008.

Hazard Index as a result of the proposed project at the maximally exposed individual is much less than one. This is considered a less than significant impact. A detailed explanation of the health risk assessment as well as calculations is available in **Appendix 5.1**. Based on the analysis above, impacts would be less than significant.

It should be noted that loading dock area would provide electric standby power and would be equipped with on-site electricity hookups that would allow TRUs to turn off their diesel engines and operate using on-site electrical power during the unloading process. This would allow TRUs to fully eliminate diesel emissions during idling once parked in the loading dock area. However, not all TRUs are equipped to take advantage of electric standby power. For the purposes of this analysis, it was assumed that all TRUs would idle using diesel engines. However, as TRUs equipped with an electric standby power option become more commonplace, they would be able to plug into the on-site electricity and eliminate diesel emissions, which would reduce the level of impacts reported in this analysis.

### **Mitigation Measures**

No mitigations required.

### **Residual Impacts**

Impacts would be less than significant.

**Impact 5.1-4:**                **The proposed project would not expose sensitive receptors to objectionable odors. *Less than significant impact.***

Projects with the potential to frequently expose members of the public to objectionable odors will be deemed to have a significant impact. Odor impacts on residential areas and other sensitive receptors, such as hospitals, daycare centers, schools, etc., warrant the closest scrutiny, but consideration should also be given to other land uses where people may congregate, such as recreational facilities, worksites, and commercial areas. According to the GAMAQI, analysis of potential odor impacts should be conducted for the following two situations:

- Generators – projects that would potentially generate odorous emissions proposed to locate near existing sensitive receptors or other land uses where people may congregate.
- Receivers – residential or other sensitive receptor projects or other projects built for the intent of attracting people locating near existing odor sources.

The SJVAPCD has determined some common types of facilities that have been known to produce odors in the SJVAB along with a reasonable distance from each odor source where the degree of odor could

possibly be significant. These facilities are listed below in **Table 5.1-10, Project Screening Trigger Levels for Potential Odor Sources**.

As the proposed project would not include any of the above land uses, it is not expected that the project would expose sensitive receptors to objectionable odors. Moreover, construction of the project is temporary and is not expected to cause an odor nuisance. Refuse associated with operation of the proposed project would be disposed of in accordance with applicable regulations. In addition, the proposed project does not include any sensitive land uses that would locate sensitive receptors on site in close proximity to the above land uses. Therefore, the proposed project would have a less than significant impact on odors.

**Table 5.1-10  
Project Screening Trigger Levels for Potential Odor Sources**

Type of Facility	Distance
Wastewater Treatment Facilities	2 miles
Sanitary Landfill	1 mile
Transfer Station	1 mile
Composting Facility	1 mile
Petroleum Refinery	2 miles
Asphalt Batch Plant	1 mile
Chemical Manufacturing	1 mile
Fiberglass Manufacturing	1 mile
Painting/Coating Operations	1 mile
Food Processing Facility	1 mile
Feed Dairy/Lot	1 mile
Rendering Plant	1 mile

*Source: San Joaquin Valley Air Pollution Control District, Guide to Assessing and Mitigating Air Quality Impacts, (2002) 27.*

### Mitigation Measures

No mitigations required.

### Residual Impacts

Impacts would be less than significant.

### 5.1.6 AIR QUALITY CUMULATIVE IMPACTS

**Impact 5.1-5: The proposed project would not contribute to a cumulatively considerable net increase in a criteria pollutant for which the region is in nonattainment under an applicable federal and/or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for the ozone precursors, ROG and NO<sub>x</sub>). *Less than significant impact.***

The SJVAB is in nonattainment for the federal standards for ozone (8 hour), PM<sub>10</sub>, and PM<sub>2.5</sub>. The SJVAB is also in nonattainment for the state standards of ozone (1 hour), ozone (8 hour), PM<sub>10</sub>, and PM<sub>2.5</sub>. Construction and operation of the proposed project would not exceed SJVAPCD's thresholds for ROG, NO<sub>x</sub>, and PM<sub>10</sub> emissions, and would not have a cumulative significant impact (the SJVAPCD does not have a threshold for PM<sub>2.5</sub>).

The proposed project, in combination with existing and probably future projects, would not conflict with the implementation of the SJVAPCD AQMP. The air district does not include methodologies for assessing the effect of a project on consistency with such plans. However, as required by California law, city and county general plans contain a land use element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and that designates locations for land uses to regulate growth. Growth estimates used in a general plan often come from the State of California's Department of Finance. The TCAG uses growth projections and land use information in adopted general plans to estimate future average daily trips and then VMT, which are then provided to SJVAPCD to estimate future emissions in the AQMPs. Existing and future pollutant emissions computed in the AQMP were based on land uses and growth projections from area general plans. These emissions form the emissions budget used by the TCAG to demonstrate air quality conformity for the RTP. The future emissions, combined with emissions from all other sources, are modeled in the SJVAPCD's regional air quality models to determine the reductions required to attain the air quality standards by the applicable federal deadline. AQMPs detail the control measures and emission reductions required for reaching attainment of the air standards. The proposed project would not have significant air quality impacts, and is consistent with land use and growth projections for the City's General Plan. Thus, it is consistent with the assumptions that underlie the SJVAPCD plan.

The proposed project's construction emissions would not exceed SJVAPCD daily emissions thresholds. Construction activities associated with other development projects would make a minimal contribution to cumulative emissions because the timing of those activities would overlap minimally, if at all, with the proposed project. To the extent that construction periods do overlap, the SJVAPCD recommends that if it appears that the level of activity may cause an adverse impact, the Lead Agency should require the imposition of enhanced dust control measures, which this EIR does recommend. Therefore, it is

reasonable to conclude that construction emissions from the proposed project would not combine with emissions from other development projects to cause cumulatively considerable air quality impacts.

The proposed project's operational emissions would not exceed the SJVAPCD's significance thresholds. Operational activities associated with other planned and approved projects would emit air pollutants, which, depending on the nature of the project, may or may not exceed SJVAPCD thresholds. Note the SJVAPCD thresholds are designed to capture nearly all sources of emissions in the air basin, and thus are not only very conservative but are intended to address a cumulative scenario. Because the proposed project's operational emissions would not exceed SJVAPCD thresholds after the implementation of mitigation, it would not have a cumulatively considerable impact.

The proposed project would receive truck deliveries on a daily basis. However, toxic air contaminant levels tend to dissipate by 80 to 90 percent within 500 feet of the emissions source. As discussed earlier, the proposed project would not expose sensitive receptors to harmful levels of TACs, therefore would not have a significant impact on air quality. Even though other development projects may also receive diesel truck deliveries, DPM exposure is highly localized because of wind dispersion patterns and low amount of pollutants emitted, and it is unlikely that the proposed project's DPM emissions would combine with DPM emissions from other projects. Therefore, the proposed project, in conjunction with other projects that receive diesel truck deliveries, would not create cumulatively considerable health risks.

### **Cumulative Mitigation Measures**

No mitigations required.

### **Residual Cumulative Impacts**

Impacts would be less than significant.

## **5.1.7 GLOBAL CLIMATE CHANGE EXISTING CONDITIONS**

### **Global Climate Change Background**

Global climate change refers to any significant change in climate measurements, such as temperature, precipitation, or wind, lasting for an extended period (i.e., decades or longer).<sup>95</sup> Climate change may result from

- natural factors, such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun;

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<sup>95</sup> U.S. Environmental Protection Agency, "Glossary of Climate Change Terms," <http://www.epa.gov/climatechange/glossary.html>. 2008.

- natural processes within the climate system (e.g., changes in ocean circulation, reduction in sunlight from the addition of GHG and other gases to the atmosphere from volcanic eruptions); and
- human activities that change the atmosphere's composition (e.g., through burning fossil fuels) and the land surface (e.g., deforestation, reforestation, urbanization, desertification).

The natural process through which heat is retained in the troposphere<sup>96</sup> is called the "greenhouse effect." The greenhouse effect traps heat in the troposphere through a threefold process as follows: (1) short-wave radiation in the form of visible light emitted by the Sun is absorbed by the Earth as heat; (2) long-wave radiation re-emitted by the Earth; and (3) GHGs in the upper atmosphere absorbing or trapping the long-wave radiation and re-emitting it back towards the Earth and into space. This third process is the focus of current climate change actions.

While water vapor and carbon dioxide (CO<sub>2</sub>) are the most abundant GHGs, other trace GHGs have a greater ability to absorb and re-radiate long-wave radiation. To gauge the potency of GHGs, scientists have established a Global Warming Potential (GWP) for each GHG based on its ability to absorb and re-emit long-wave radiation over a specific period. The GWP of a gas is determined using CO<sub>2</sub> as the reference gas, which has a GWP of 1 over 100 years.<sup>97</sup> For example, a gas with a GWP of 10 is 10 times more potent than CO<sub>2</sub> over 100 years. The use of GWP allows GHG emissions to be reported using CO<sub>2</sub> as a baseline. The sum of each GHG multiplied by its associated GWP is referred to as "carbon dioxide equivalents" (CO<sub>2</sub>e). This essentially means that 1 metric ton of a GHG with a GWP of 10 has the same climate change impacts as 10 metric tons of CO<sub>2</sub>.

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<sup>96</sup> The troposphere is the bottom layer of the atmosphere, which varies in height from the Earth's surface to 10 to 12 kilometers).

<sup>97</sup> Intergovernmental Panel on Climate Change, *Climate Change 1995: The Science of Climate Change – Contribution of Working Group I to the Second Assessment Report of the Intergovernmental Panel on Climate Change*, (1996). All Global Warming Potentials are given as 100-year values.

## Effects of Greenhouse Gases

The primary effect of global climate change has been a rise in the average global tropospheric temperature of 0.2 degrees Celsius (°C) per decade, determined from meteorological measurements worldwide between 1990 and 2005.<sup>98</sup> Climate change modeling using 2000 emission rates shows that further warming is likely to occur, which would induce further changes in the global climate system during the current century.<sup>99</sup> Changes to the global climate system and ecosystems, and to California, could include

- declining sea ice and mountain snowpack levels, thereby increasing sea levels and sea surface evaporation rates with a corresponding increase in tropospheric water vapor due to the atmosphere's ability to hold more water vapor at higher temperatures;<sup>100</sup>
- rising average global sea levels primarily due to thermal expansion and the melting of glaciers, ice caps, and the Greenland and Antarctic ice sheets;<sup>101</sup>
- changing weather patterns, including changes to precipitation, ocean salinity, and wind patterns, and more energetic aspects of extreme weather including droughts, heavy precipitation, heat waves, extreme cold, and the intensity of tropical cyclones;<sup>102</sup>
- declining Sierra snowpack levels, which account for approximately half of the surface water storage in California, by 70 percent to as much as 90 percent over the next 100 years;<sup>103</sup>
- increasing the number of days conducive to ozone formation by 25 to 85 percent (depending on the future temperature scenario) in high ozone areas located in the Southern California area and the San Joaquin Valley by the end of the 21<sup>st</sup> century;<sup>104</sup>
- increasing the potential for erosion of California's coastlines and sea water intrusion into the Sacramento and San Joaquin Delta and associated levee systems due to the rise in sea level;<sup>105</sup>
- increasing pest infestation, making California more susceptible to forest fires;<sup>106</sup> and

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<sup>98</sup> Intergovernmental Panel on Climate Change, "Climate Change 2007: The Physical Science Basis, Summary for Policymakers," [http://ipcc-wg1.ucar.edu/wg1/docs/WG1AR4\\_SPM\\_PlenaryApproved.pdf](http://ipcc-wg1.ucar.edu/wg1/docs/WG1AR4_SPM_PlenaryApproved.pdf). 2007.

<sup>99</sup> "Climate Change 2007: The Physical Science Basis, Summary for Policymakers.

<sup>100</sup> "Climate Change 2007: The Physical Science Basis, Summary for Policymakers.

<sup>101</sup> "Climate Change 2007: The Physical Science Basis, Summary for Policymakers.

<sup>102</sup> "Climate Change 2007: The Physical Science Basis, Summary for Policymakers.

<sup>103</sup> California Environmental Protection Agency, Climate Action Team, *Climate Action Team Report to Governor Schwarzenegger and the Legislature*, (2006).

<sup>104</sup> *Climate Action Team Report to Governor Schwarzenegger and the Legislature*, (2006).

<sup>105</sup> *Climate Action Team Report to Governor Schwarzenegger and the Legislature*, (2006).

<sup>106</sup> California Environmental Protection Agency, Climate Action Team, *Climate Action Team Report to Governor Schwarzenegger and the Legislature*, (2006).

- increasing the demand for electricity by 1 to 3 percent by 2020 due to rising temperatures resulting in hundreds of millions of dollars in extra expenditures.<sup>107</sup>

In June 2010, CARB released a report, *Climate Change Impact on Air Quality in California*, which studied how climate change will influence air quality in California through changes to meteorology and emissions.<sup>108</sup> The report analyzed the effect of temperature and other meteorological changes consistent with future predicted meteorological conditions from Global Climate Models (GCMs) on ozone and particulate matter concentrations with a focus on the South Coast Air Basin and the SJVAB. According to the modeling results, by 2050, temperature and other meteorological changes predicted to occur due to a changing climate could increase the number of days with conditions likely to encourage ozone concentrations greater than 90 parts per billion (equal to the state 1-hour average ozone ambient air quality standard) anywhere from 6 to 30 days per year under various GCM scenarios.<sup>109</sup> This climate-change increase is referred to as a climate “penalty.” The modeling results did not indicate a statistically significant climate “penalty” for annual average particulate matter concentrations but future extreme events when stagnation conditions (low wind speeds) are stronger could result in increased concentrations of particulate matter from sources located close to population centers.<sup>110</sup> The results of the report indicate that warmer future temperatures would require air quality management districts and air pollution control districts to implement additional emissions control regulations in affected air basins in California to offset the climate “penalty,” particularly for ozone.

In 2009, the California Natural Resources Agency (CNRA) published the *California Climate Adaptation Strategy*<sup>111</sup> as a response to the Governor’s Executive Order S-13-2008. The CNRA report lists specific recommendations for State and local agencies to best adapt to the anticipated risks posed by a changing climate. The key preliminary recommendations for adapting to a changing climate are based on sector specific and cross-sector adaptation strategies identified in the CNRA report. The sectors consist of: Public Health, Biodiversity and Habitat, Ocean and Coastal Resources, Water Management, Agriculture, Forestry, Transportation and Energy Infrastructure, and Cross-Sector.

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<sup>107</sup> *Climate Action Team Report to Governor Schwarzenegger and the Legislature*, (2006).

<sup>108</sup> Kleeman, M. J., Chen, S., and Harley, R.A., *Climate Change Impact on Air Quality in California: Report to the California Air Resources Board*, (2010).

<sup>109</sup> *Climate Change Impact on Air Quality in California: Report to the California Air Resources Board*, (2010), 95.

<sup>110</sup> *Climate Change Impact on Air Quality in California: Report to the California Air Resources Board*, (2010), 198 and 209.

<sup>111</sup> California Natural Resources Agency, Climate Action Team, *2009 California Climate Adaptation Strategy: A Report to the Governor of the State of California in Response to Executive Order S-13-2008*, (2009).

## Greenhouse Gases

State law defines GHGs to include the following compounds:<sup>112</sup>

- *Carbon Dioxide (CO<sub>2</sub>)*. Carbon dioxide primarily is generated by fossil fuel combustion from stationary and mobile sources. Due to the emergence of industrial facilities and mobile sources over the past 250 years, the concentration of carbon dioxide in the atmosphere has increased 35 percent.<sup>113</sup> Carbon dioxide is the most widely emitted GHG and is the reference gas (GWP of 1) for determining the GWPs of other GHGs. In 2004, 82.8 percent of California's GHG emissions were carbon dioxide.<sup>114</sup>
- *Methane (CH<sub>4</sub>)*. Methane is emitted from biogenic sources (i.e., resulting from the activity of living organisms), incomplete combustion in forest fires, landfills, manure management, and leaks in natural gas pipelines. In the United States, the top three sources of methane are landfills, natural gas systems, and enteric fermentation.<sup>115</sup> Methane is the primary component of natural gas, which is used for space and water heating, steam production, and power generation. The GWP of methane is 21.
- *Nitrous Oxide (N<sub>2</sub>O)*. Nitrous oxide is produced by natural and human-related sources. Primary human-related sources include agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. The GWP of nitrous oxide is 310.

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<sup>112</sup> Black carbon is not regulated as a GHG in any state law. Black carbon is a form of particulate air pollution that is most often produced from the burning of biomass, cooking with solid fuels, and diesel exhaust. Some studies have implicated black carbon as a source of global climate change; however, the potential impact of black carbon on climate change is currently under substantial dispute.

Black carbon is not assessed in this Global Climate Change section for four key reasons. First, no regulatory authority has classified black carbon as a greenhouse gas and it is not regulated under AB 32 or any other law implemented to address global climate change. Second, none of the guidance on global climate change analysis suggests the analysis should include black carbon. Even the Center for Biological Diversity's white paper on CEQA and global warming does not mention black carbon as a greenhouse gas that should be addressed under CEQA. *California Environmental Quality Act – On the Front Lines of California's Fight Against Global Warming*, (CBD 2007). Third, the tools are not available to quantify black carbon emissions at this time. Emissions factors for black carbon have not been published by CARB, the U.S. EPA, or other reputable bodies. Finally, no guidance on the importance, evaluation, or mitigation of black carbon has been provided by the agencies leading regulation of the climate change issue. Therefore, while the proposed project will generate some black carbon, the quantities are indeterminable at this time. The potential impact of the black carbon emissions on climate change is also unknown at this time, however, it is anticipated that the proposed project would have a very small impact on climate change based on its size relative to the global nature of this issue.

<sup>113</sup> U.S. Environmental Protection Agency, "Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990–2006," <http://www.epa.gov/climatechange/emissions/usinventoryreport.html>. 2008.

<sup>114</sup> California Energy Commission, "Revisions to the 1990–2004 Greenhouse Gas Emissions Inventory Report, Published in December 2006," [http://www.energy.ca.gov/2006publications/CEC-600-2006-013/2007-01-23\\_GHG\\_INVENTORY\\_REVISIONS.PDF](http://www.energy.ca.gov/2006publications/CEC-600-2006-013/2007-01-23_GHG_INVENTORY_REVISIONS.PDF). 2007.

<sup>115</sup> U.S. Environmental Protection Agency, "Methane: Sources and Emissions," <http://www.epa.gov/methane/sources.html>. n.d.

- *Hydrofluorocarbons (HFCs)*. HFCs typically are used as refrigerants in both stationary refrigeration and mobile air conditioning. The use of HFCs for cooling and foam-blowing is growing particularly as the continued phase-out of chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) gains momentum. The GWP of HFCs ranges from 140 for HFC-152a to 6,300 for HFC-236fa.
- *Perfluorocarbons (PFCs)*. Perfluorocarbons are compounds consisting of carbon and fluorine. They are primarily created as a byproduct of aluminum production and semiconductor manufacturing. Perfluorocarbons are potent GHGs with a Global Warming Potential several thousand times that of carbon dioxide, depending on the specific PFC. Another area of concern regarding PFCs is their long atmospheric lifetime (up to 50,000 years).<sup>116</sup> The GWPs of PFCs range from 5,700 to 11,900.
- *Sulfur Hexafluoride (SF<sub>6</sub>)*. Sulfur hexafluoride is a colorless, odorless, nontoxic, nonflammable gas. It is most commonly used as an electrical insulator in high voltage equipment that transmits and distributes electricity. Sulfur hexafluoride is the most potent GHG that has been evaluated by the Intergovernmental Panel on Climate Change with a Global Warming Potential of 23,900. However, its global warming contribution is not as high as the GWP would indicate due to its low mixing ratio, as compared to carbon dioxide (4 parts per trillion [ppt] in 1990 versus 365 parts per million [ppm] of CO<sub>2</sub>).<sup>117</sup>

## Contributions to Greenhouse Gas Emissions

### Global

Worldwide anthropogenic (man-made) GHG emissions are tracked for industrialized nations (referred to as Annex I) and developing nations (referred to as Non-Annex I). Man-made GHG emissions for Annex I nations are available through 2007. Man-made GHG emissions for Non-Annex I nations are available through 2005. The sum of these emissions totaled approximately 43,363 million metric tons of CO<sub>2</sub>e (MMTCO<sub>2</sub>e). It should be noted that global emissions inventory data are not all from the same year and may vary depending on the source of the emissions inventory data.<sup>118</sup> Emissions from the top five countries and the European Union accounted for approximately 59 percent of the total global GHG emissions, according to the most recently available data (see **Table 5.1-11, Top Five GHG Producer Countries and the European Union**). The GHG emissions in more recent years may differ from the

<sup>116</sup> Energy Information Administration, "Other Gases: Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride," [http://www.eia.doe.gov/oiaf/1605/gg00rpt/other\\_gases.html](http://www.eia.doe.gov/oiaf/1605/gg00rpt/other_gases.html). n.d.

<sup>117</sup> U.S. Environmental Protection Agency, "High GWP Gases and Climate Change," <http://www.epa.gov/highgwp/scientific.html#sf6>. n.d.

<sup>118</sup> The global emissions are the sum of Annex I and non-Annex I countries, without counting Land-Use, Land-Use Change and Forestry (LULUCF). For countries without 2005 data, the UNFCCC data for the most recent year were used. United Nations Framework Convention on Climate Change, "Annex I Parties – GHG total without LULUCF," [http://unfccc.int/ghg\\_emissions\\_data/ghg\\_data\\_from\\_unfccc/time\\_series\\_annex\\_i/items/3841.php](http://unfccc.int/ghg_emissions_data/ghg_data_from_unfccc/time_series_annex_i/items/3841.php) and "Flexible GHG Data Queries" with selections for total GHG emissions excluding LULUCF/LUCF, all years, and non-Annex I countries, <http://unfccc.int/di/FlexibleQueries/Event.do?event=showProjection>. n.d.

inventories presented in **Table 5.1-11**; however, the data is representative of currently available global inventory data.

### ***United States***

As noted in **Table 5.1-11**, the United States was the number two producer of global GHG emissions as of 2005. The primary GHG emitted by human activities in the United States was CO<sub>2</sub>, representing approximately 85 percent of total GHG emissions.<sup>119</sup> Carbon dioxide from fossil fuel combustion, the largest source of U.S. GHG emissions, accounted for approximately 80 percent of U.S. GHG emissions.<sup>120</sup>

**Table 5.1-11  
Top Five GHG Producer Countries and the European Union**

<b>Emitting Countries</b>	<b>GHG Emissions (MMTCO<sub>2</sub>e)</b>
China	7,265
United States	7,217
European Union (EU), 27 Member States	5,403
Russian Federation	2,202
India	1,877
Japan	1,412
<b>Total</b>	<b>25,376</b>

*Source: World Resources Institute, "Climate Analysis Indicators Tool (CAIT)," <http://cait.wri.org/>. 2010.*

*Excludes emissions and removals from land use, land-use change, and forestry (LULUCF).*

*Note: Emissions for Annex I nations are based on 2007 data. Emissions for Non-Annex I nations (e.g., China, India) are based on 2005 data).*

### ***State of California***

The California Air Resources Board compiles GHG inventories for the State of California. Based upon the 2008 GHG inventory data (i.e., the latest year for which data are available) for the 2000-2008 GHG emissions inventory, California emitted 474 MMTCO<sub>2</sub>e including emissions resulting from imported electrical power in 2008.<sup>121</sup> Based on the CARB inventory data and GHG inventories compiled by the World Resources Institute, California's total statewide GHG emissions rank second in the United States

<sup>119</sup> U.S. Environmental Protection Agency, "Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2008," <http://www.epa.gov/climatechange/emissions/usinventoryreport.html>. 2010.

<sup>120</sup> "Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2008,"

<sup>121</sup> California Air Resources Board, "California Greenhouse Gas 2000-2008 Inventory by Scoping Plan Category - Summary," <http://www.arb.ca.gov/cc/inventory/data/data.htm>. 2010.

(Texas is number one) with emissions of 417 MMTCO<sub>2e</sub> excluding emissions related to imported power.<sup>122</sup>

The primary contributors to GHG emissions in California are transportation, electric power production from both in-state and out-of-state sources, industry, agriculture and forestry, and other sources, which include commercial and residential activities. **Table 5.1-12, GHG Emissions in California**, provides a summary of GHG emissions reported in California in 1990 and 2008 separated by categories defined by the United Nations Intergovernmental Panel on Climate Change (IPCC).

Between 1990 and 2008, the population of California grew by approximately 8.1 million (from 29.8 to 37.9 million).<sup>123</sup> This represents an increase of approximately 27.2 percent from 1990 population levels. In addition, the California economy, measured as gross state product, grew from \$788 billion in 1990 to \$1.8 trillion in 2008 representing an increase of approximately 128 percent (over twice the 1990 gross state product).<sup>124</sup> Despite the population and economic growth, California's net GHG emission only grew by approximately 11 percent. The CEC attributes the slow rate of growth to the success of California's renewable energy programs and its commitment to clean air and clean energy.<sup>125</sup>

## Global Ambient CO<sub>2</sub> Concentrations

The impact of anthropogenic activities on global climate change is indicated in the observational record. For example surface temperature data shows that 11 of the 12 years from 1995 to 2006 rank among the 12 warmest since 1850, the beginning of the instrumental record for global surface temperature.<sup>126</sup> In addition, the atmospheric water vapor content has increased since at least the 1980s over land, sea, and in the upper atmosphere, consistent with the capacity of warmer air to hold more water vapor; ocean temperatures are warmer to depths of 3,000 feet; and a marked decline has occurred in mountain glaciers and snowpack in both hemispheres, and in polar ice and ice sheets in both the Arctic and Antarctic regions.<sup>127</sup>

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<sup>122</sup> "California Greenhouse Gas 2000-2008 Inventory by Scoping Plan Category – Summary."

<sup>123</sup> US Census Bureau, "Data Finders," <http://www.census.gov/>. 2009; California Department of Finance, "E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-1008, with 2000 Benchmark," <http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2009/>. 2010.

<sup>124</sup> California Department of Finance, "Financial & Economic Data: Gross Domestic Product, California," [http://www.dof.ca.gov/HTML/FS\\_DATA/LatestEconData/FS\\_Misc.htm](http://www.dof.ca.gov/HTML/FS_DATA/LatestEconData/FS_Misc.htm). 2010. Amounts are based on current dollars as of the data of the report (June 2, 2009).

<sup>125</sup> California Energy Commission, *Inventory of California Greenhouse Gas Emissions and Sinks 1990 to 2004*, (2006).

<sup>126</sup> Intergovernmental Panel on Climate Change, "Climate Change 2007: The Physical Science Basis, Summary for Policymakers," [http://ipcc-wg1.ucar.edu/wg1/docs/WG1AR4\\_SPM\\_PlenaryApproved.pdf](http://ipcc-wg1.ucar.edu/wg1/docs/WG1AR4_SPM_PlenaryApproved.pdf). 2007.

<sup>127</sup> IPCC, "Climate Change 2007: The Physical Science Basis, Summary for Policymakers."

**Table 5.1-12  
GHG Emissions in California**

<b>Source Category</b>	<b>1990 (MMTCO<sub>2</sub>e)</b>	<b>Percent of Total</b>	<b>2008 (MMTCO<sub>2</sub>e)</b>	<b>Percent of Total</b>
<b>ENERGY</b>	<b>386.41</b>	<b>89.2%</b>	<b>413.80</b>	<b>86.6%</b>
Energy Industries	157.33	36.3%	171.23	35.8%
Manufacturing Industries & Construction	24.24	5.6%	16.67	3.5%
Transport	150.02	34.6%	173.94	36.4%
Other (Residential/Commercial/Institutional)	48.19	11.1%	46.59	9.8%
Non-Specified	1.38	0.3%	0.00	0.0%
Fugitive Emissions from Oil & Natural Gas	2.94	0.7%	3.28	0.7%
Fugitive Emissions from Other Energy Production	2.31	0.5%	2.09	0.4%
<b>INDUSTRIAL PROCESSES &amp; PRODUCT USE</b>	<b>18.34</b>	<b>4.2%</b>	<b>30.11</b>	<b>6.3%</b>
Mineral Industry	4.85	1.1%	5.35	1.1%
Chemical Industry	2.34	0.5%	0.06	0.0%
Non-Energy Products from Fuels & Solvent Use	2.29	0.5%	1.97	0.4%
Electronics Industry	0.59	0.1%	0.80	0.2%
Substitutes for Ozone Depleting Substances	0.04	0.0%	13.89	2.9%
Other Product Manufacture and Use	3.18	0.7%	1.66	0.3%
Other	5.05	1.2%	6.39	1.3%
<b>AGRICULTURE, FORESTRY, &amp; OTHER LAND USE</b>	<b>19.11</b>	<b>4.4%</b>	<b>24.42</b>	<b>5.1%</b>
Livestock	11.67	2.7%	16.28	3.4%
Land	0.19	0.0%	0.19	0.0%
Aggregate Sources & Non-CO <sub>2</sub> Sources on Land	7.26	1.7%	7.95	1.7%
<b>WASTE</b>	<b>9.42</b>	<b>2.2%</b>	<b>9.41</b>	<b>2.0%</b>
Solid Waste Disposal	6.26	1.4%	6.71	1.4%
Wastewater Treatment & Discharge	3.17	0.7%	2.70	0.6%
<b>EMISSIONS SUMMARY</b>				
Gross California Emissions	433.29		477.74	
Sinks from Forests and Rangelands	-6.69		-3.98	
Net California Emissions	426.60		473.76	

## Sources:

<sup>1</sup> California Air Resources Board, "California Greenhouse Gas 1990-2004 Inventory by IPCC Category - Summary," <http://www.arb.ca.gov/cc/inventory/archive/archive.htm>. 2010.

<sup>2</sup> California Air Resources Board, "California Greenhouse Gas 2000-2008 Inventory by IPCC Category - Summary," <http://www.arb.ca.gov/cc/inventory/data/data.htm>. 2010.

Air trapped by ice has been extracted from core samples taken from polar ice sheets to determine the global atmospheric variation of carbon dioxide, methane, and nitrous oxide from before the start of

industrialization, around 1750, to over 650,000 years ago. For that period, it was found that carbon dioxide concentrations ranged from 180 ppm to 300 ppm. For the period from around 1750 to the present, global carbon dioxide concentrations increased from a pre-industrialization period concentration of 280 ppm to 379 ppm in 2005, with the 2005 value far exceeding the upper end of the pre-industrial period range.<sup>128</sup> Global methane and nitrous oxide concentrations show similar increases for the same period (see Table 5.1-13, Comparison of Global Pre-Industrial and Current GHG Concentrations).

**Table 5.1-13**  
**Comparison of Global Pre-Industrial and Current GHG Concentrations**

<b>Greenhouse Gas</b>	<b>Early Industrial Period Concentrations (ppm)</b>	<b>Natural Range for Last 650,000 Years (ppm)</b>	<b>2005 Concentrations (ppm)</b>
Carbon Monoxide (CO)	280	180 to 300	379
Methane (CH <sub>4</sub> )	715	320 to 790	1774
Nitrous Oxide (N <sub>2</sub> O)	270	NA	319

*Source: Intergovernmental Panel on Climate Change, Climate Change 2007: The Physical Science Basis, Summary for Policymakers, (2007).*

## 5.1.8 GLOBAL CLIMATE CHANGE REGULATORY PLANS AND POLICIES

### International

#### *Kyoto Protocol*

The original Kyoto Protocol (Protocol) was negotiated in December 1997 and came into force on February 16, 2005. For this to happen, no less than 55 countries were required to ratify the Protocol, and these minimum of 55 needed to together account for at least 55 percent of the total carbon dioxide emissions for 1990 of industrialized countries, referred to as Annex I countries. Participating nations are separated into Annex 1 (i.e., industrialized countries) and Non-Annex 1 (i.e., developing countries) countries, each with differing requirements for GHG reductions. The United States has not ratified the Protocol.

The goal of the Protocol is to achieve overall emissions reduction targets for six primary GHGs by the period 2008–2012: carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, HFCs, and PFCs. Each nation has an emissions reduction target under which they must reduce GHG emissions by a certain percentage below levels that occurred in 1990 (e.g., 8 percent reduction for the European Union; 6 percent

<sup>128</sup> IPCC, "Climate Change 2007: The Physical Science Basis, Summary for Policymakers."

reduction for Japan). The average reduction target for nations participating in the Kyoto Protocol is approximately 5 percent below 1990 levels.<sup>129</sup> Although the United States has not ratified the Protocol, it is aiming to reduce its own GHG emissions intensity by 18 percent by 2012.<sup>130</sup> Greenhouse gas intensity is the ratio of GHG emissions to economic output (i.e., gross domestic product).

### *Copenhagen Accord*

The 2009 United Nations Climate Change Conference, commonly known as the Copenhagen Summit, was held in Copenhagen, Denmark in December of that year. The purpose of the Summit was to organize a meeting of world leaders from nations that are Parties to the United Nations Framework Convention on Climate Change (UNFCCC) to establish a framework for climate change mitigation beyond 2012, when the Kyoto Protocol expires. The Parties agreed, at the 2007 United Nations Climate Change Conference in Bali, Indonesia, to jointly step up international efforts to combat climate change and get to an agreed outcome in Copenhagen in 2009. According to the UNFCCC, the Copenhagen Summit was to have provided clarity on four key issues:

- Ambitious emission reduction targets for developed countries;
- Nationally appropriate mitigation actions of developing countries;
- Scaling up financial and technological support for both adaptation and mitigation; and
- An effective institutional framework with governance structures that address the needs of developing countries.<sup>131</sup>

The Copenhagen Summit was attended by 120 heads of state and government and tens of thousands of delegates and observers. During the Summit, some nations stated what actions they were proposing to take if a binding agreement was achieved. The United States proposed to cut GHG emissions by 17 percent below 2005 levels by 2020, 42 percent by 2030, and 83 percent by 2050.<sup>132</sup> However, a binding agreement was not achieved at the Summit. At the final day of the Summit, an agreement was reached between the United States and a unified China, South Africa, India and Brazil. This agreement became

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<sup>129</sup> Pew Center on Global Climate Change, "Bush Policy vs. Kyoto," [http://www.pewclimate.org/what\\_s\\_being\\_done/in\\_the\\_world/bush\\_intensity\\_target\\_2.cfm](http://www.pewclimate.org/what_s_being_done/in_the_world/bush_intensity_target_2.cfm). n.d.

<sup>130</sup> The White House, "Addressing Global Climate Change," <http://www.whitehouse.gov/ceq/global-change.html>. n.d.

<sup>131</sup> United Nations Framework Convention on Climate Change, "Fact sheet: Copenhagen – Background information," [http://unfccc.int/press/fact\\_sheets/items/4975.php](http://unfccc.int/press/fact_sheets/items/4975.php). 2010.

<sup>132</sup> The White House, Office of the Press Secretary, "President to Attend Copenhagen Climate Talks: Administration Announces U.S. Emission Target for Copenhagen," <http://www.whitehouse.gov/the-press-office/president-attend-copenhagen-climate-talks>. 2009.

known as the Copenhagen Accord. The Parties to the UNFCCC agreed to “take note of” the Copenhagen Accord, instead of fully adopting it; therefore, it is not legally binding.<sup>133</sup> As a result, climate negotiations continue in order to establish a successor to the Kyoto Protocol.

### ***Intergovernmental Panel on Climate Change***

The World Meteorological Organization (WMO) and United Nations Environmental Program (UNEP) established the Intergovernmental Panel on Climate Change (IPCC) in 1988. The goal of the IPCC is to evaluate the risk of climate change caused by human activities. Rather than performing research or monitoring climate, the IPCC relies on peer-reviewed and published scientific literature to make its assessment. The IPCC assesses information (i.e., scientific literature) regarding human-induced climate change, impacts of human-induced climate change, and options for adaptation and mitigation of climate change. The IPCC reports its evaluations in special reports called “assessment reports.” The latest assessment report (i.e., Fourth Assessment Report, consisting of three working group reports and a synthesis report based on the first three reports) was published in 2007.<sup>134</sup> In its 2007 report, the IPCC stated that global temperature increases since the mid-20<sup>th</sup> century were “very likely” attributable to man-made activities (greater than 90 percent certainty).

### **Federal**

In *Massachusetts vs. EPA*, the Supreme Court held that U.S. EPA has the statutory authority under Section 202 of the Clean Air Act (CAA) to regulate GHGs from new motor vehicles. The court did not hold that the U.S. EPA was required to regulate GHG emissions; however, it indicated that the agency must decide whether GHGs from motor vehicles cause or contribute to air pollution that is reasonably anticipated to endanger public health or welfare. Upon the final decision, the President signed Executive Order 13432 on May 14, 2007, directing the U.S. EPA, along with the Departments of Transportation, Energy, and Agriculture, to initiate a regulatory process that responds to the Supreme Court’s decision. The order requires the U.S. EPA to coordinate closely with other federal agencies and to consider the President’s Twenty-in-Ten plan in this process, which would establish a new alternative fuel standard that would require the use of 35 billion gallons of alternative and renewable fuels by 2017.

In December 2007, the President signed the Energy Independence and Security Act of 2007, which sets a mandatory Renewable Fuel Standard (RFS) requiring fuel producers to use at least 36 billion gallons of biofuel in 2022 and sets a national fuel economy standard of 35 miles per gallon by 2020. The act also

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<sup>133</sup> United Nations Framework Convention on Climate Change, “Copenhagen Accord,” <http://unfccc.int/home/items/5262.php>. 2010.

<sup>134</sup> The IPCC’s Fourth Assessment Report is available online at <http://www.ipcc.ch/>.

contains provisions for energy efficiency in lighting and appliances and for the implementation of green building technologies in federal buildings. On July 11, 2008, the U.S. EPA issued an Advanced Notice of Proposed Rulemaking (ANPRM) on regulating GHGs under the CAA. The ANPRM reviews the various CAA provisions that may be applicable to the regulation of GHGs and presents potential regulatory approaches and technologies for reducing GHG emissions. On April 10, 2009, the U.S. EPA published the Proposed Mandatory Greenhouse Gas Reporting Rule in the *Federal Register*.<sup>135</sup> The rule was adopted on September 22, 2009 and covers approximately 10,000 facilities nationwide, accounting for 85 percent of U.S. GHG emissions.

On September 15, 2009, the U.S. EPA and the Department of Transportation's (DOT) National Highway Traffic Safety Administration (NHTSA) issued a joint proposal to establish a national program consisting of new standards for model year 2012 through 2016 light-duty vehicles that will reduce GHG emissions and improve fuel economy. The proposed standards would be phased in and would require passenger cars and light-duty trucks to comply with a declining emissions standard. In 2012, passenger cars and light-duty trucks would have to meet an average emissions standard of 295 grams of CO<sub>2</sub> per mile and 30.1 miles per gallon. By 2016, the vehicles would have to meet an average standard of 250 grams of CO<sub>2</sub> per mile and 35.5 miles per gallon.

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

- **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed GHGs (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.

While these findings do not impose additional requirements on industry or other entities, this action is a prerequisite to finalizing the U.S. EPA's proposed GHG emissions standards for light-duty vehicles, which were jointly proposed by the U.S. EPA and the NHTSA.

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<sup>135</sup> U.S. Environmental Protection Agency, "Climate Change," <http://www.epa.gov/climatechange/>, 2009.

## State

### *Title 24 Building Standards Code*

The California Energy Commission first adopted Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) in 1978 in response to a legislative mandate to reduce energy consumption in the state. Although not originally intended to reduce GHG emissions, increased energy efficiency, and reduced consumption of electricity, natural gas, and other fuels would result in fewer GHG emissions from residential and nonresidential buildings subject to the standard. The standards are updated periodically to allow for the consideration and inclusion of new energy efficiency technologies and methods. The latest revisions were adopted in 2008 and became effective on January 1, 2010.

Part 11 of the Title 24 Building Standards Code is referred to as the California Green Building Standards Code (CALGreen Code). The purpose of the CALGreen Code is to “improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices in the following categories: (1) Planning and design; (2) Energy efficiency; (3) Water efficiency and conservation; (4) Material conservation and resource efficiency; and (5) Environmental air quality.”<sup>136</sup> The CALGreen Code is not intended to substitute or be identified as meeting the certification requirements of any green building program that is not established and adopted by the California Building Standards Commission (CBSC). The CBSC has released the *2010 California Green Building Standards Code* on its website.<sup>137</sup> This update to Part 11 of the Title 24 Building Standards Code will be effective on January 1, 2011. Unless otherwise noted in the regulation, all newly constructed buildings in California are subject of the requirements of the CALGreen Code.

### *Assembly Bill 1493*

In response to the transportation sector’s contribution of more than half of California’s carbon dioxide (CO<sub>2</sub>) emissions, Assembly Bill 1493 (AB 1493, Pavley) was enacted on July 22, 2002. AB 1493 requires CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles whose primary use is noncommercial personal transportation. CARB adopted the standards in September 2004. The new standards will be phased in during the 2009–2016 model years. When fully phased in, the near term (2009–2012) standards will result in a reduction of about 22 percent in greenhouse gas emissions

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<sup>136</sup> California Building Standards Commission, 2008 California Green Building Standards Code, (2009) 3.

<sup>137</sup> California Building Standards Commission, “CALGreen,” <http://www.bsc.ca.gov/CALGreen/default.htm>. 2010.

compared to the emissions from the 2002 fleet, while the midterm (2013–2016) standards will result in a reduction of about 30 percent.

In December 2004, these regulations were challenged in federal court by the Alliance of Automobile Manufacturers, who claimed that the law regulated vehicle fuel economy, a duty assigned to the federal government. The case had been put on hold by a federal judge in Fresno pending the U.S. Supreme Court's decision in *Massachusetts v. EPA*. The U.S. Supreme Court's ruling in favor of the State of Massachusetts has been interpreted as a likely vindication of state efforts to control GHG emissions. In December 2007, the U.S. District Court for the Eastern District dismissed the case against the AB 1493 regulations by the Alliance of Automobile Manufacturers.

However, before these regulations may go into effect, the U.S. EPA must grant California a waiver under the federal CAA, which ordinarily preempts state regulation of motor vehicle emission standards. Following the issuance of the *Massachusetts v. EPA* decision, the U.S. EPA announced that it would decide whether to grant California a waiver by December 2007. On December 19, 2007, the U.S. EPA denied the waiver citing the need for a national approach to reducing greenhouse gas emissions, the lack of a "need to meet compelling and extraordinary conditions," and the benefits to be achieved through the Energy Independence and Security Act of 2007.<sup>138</sup> The California Attorney General subsequently filed suit in January 2008 to overturn the Administrator's decision. In 2009, the President issued an Executive Order requiring the U.S. EPA to reconsider granting the waiver. On June 30, 2009, the U.S. EPA formally approved California's waiver request. However, in light of the September 15, 2009 announcement by the U.S. EPA and NHTSA regarding the national program to reduce vehicle GHG emissions, California—and states adopting California emissions standards—have agreed to defer to the proposed national standard through model year 2016 if granted a waiver by the U.S. EPA. The 2016 endpoint of the two standards is similar, although the national standard ramps up slightly more slowly than required under the California standard. The Pavley standards require additional reductions in CO<sub>2</sub> emissions beyond 2016 (referred to as Phase II standards). Nonetheless, California and other states adopting the California standards will not toughen standards beyond the proposed national standard until at least the 2017 model year.

### ***Executive Order S-3-05 and the Climate Action Team***

In June 2005, Governor Schwarzenegger established California's GHG emissions reduction targets in Executive Order S-3-05. The Executive Order established the following goals: GHG emissions should be reduced to 2000 levels by 2010, 1990 levels by 2020, and 80 percent below 1990 levels by 2050. The Secretary of Cal/EPA is required to coordinate efforts of various agencies in order to collectively and

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<sup>138</sup> Letter to Governor Arnold Schwarzenegger from U.S. EPA Administrator Stephen L. Johnson, December 19, 2007.

efficiently reduce GHGs. Some of the agency representatives involved in the GHG reduction plan include the Secretary of the Business, Transportation, and Housing Agency, the Secretary of the Department of Food and Agriculture, the Secretary of the Resources Agency, the Chairperson of CARB, the Chairperson of the California Energy Commission (CEC), and the President of the Public Utilities Commission.

Representatives from each of the aforementioned agencies comprise the Climate Action Team. The Cal/EPA secretary is required to submit a biannual progress report from the Climate Action Team to the governor and state legislature disclosing the progress made toward GHG emission reduction targets. In addition, another biannual report must be submitted illustrating the impacts of global warming on California's water supply, public health, agriculture, coastline, and forests, and reporting possible mitigation and adaptation plans to combat these impacts. The Climate Action Team has fulfilled both of these report requirements through its March 2006 Climate Action Team Report to Governor Schwarzenegger and the Legislature (2006 CAT Report).<sup>139</sup> Some strategies currently being implemented by state agencies include CARB introducing vehicle climate change standards and diesel anti-idling measures, the Energy Commission implementing building and appliance efficiency standards, and the Cal/EPA implementing their green building initiative. The Climate Action Team also recommends future emission reduction strategies, such as using only low-GWP refrigerants in new vehicles, developing ethanol as an alternative fuel, reforestation, solar power initiatives for homes and businesses, and investor-owned utility energy efficiency programs. According to the report, implementation of current and future emission reduction strategies have the potential to achieve the goals set forth in Executive Order S-3-05.

### ***Assembly Bill 32***

In furtherance of the goals established in Executive Order S-3-05, the legislature enacted Assembly Bill 32 (AB 32, Nuñez and Pavley), the California Global Warming Solutions Act of 2006, which Governor Schwarzenegger signed on September 27, 2006. AB 32 represents the first enforceable statewide program to limit GHG emissions from all major industries with penalties for noncompliance. AB 32 requires the state to undertake several actions; the major requirements are discussed below:

#### **CARB Early Action Measures**

CARB is responsible for carrying out and developing the programs and requirements necessary to achieve the goal of AB 32—the reduction of California's GHG emissions to 1990 levels by 2020. The first action under AB 32 resulted in CARB's adoption of a report listing three specific early action greenhouse

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<sup>139</sup> California Environmental Protection Agency, Climate Action Team, *Climate Action Team Report to Governor Schwarzenegger and the Legislature*. 2006.

gas emission reduction measures on June 21, 2007. On October 25, 2007, CARB approved an additional six early action GHG reduction measures under AB 32. CARB has adopted regulations for all early action measures. The early action measures are divided into three categories:

- Group 1 – GHG rules for immediate adoption and implementation
- Group 2 – Several additional GHG measures under development
- Group 3 – Air pollution controls with potential climate co-benefits

The original three adopted early action regulations meeting the narrow legal definition of “discrete early action GHG reduction measures” include

- a low-carbon fuel standard to reduce the “carbon intensity” of California fuels;
- reduction of refrigerant losses from motor vehicle air conditioning system maintenance to restrict the sale of “do-it-yourself” automotive refrigerants; and
- increased methane capture from landfills to require broader use of state-of-the-art methane capture technologies.

The additional six early action regulations adopted on October 25, 2007, also meeting the narrow legal definition of “discrete early action GHG reduction measures,” include

- reduction of aerodynamic drag, and thereby fuel consumption, from existing trucks and trailers through retrofit technology;
- reduction of auxiliary engine emissions of docked ships by requiring port electrification;
- reduction of perfluorocarbons from the semiconductor industry;
- reduction of propellants in consumer products (e.g., aerosols, tire inflators, and dust removal products);
- the requirement that all tune-up, smog check and oil change mechanics ensure proper tire inflation as part of overall service in order to maintain fuel efficiency; and
- restriction on the use of sulfur hexafluoride (SF<sub>6</sub>) from non-electricity sectors if viable alternatives are available.

### **State of California Greenhouse Gas Inventory and 2020 Limit**

As required under AB 32, on December 6, 2007, CARB approved the 1990 greenhouse gas emissions inventory, thereby establishing the emissions limit for 2020. The 2020 emissions limit was set at 427 MMTCO<sub>2e</sub>. CARB also projected the state’s 2020 GHG emissions under “business as usual” (BAU)

conditions—that is, emissions that would occur without any plans, policies, or regulations to reduce GHG emissions. CARB used an average of the state's GHG emissions from 2002 through 2004 and projected the 2020 levels based on population and economic forecasts. The projected net emissions totaled approximately 596 MMTCO<sub>2e</sub>. Therefore, the state must reduce its 2020 BAU emissions by approximately 29 percent in order to meet the 1990 target.

The inventory revealed that in 1990, transportation, with 35 percent of the state's total emissions, was the largest single sector, followed by industrial emissions, 24 percent; imported electricity, 14 percent; in-state electricity generation, 11 percent; residential use, 7 percent; agriculture, 5 percent; and commercial uses, 3 percent (these figures represent the 1990 values, compared to **Table 5.1-12**, which represent 2008 values). AB 32 does not require individual sectors to meet their individual 1990 GHG emissions inventory; the total statewide emissions are required to meet the 1990 threshold by 2020.

### **CARB Mandatory Reporting Requirements**

In addition to the 1990 emissions inventory, CARB also adopted regulations requiring the mandatory reporting of GHG emissions for large facilities on December 6, 2007. The mandatory reporting regulations require annual reporting from the largest facilities in the state, which account for approximately 94 percent of point source greenhouse gas emissions from industrial and commercial stationary sources in California. About 800 separate sources fall under the new reporting rules and include electricity-generating facilities, electricity retail providers and power marketers, oil refineries, hydrogen plants, cement plants, cogeneration facilities, and industrial sources that emit over 25,000 tons of carbon dioxide each year from on-site stationary combustion sources. Transportation sources, which account for 38 percent of California's total greenhouse gas emissions, are not covered by these regulations but will continue to be tracked through existing means. Affected facilities will begin tracking their emissions in 2008, to be reported beginning in 2009, with a phase-in process to allow facilities to develop reporting systems and train personnel in data collection. Emissions for 2008 may be based on best available emission data. Beginning in 2010, however, emissions reporting requirements will be more rigorous and will be subject to third-party verification. Verification will take place annually or every three years, depending on the type of facility.

### **AB 32 Climate Change Scoping Plan**

As indicated above, AB 32 requires CARB to adopt a scoping plan indicating how reductions in significant GHG sources will be achieved through regulations, market mechanisms, and other actions. After receiving public input on their discussion draft of the Proposed Scoping Plan released in June 2008, CARB released the Climate Change Proposed Scoping Plan in October 2008 that contains an outline of the

proposed state strategies to achieve the 2020 greenhouse gas emission limits. The CARB Governing Board approved the Scoping Plan on December 11, 2008. Key elements of the Scoping Plan include the following recommendations:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards.
- Achieving a statewide renewable energy mix of 33 percent.
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system.
- Establishing targets for transportation-related greenhouse gas emissions for regions throughout California and pursuing policies and incentives to achieve those targets.
- Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard.
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the state's long-term commitment to AB 32 implementation.

Under the Scoping Plan, approximately 85 percent of the state's emissions are subject to a cap-and-trade program where covered sectors are placed under a declining emissions cap. The emissions cap incorporates a margin of safety whereas the 2020 emissions limit will still be achieved even in the event that uncapped sectors do not fully meet their anticipated emission reductions. Emissions reductions will be achieved through regulatory requirements and the option to reduce emissions further or purchase allowances to cover compliance obligations. It is expected that emission reduction from this cap-and-trade program will account for a large portion of the reductions required by AB 32.

**Table 5.1-14, AB 32 Scoping Plan Measures**, lists CARB's preliminary recommendations for achieving greenhouse gas reductions under AB 32 along with a brief description of the requirements and applicability.

**Table 5.1-14  
AB 32 Scoping Plan Measures**

Scoping Plan Measure	Description
<b>SPM-1:</b> California Cap-and-Trade Program linked to Western Climate Initiative	Implement a broad-based cap-and-trade program that links with other Western Climate Initiative Partner programs to create a regional market system. Ensure California's program meets all applicable AB 32 requirements for market-based mechanisms. Capped sectors include transportation, electricity, natural gas, and industry. Projected 2020 business-as-usual emissions are estimated at 512 MTCO <sub>2e</sub> ; preliminary 2020 emissions limit under cap-and-trade program are estimated at 365 MTCO <sub>2e</sub> (29 percent reduction).
<b>SPM-2:</b> California Light-Duty Vehicle GHG Standards	Implement adopted Pavley standards and planned second phase of the program. AB 32 states that if the Pavley standards (AB 1493) do not remain in effect, CARB shall implement equivalent or greater alternative regulations to control mobile sources.
<b>SPM-3:</b> Energy Efficiency	Maximize energy efficiency building and appliance standards, and pursue additional efficiency efforts. The Scoping Plan considers green building standards as a framework to achieve reductions in other sectors, such as electricity.
<b>SPM-4:</b> Renewables Portfolio Standard	Achieve 33 percent Renewables Portfolio Standard by both investor-owned and publicly owned utilities.
<b>SPM-5:</b> Low Carbon Fuel Standard	CARB identified the Low Carbon Fuel Standard as a Discrete Early Action item and the final regulation was adopted on April 23, 2009. In January 2007, Governor Schwarzenegger issued Executive Order S-1-07, which called for the reduction of the carbon intensity of California's transportation fuels by at least 10 percent by 2020.
<b>SPM-6:</b> Regional Transportation-Related Greenhouse Gas Targets	Develop regional greenhouse gas emissions reduction targets for passenger vehicles. SB 375 requires CARB to develop, in consultation with metropolitan planning organizations (MPOs), passenger vehicle greenhouse gas emissions reduction targets for 2020 and 2035 by September 30, 2010. SB 375 requires MPOs to prepare a sustainable communities strategy to reach the regional target provided by CARB.
<b>SPM-7:</b> Vehicle Efficiency Measures	Implement light-duty vehicle efficiency measures. CARB is pursuing fuel-efficient tire standards and measures to ensure properly inflated tires during vehicle servicing.
<b>SPM-8:</b> Goods Movement	Implement adopted regulations for port drayage trucks and the use of shore power for ships at berth. Improve efficiency in goods movement operations.
<b>SPM-9:</b> Million Solar Roofs Program	Install 3,000 MW of solar-electric capacity under California's existing solar programs.
<b>SPM-10:</b> Heavy/Medium-Duty Vehicles	Adopt heavy- and medium-duty vehicle and engine measures targeting aerodynamic efficiency, vehicle hybridization, and engine efficiency.

Scoping Plan Measure	Description
<b>SPM-11:</b> Industrial Emissions	Require assessment of large industrial sources to determine whether individual sources within a facility can cost-effectively reduce greenhouse gas emissions and provide other pollution reduction co-benefits. Reduce greenhouse gas emissions from fugitive emissions from oil and gas extraction and gas transmission. Adopt and implement regulations to control fugitive methane emissions and reduce flaring at refineries.
<b>SPM-12:</b> High Speed Rail	Support implementation of a high-speed rail (HSR) system. This measure supports implementation of plans to construct and operate a HSR system between Northern and Southern California serving major metropolitan centers.
<b>SPM-13:</b> Green Building Strategy	Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.
<b>SPM-14:</b> High GWP Gases	Adopt measures to reduce high global warming potential gases. The Scoping Plan contains 6 measures to reduce high-GWP gases from mobile sources, consumer products, stationary sources, and semiconductor manufacturing.
<b>SPM-15:</b> Recycling and Waste	Reduce methane emissions at landfills. Increase waste diversion, composting, and commercial recycling. Move toward zero waste.
<b>SPM-16:</b> Sustainable Forests	Preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation. The federal government and California's Board of Forestry and Fire Protection have the regulatory authority to implement the Forest Practice Act to provide for sustainable management practices. This measure is expected to play a greater role in the 2050 goals.
<b>SPM-17:</b> Water	Continue efficiency programs and use cleaner energy sources to move water. California will also establish a public goods charge for funding investments in water efficiency that will lead to as yet undetermined reductions in greenhouse gases.
<b>SPM-18:</b> Agriculture	In the near-term, encourage investment in manure digesters and at the five-year Scoping Plan update determine if the program should be made mandatory by 2020. Increase efficiency and encourage use of agricultural biomass for sustainable energy production. CARB has begun research on nitrogen fertilizers and will explore opportunities for emission reductions.

*Source: California Air Resources Board, Climate Change Scoping Plan, (2008).*

## **Senate Bill 1368**

Two days after signing AB 32, Governor Schwarzenegger signed Senate Bill 1368 (SB 1368, Perata) into law. SB 1368 required the CEC and the California Public Utilities Commission (CPUC) to develop and adopt regulations for GHG emissions performance standards for the long-term procurement of electricity by local publicly owned utilities. The CEC adopted its standard on May 23, 2007, and the CPUC adopted its standard on January 25, 2007. SB 1368 includes measures that protect energy customers from financial

risks by allowing new capital investments in power plants with GHG emissions that are as low as or lower than new combined-cycle natural gas plants, requiring imported electricity from out-of-state to meet GHG performance standards in California, and requiring that the standards be developed and adopted in a public process.<sup>140</sup>

### ***Executive Order S-1-07***

On January 18, 2007, California further solidified its dedication to reducing GHGs by setting a new Low Carbon Fuel Standard (LCFS) for transportation fuels sold within the state. Executive Order S-1-07 sets a declining standard for GHG emissions measured in CO<sub>2</sub>-equivalent gram per unit of fuel energy sold in California. The target of the LCFS is to reduce the carbon intensity of California passenger vehicle fuels by at least 10 percent by 2020. The LCFS will apply to refiners, blenders, producers, and importers of transportation fuels and will use market-based mechanisms to allow these providers to choose how they reduce emissions during the “fuel cycle” using the most economically feasible methods. The executive order requires the Secretary of Cal/EPA to coordinate with the CEC, CARB, the University of California, and other agencies to develop a protocol to measure the “life-cycle carbon intensity” of transportation fuels. CARB released a draft version of the LCFS in October 2008 and adopted the final regulation on April 23, 2009.

### ***Senate Bill 97 (CEQA Guidelines)***

In August 2007, the legislature enacted SB 97 (Dutton), which directed the Governor’s Office of Planning and Research (OPR) to develop guidelines under CEQA for the mitigation of greenhouse gas emissions. A number of actions have taken place under SB 97, which are discussed below.

### **OPR Climate Change Technical Advisory**

On June 19, 2008, OPR issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents.<sup>141</sup> The advisory indicated that a project’s GHG emissions, including those associated with vehicular traffic, and construction activities, should be identified and estimated. The advisory further recommended that the lead agency determine significance of the impacts and impose all mitigation measures that are necessary to reduce GHG emissions to a less than significant

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<sup>140</sup> The adopted SB 1368 regulations are available on the California Energy Commission’s Web site, [http://www.energy.ca.gov/emission\\_standards/regulations/index.html](http://www.energy.ca.gov/emission_standards/regulations/index.html).

<sup>141</sup> State of California, Governor’s Office of Planning and Research, *CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review*, (2008).

level. The advisory did not recommend a specific threshold of significance. Instead, OPR requested that CARB recommend a method for setting thresholds that lead agencies may adopt.<sup>142</sup>

### **CEQA Guideline Amendments**

In its work to formulate CEQA Guideline Amendments for GHG emissions, OPR submitted the *Proposed Draft CEQA Guideline Amendments for Greenhouse Gas Emissions* to the Secretary for Natural Resources on April 13, 2009. The Natural Resources Agency conducted formal rulemaking procedures in 2009 and adopted the CEQA Guideline Amendments on December 30, 2009.

### ***Senate Bill 375***

The California Legislature passed Senate Bill 375 (SB 375) on September 1, 2008, and SB 375 was signed by Governor Schwarzenegger and chaptered into law on September 30, 2008. SB 375 requires CARB, working in consultation with the metropolitan planning organizations (MPOs), to set regional greenhouse gas reduction targets for the automobile and light truck sector for 2020 and 2035. CARB must provide each MPO with its reduction target by September 30, 2010. The target must then be incorporated within that region's Regional Transportation Plan (RTP), which is used for long-term transportation planning, in a Sustainable Communities Strategy (SCS). Certain transportation planning and programming activities would then need to be consistent with the SCS; however, SB 375 expressly provides that the SCS does not regulate the use of land, and further provides that local land use plans and policies (e.g., general plan) are not required to be consistent with either the RTP or SCS.

In accordance with SB 375, on January 23, 2009, CARB appointed a Regional Targets Advisory Committee (RTAC) to provide recommendations and methodologies to be used in the target setting process. The RTAC provided its recommendations in a report to CARB on September 29, 2009. On August 9, 2010, CARB staff issued the *Proposed Regional Greenhouse Gas Emission Reduction Targets For Automobiles And Light Trucks Pursuant To Senate Bill 375*.<sup>143</sup> CARB staff proposed draft reduction targets for the four largest MPOs (Bay Area, Sacramento, Southern California, and San Diego) of 7 to 8 percent for 2020 and reduction targets between 13 to 16 percent for 2035. CARB staff proposed a draft reduction target for the combined San Joaquin Valley MPOs of 5 percent for 2020 and 10 percent for 2035, acknowledging that the growth rate in the San Joaquin Valley is projected to be double that of most other areas of California. The remaining six MPOs represent about 5 percent of both the state's greenhouse gas emissions and vehicle

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<sup>142</sup> Office of Planning and Research, *Preliminary Draft CEQA Guideline Amendments for Greenhouse Gas Emissions*, (2009) 4.

<sup>143</sup> California Air Resources Board, *Staff Report: Proposed Regional Greenhouse Gas Emission Reduction Targets For Automobiles And Light Trucks Pursuant To Senate Bill 375*, (2010).

miles traveled from passenger vehicles. For these MPOs, CARB staff proposed to use the most current greenhouse gas per capita projections from each MPO, adjusted for the impacts of the recession, as the basis for individual MPO targets for the first target-setting cycle. This approach allows the focus of the first target-setting cycle to appropriately remain on the largest and fastest growing regions of the state. Of note, the proposed reduction targets explicitly exclude emission reductions expected from the AB 1493 and low carbon fuel standard regulations. CARB adopted the above targets on September 23, 2010.

### *California Climate Action Registry*

The California Climate Action Registry (CCAR) is a private non-profit organization formed by the State of California that serves as a voluntary GHG registry to protect and promote early actions to reduce GHG emissions by organizations. Senate Bill 1771 (SB 1771, Sher) formally established the CCAR with technical changes made to the statute in SB 527, which finalized the structure of the CCAR. The CCAR began with 23 charter members and currently has over 300 corporations, universities, cities and counties, government agencies and environment organizations voluntarily measuring, monitoring, and publicly reporting their GHG emissions using the CCAR protocols. The CCAR has published a General Reporting Protocol, as well as project- and industry-specific protocols for landfill activities, livestock activities, the cement sector, the power/utility sector, and the forest sector. The protocols provide the principles, approach, methodology, and procedures required for participation in the CCAR.

Due to the growth of the CCAR, it now operates under the Climate Action Reserve,<sup>144</sup> which is a national offsets program for the United States carbon market. As part of this transition, the California Climate Action Registry was instrumental in establishing The Climate Registry, with the mission of expanding the California Registry's emissions reporting work to include all of North America.<sup>145</sup> Emissions inventory reporting is being transitioned to The Climate Registry, and reports for the 2009 reporting year will be the last the California Registry will accept. However, even after that year, the California Registry will continue to represent its members' emissions reports to the state of California.

### *CAPCOA CEQA and Climate Change White Paper*

The California Air Pollution Control Officers Association (CAPCOA) prepared a white paper on CEQA and Climate Change in January 2008. The white paper contains a disclaimer that states the paper is intended to be used as a resource by lead agencies when considering policy options and not as a guidance

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<sup>144</sup> Additional information about the Climate Action Reserve may be obtained at the following website: <http://www.climateactionreserve.org/>.

<sup>145</sup> Additional information about The Climate Registry may be obtained at the following website: <http://www.theclimateregistry.org/>.

document. The disclaimer also states that it “is not intended, and should not be interpreted, to dictate the manner in which an air district or lead agency chooses to address GHG emissions in the context of its review of projects under CEQA.”<sup>146</sup> Specifically, the white paper discusses three possible approaches to evaluating the significance of GHG emissions and possible mitigation measures; however, CAPCOA does not endorse any particular approach. The three alternative significance approaches are (1) not establishing a significance threshold for GHG emissions; (2) setting the GHG emission threshold at zero; and (3) setting the GHG emission threshold at some non-zero level. The white paper evaluates potential considerations and pitfalls associated with the three approaches. At the end of the white paper, CAPCOA provides a list of potential mitigation measures and discusses each in terms of emissions reduction effectiveness, cost effectiveness, and technical and logistical feasibility.

### ***CARB Proposal for Significance Thresholds for GHGs under CEQA***

On October 24, 2008, CARB staff released a draft and preliminary proposal for determining whether the emissions related to proposed new projects are significant impacts under CEQA. While the proposal is focused on helping lead agencies determine under which conditions a project may be found exempt from the preparation of an EIR, the proposal also provides a guide for establishing significance thresholds for projects for which EIRs would be prepared regardless of the project’s climate change impact. According to this proposal, the threshold for determining whether a project's emissions are significant is not zero emissions, but must be a stringent performance-based threshold to meet the requirements of AB 32. If the project meets certain specific yet to be developed performance standards for several categories of emissions, including construction emissions, building energy use, water use, solid waste, and transportation, and the project emits no more than a certain to be determined amount of metric tons of carbon equivalents per year, the project's impact would not be significant. According to CARB, California Energy Commission Tier II building energy use standards are proposed to be used, which generally require a reduction in energy usage of 30 percent beyond Title 24 building code requirements. CARB has also proposed a 7,000 metric ton carbon dioxide equivalent (MTCO<sub>2e</sub>) threshold for industrial projects, but has not yet proposed thresholds for residential and commercial projects. The annual threshold does not explicitly include emissions associated with construction- and transportation-related activities. The draft proposal was very controversial and CARB Staff no longer has any plans to move forward with any final threshold. A key Preliminary conclusion from the draft threshold, however, was that CARB staff, in setting a numerical threshold for industrial projects and suggesting performance standards, does not believe in ‘zero threshold’ mandated by CEQA.

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<sup>146</sup> California Air Pollution Control Officers Association, *CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*, (2008).

## Local

On December 17, 2009, the SJVAPCD adopted the *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* and the *District Policy – Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency* to assess and reduce the impacts of project-specific GHG emissions on global climate change. The guidance and policy rely on the use of performance based standards, also known as best performance standards, to assess GHG emission significance on global climate change during the environmental review required under CEQA. Projects that comply with the best performance standards are determined to have a less than cumulative significant impact. If projects do not comply with these standards, but demonstrate a 29 percent reduction in GHG emissions from business as usual, the project would also be considered to have a less than cumulative significant impact. It should be noted that the guidance does not limit a lead agency's authority in establishing its own process and guidance for determining significance of project related impacts on global climate change.

### 5.1.9 THRESHOLDS OF SIGNIFICANCE

#### General Thresholds

In accordance with Senate Bill (SB) 97, the Natural Resources Agency adopted amendments to the *State CEQA Guidelines* on December 30, 2009, which includes criteria for evaluating GHG emissions.<sup>147</sup> The Natural Resources Agency delivered its rulemaking package to the Office of Administrative Law for their review pursuant to the Administrative Procedure Act. On February 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The Amendments became effective on March 18, 2010. According to the adopted amendments, a project would have a significant effect on the environment if it would:

- generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The first criteria may be evaluated by performing a direct calculation of the GHG emissions from the project. At the time that this section was being prepared, no agency had yet adopted project-level significance thresholds for GHG emissions relevant to the proposed Project. The SJVAPCD adopted a guidance document on December 17, 2009, for assessing GHG emissions for projects in the SJVAB, but concluded that a numerical GHG significance threshold was not supported by current scientific

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<sup>147</sup> The adopted amendments may be viewed at the following website: <http://ceres.ca.gov/ceqa/guidelines/>. 2009.

knowledge. Instead, the SJVAPCD guidance recommends compliance with best performance standards (BPS) to reduce GHG emissions or demonstrate that a project results in a reduction of GHG emissions by 29 percent compared to an established baseline. Accordingly, while GHG emissions can be quantified, there is no significance threshold relevant to the proposed Project that has been adopted by any federal, state, or local agency to evaluate the significance of the proposed Project under CEQA.

The second criteria may be evaluated by demonstrating compliance with plans, policies, or regulations adopted by local governments to curb GHG emissions. According to the Natural Resources Agency:

*Provided that such plans contain specific requirements with respect to resources that are within the agency's jurisdiction to avoid or substantially lessen the agency's contributions to GHG emissions, both from its own projects and from private projects it has approved or will approve, such plans may be appropriately relied on in a cumulative impacts analysis.*<sup>148</sup>

The City of Porterville has not yet adopted plans, policies, or regulations that contain specific requirements with respect to resources that are within the City's jurisdiction that demonstrate reductions in GHG emissions that would not result in significant environmental impacts under CEQA. Therefore, the second threshold may not be explicitly applied. Under CEQA, "the determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data."<sup>149</sup> CEQA grants agencies with the general authority to adopt criteria for determining whether a given impact is "significant."<sup>150</sup> When no guidance exists under CEQA, the agency may look to and assess general compliance with comparable regulatory schemes.<sup>151</sup> The SJVAPCD's adopted guidance represents a comparable regulatory scheme, and is discussed below.

## San Joaquin Valley Air Pollution Control District Thresholds

The SJVAPCD adopted the *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* in late 2009. According to the guidance, while other agencies have proposed draft numerical thresholds for GHG emissions, notably CARB, the Bay Area Air Quality Management

<sup>148</sup> Natural Resources Agency, *Final Statement of Reasons for Regulatory Action: Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97*, (2009) 15.

<sup>149</sup> *State CEQA Guidelines* Section 15064(b).

<sup>150</sup> See *Cal. Pub. Resources Code* § 21082.

<sup>151</sup> See *Protect Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal. App. 4th 1099, 1107 ["[A] lead agency's use of existing environmental standards in determining the significance of a project's environmental impacts is an effective means of promoting consistency in significance determinations and integrating CEQA environmental review activities with other environmental program planning and resolution."]. Lead agencies can, and often do, use regulatory agencies' performance standards. A project's compliance with these standards usually is presumed to provide an adequate level of protection for environmental resources. See, e.g., *Cadiz Land Co. v. Rail Cycle* (2000) 83 Cal.App.4th 74, 106-09 (upholding use of regulatory agency performance standard).

District, and the South Coast Air Quality Management District, SJVAPCD staff concluded that “the existing science is inadequate to support quantification of the extent to which project specific GHG emissions would impact global climatic features...”<sup>152</sup> Therefore, the SJVAPCD did not establish a numerical threshold for GHG emissions for land use projects. The SJVAPCD guidance recommends the use of BPS to assess the significance of GHG emissions. The SJVAPCD expects that compliance with the recommended BPS would reduce a project’s GHG emissions by a target of 29 percent or more, compared an established baseline. The 29 percent reduction target is based on the goal of AB 32, which is to reduce the state’s GHG emissions to 1990 levels by 2020.

The use of performance standards to evaluate a project’s significance is consistent with legislative activity and guidance provided by other planning agencies in the state. The amendments to the *State CEQA Guidelines* include a new Section 15064.4, which states that, when making a determination of the significance of GHG emissions, a lead agency shall have discretion to determine whether to:

- use a model or methodology to quantify greenhouse gas emissions and/or
- rely on a qualitative analysis or performance based standards.

The SJVAPCD supports the use of performance based standards, but also recognizes that performance standards have not been developed for all sources of GHG emissions. The SJVAPCD guidance provides BPS for sources of GHG emissions from land-use developments that are typical of most projects. The process for establishing source performance standards is expected to be ongoing, as mitigation measures and GHG emission reduction techniques will evolve and improve over time.

As an alternative to complying with the SJVAPCD’s recommended BPS, projects that demonstrate a reduction of 29 percent in GHG emissions from the established baseline would also be considered to result in a less than significant impact under CEQA.

Based on the above, the project’s significance with respect to GHG emissions and global climate change will be assessed based on project features and GHG reduction measures that are consistent with the SJVAPCD’s recommended BPS and the 29 percent reduction target as compared with an established BAU baseline for commercial developments.

#### **5.1.10 GLOBAL CLIMATE CHANGE IMPACTS**

The project is scheduled to be operational in 2011 at the earliest, and would contribute to the GHG inventory on an annual basis (annual emissions in future years would be lower compared to 2011 as vehicle efficiency improves). Though project lifetimes can vary substantially, a 30-year time frame is often

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<sup>152</sup> San Joaquin Valley Air Pollution Control District, *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA*, (2009) 53.

used to represent average project lifetimes. Annual GHG emissions occurring in 2011 would tend to be the worst-case scenario as advanced technologies would be implemented in the future in such areas as energy generation, water conservation, and transportation.

### *Methodologies*

The amendments to the *State CEQA Guidelines* that were adopted by the Natural Resources Agency recommend that lead agencies provide for a “good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate, or estimate the amount of greenhouse gas emissions resulting from a project.” In addition, OPR has stated that, under CEQA, the following steps should be considered when assessing the significance of impacts from GHG emissions on the environment:

1. Identify and quantify the GHG emissions;
2. Assess the significance of the impact on climate change; and
3. If significant, identify alternatives and/or mitigation measures that will reduce impacts below significance.<sup>153</sup>

The analysis for the project is consistent with the recommendations by the Natural Resources Agency and OPR. The analysis will utilize thresholds recommended by the SJVAPCD in determining the significance under CEQA. Other sources consulted for this analysis include the U.S. EPA, the U.S. Energy Information Administration, the California Energy Commission, the California Climate Action Registry, and other GHG and global climate change data, as referenced.

**Impact 5.1-6:                   The proposed project would not emit significant amounts of greenhouse gases.  
*Less than significant impact.***

### *Business as Usual*

The SJVAPCD guidance recommends the use of BPS to assess the significance of GHG emissions. The SJVAPCD expects that compliance with the recommended BPS would reduce a project’s GHG emissions by a target of 29 percent or more, compared an established baseline. The SJVAPD defines the baseline for commercial development projects as the emissions that would occur from a similar project, during the 2002 through 2004 baseline period without any project features or measures beyond those required by statute or regulation that would reduce GHG emissions.

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<sup>153</sup> State of California, Governor’s Office of Planning and Research, *Technical Advisory – CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*, (2008) 5.

### ***Sustainability Measures Required of the Project***

The proposed project will be required to design water-efficient landscape plans consistent with criteria outlined in Section 2624, Landscape Plans Required for Specified Developments, of the Municipal Code.

### ***Sustainability Features Incorporated in the Project Design***

As required by the state and City, the Walmart store will meet or exceed the energy efficiency standards of Title 24. This will be accomplished by designing the project to a building efficiency rating that is greater than the Title 24 requirement. To achieve this reduction in energy consumption, the Walmart store will incorporate, at a minimum, the following sustainability features or other features that are equally efficient.

#### **Energy and Resource Conservation**

##### ***Lighting***

- The entire store will include occupancy sensors in most non-sales areas, including restrooms, break rooms, and offices. The sensors automatically turn the lights off when the space is unoccupied.
- Interior Lighting: All lighting in the store will be T-8 fluorescent lamps and electronic ballasts, resulting in up to a 15 to 20 percent reduction in energy load.
- All exterior building signage and many refrigerated food cases will be illuminated with light emitting diodes (LEDs). In refrigerated food cases, LEDs perform well in the cold and produce less heat than fluorescent bulbs – heat which must be compensated for by the refrigeration equipment. LEDs also contain no mercury or lead.
  - LED technology is up to 52 percent more energy efficient than fluorescent lights.
  - Total estimated energy savings for LED lighting in the store's grocery section is approximately 59,000 kWh per year, enough energy to power five single family homes.

##### ***Day lighting***

- The store will include a daylight harvesting system, which incorporates more efficient lighting, electronic continuous dimming ballasts, skylights and computer controlled daylight sensors that monitor the amount of natural light available. During periods of higher natural daylight, the system dims or turns off the store lights if they are not needed, thereby reducing energy usage. This program will help the store save a substantial amount of energy. Dimming and turning off building lights also helps eliminate unnecessary heat in the building.
- Daylight harvesting can reduce up to 75 percent of the electric lighting energy used in a Walmart store during daylight hours. Each system can save up to an average of 800,000 kWh annually, enough energy to power 73 single family homes (11,020 kWh average annual use.) for an entire year.

### **Central Energy Management System**

Walmart employs a centralized energy management system (EMS) to monitor and control the heating, air conditioning, refrigeration and lighting systems for all stores from Walmart's corporate headquarters in Bentonville, Arkansas. The EMS enables Walmart to constantly monitor and control the expanded store's energy usage, analyze refrigeration temperatures, observe HVAC and lighting performance, and adjust system levels from a central location 24 hours per day, seven days per week. Energy usage for the entire store will be monitored and controlled in this manner.

### ***Heating, Ventilating and Air Conditioning***

- The store will employ one of the industry's most efficient heating, ventilating and air-conditioning (HVAC) units available.

### ***Dehumidification***

- The building will include a dehumidifying system that allows Walmart to operate the store at a higher temperature, use less energy, and allow the refrigeration system to operate more efficiently.

### **White Roofs**

- The store will feature a white membrane roof instead of the typical darker colored roof materials employed in commercial construction. The white membrane roof's higher reflectivity helps reduce building energy consumption and reduces the heat island effect, as compared to buildings utilizing darker roofing colors.

### **Refrigeration**

- Walmart uses non ozone-depleting refrigerants. It uses R404a for the refrigeration equipment. For air conditioning, Walmart has converted to R410a refrigerant.
- Refrigeration equipment will be roof-mounted close to the refrigerated cases. This reduces the amount of copper refrigerant piping, insulation, potential for leaks and refrigerant charge needed.

### **Heat Reclamation**

- The Walmart store will reclaim waste heat from on-site refrigeration equipment to supply approximately 70 percent of the hot water needs for the store.

### **Water Conservation**

- Walmart will install high-efficiency urinals that use only one eighth gallon (1 pint) of water per flush.
  - This fixture reduces water use by 87 percent compared to the conventional 1 gallon per flush urinal.

- The eighth-gallon urinal also requires less maintenance than waterless urinals, making this the better option for Walmart.
- All restroom sinks will use sensor-activated 0.5-gallon per minute high-efficiency faucets.
  - These faucets reduce water usage by approximately 75 percent compared to mandated 1992 EPA Standards.
  - During use, water flows through turbines built into the faucets to generate the electricity needed to operate the motion sensors.
- All restroom toilets will be highly efficient and reduce water use.
  - The fixture uses 20 percent less water compared to mandated EPA Standards, of 1.6 gallon per flush fixtures.
  - The toilets utilize built-in water turbines to generate the power required to activate the flush mechanism.
    - These turbines save energy and material by eliminating electrical conduits required to power automatic flush valve sensors.
- It is estimated that Walmart's water conservation measures could save approximately 70 percent of water used annually at the proposed Walmart store.

### **Materials and Finishes**

- **Cement Mixes:** The newly constructed store will be built using cement mixes that include 15 to 20 percent fly ash, a waste product of coal-fired electrical generation, or 25 to 30 percent slag, a byproduct of the steel manufacturing process. By incorporating these waste product materials into its cement mixes, Walmart offsets the greenhouse gases emitted in the cement manufacturing process.
- The store will use Non-Reinforced Thermoplastic Panel (NRP) in lieu of Fiber Reinforced Plastic (FRP) sheets on the walls in areas where plastic sheeting is appropriate, including food preparation areas, utility and janitorial areas, and associate break rooms. NRP can be recycled, has better impact resistance, and, like FRP, is easy to keep clean.
- The store will use a plant-based oil extracted from a renewable resource as a concrete form release agent (a product sprayed on concrete forms to allow ease of removal after the concrete has set). This release agent is non-petroleum based non-toxic and a biodegradable agent.
- For the store's exterior and interior field paint coatings, Walmart will use low volatile organic compound (VOC) paint.
- Paint products required for the project will be primarily purchased in 55 gallon drums and 275 gallon totes, reducing the number of 1 gallon and 5 gallon buckets needed. These plastic buckets are filled from the drums and totes and then returned to the paint supplier for cleaning and reuse.

- Exposed concrete floors are used “to reduce surface applied flooring materials,” eliminating the need for most chemical cleaners, wax strippers and propane-powered buffing.

### **Recycled Building Materials**

- Construction of the new store will use steel containing approximately 90–98 percent recycled structural steel, which utilizes less energy in the mining and manufacturing process than does new steel.
- All of the plastic baseboards and much of the plastic shelving included in the expansion area will be composed of recycled plastic.

### **Construction and Demolition (C&D) Recycling**

Walmart will employ a Construction and Demolition (C&D) program at this location in order to capture and recycle as much of the metals, woods, floor and ceiling tiles, concretes, asphalts and other materials generated as part of Walmart’s demolition and construction process as possible. Walmart will work with a waste management company to fully research all available C&D recycling facilities in the area, and its C&D program will seek to include the widest possible range of materials recovery options.

### **Landscaping and Pedestrian Access**

Walmart will provide a shaded parking lot and walkways to reduce the urban heat island effect and encourage pedestrian access to the site by employing the following measures:

- Shaded parking lot and driveway areas at a minimum rate of one tree per eight parking spaces.
- A minimum of 5 percent of the parking area are to be shaded with other plant materials.
- A minimum of 50 percent of walkways are to be shaded from trees and architectural features within seven years of project completion.
- Trees along the Springville Avenue, Indiana Street, Vandalia Avenue, and State Route 190 frontages of the property.
- Bike lockers and/or shaded racks to encourage employee and patron bicycle use.

### ***Construction Impacts***

During construction, the proposed project would directly contribute to climate change through its contribution of the greenhouse gases CO<sub>2</sub>, CH<sub>4</sub>, and NO<sub>2</sub> from the exhaust of construction equipment and construction workers’ vehicles. The manufacture of construction materials used by the project would indirectly contribute to climate change (upstream emission source). Upstream emissions are emissions that are generated during the manufacture of products used for construction (e.g., cement, steel, and

transport of materials to the region). The upstream GHG emissions for this project, which may also include perfluorocarbons and sulfur hexafluoride, are not estimated in this impact analysis because they are not within the control of the project and the lack of data precludes their quantification without speculation.

Emissions of CH<sub>4</sub> and NO<sub>2</sub> from project construction would be negligible. CO<sub>2</sub> emissions were estimated with URBEMIS2007, using the assumptions described in the construction air quality analysis. The following adjustments to convert CO<sub>2</sub> emissions to GHG emissions on a CO<sub>2e</sub> basis were used:

- **Construction diesel trucks and equipment:** The CO<sub>2</sub> emissions associated with off-road and on-road equipment were multiplied by a factor based on the assumption that CO<sub>2</sub> represents approximately 99.1 and 99.9 percent, respectively, of the CO<sub>2e</sub> emissions. These assumptions were derived from the California Climate Action Registry<sup>154</sup> and the California Energy Commission.<sup>155</sup>
- **Motor vehicles:** The CO<sub>2</sub> emissions associated with project-generated trips were multiplied by a factor based on the assumption that CO<sub>2</sub> represents 95 percent of the CO<sub>2e</sub> emissions associated with passenger vehicles, which account for most of the project-related trips.<sup>156</sup>

The estimated GHG emissions during construction are shown in **Table 5.1-15, Estimated Construction GHG Emissions**. Construction GHG emissions would occur only during construction activities. It is common practice to amortize construction-related GHG emissions over the project's lifetime in order to include these emissions as part of a project's annualized lifetime total emissions so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies. The South Coast Air Quality Management District has defined a project (all types, i.e., commercial, residential, etc.) lifetime to be 30 years.<sup>157</sup> Therefore, the construction GHG emissions have been annualized over a 30-year period and included in the annualized operational total discussed in the next section.

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<sup>154</sup> California Climate Action Registry, *General Reporting Protocol: Reporting Entity-Wide Greenhouse Gas Emissions*, Version 3.1, (2009) 96, 98, 100.

<sup>155</sup> California Energy Commission, *Diesel Use in California*, Remarks by Commissioner James D. Boyd, (2002).

<sup>156</sup> U.S. Environmental Protection Agency, Office of Transportation and Air Quality, *Greenhouse Gas Emissions from a Typical Passenger Vehicle (EPA420-F-05-004)*, (2005) 4.

<sup>157</sup> South Coast Air Quality Management District, *CEQA Air Quality Analysis Guidance Handbook*, 2009.

**Table 5.1-15**  
**Estimated Construction GHG Emissions**

GHG Emissions Source	Emissions (Metric Tons CO <sub>2</sub> e/year)
Construction Year 2010	290.65
Construction Year 2011	63.61
Amortized GHG Emissions over Project Lifetime	11.81

*Source: Impact Sciences, Inc., (2010). Emissions calculations are provided in Appendix 5.1.*

It was assumed that construction-related BAU emissions would be similar to that of the proposed project. CARB has adopted some measures that will reduce construction-related GHG emissions. In accordance with the *Climate Change Scoping Plan* for AB 32, reductions in GHG emissions from construction equipment are expected to occur upon implementation of the low carbon fuel standard (Scoping Plan Measure 5) and vehicle hybridization and energy efficiency standards adopted for medium- and heavy-duty vehicles (Scoping Plan Measure 10). However, it is unlikely that these measures would be in full effect at the time of project construction. Therefore, as a conservative assumption, construction-related BAU and project emissions were considered to be the same.

### ***Operational Impacts***

At buildout, the proposed project would generate direct operational emissions of GHGs. These emissions—primarily CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O—would be the result of fuel combustion from building heating systems and motor vehicles. Building and motor vehicle refrigeration and air conditioning systems may use HFCs (and HCFCs and CFCs to the extent that they have not been completely phased out) and may result in additional fugitive GHG emissions through leaks. Water vapor and O<sub>3</sub> are not quantified as project GHG emissions because water vapor concentrations in the upper atmosphere are primarily due to climate feedbacks<sup>158</sup> rather than emissions from project-related activities. Furthermore, O<sub>3</sub> in the troposphere is relatively short-lived and project emissions of ozone precursors would not significantly contribute to climate change.

<sup>158</sup> A climate feedback is an indirect, or secondary climatic change that occurs in response to a forcing mechanism. For example, a disturbance that causes global temperatures to increase could cause more water to evaporate from the oceans, leading to larger amounts of water vapor in the atmosphere absorbing more radiation from the earth's surface and emitting more radiation back, thereby enhancing the greenhouse effect and further increasing the air temperature.

The direct operational emissions of CO<sub>2</sub> were estimated with URBEMIS2007 using the same assumptions described in the air quality analysis. The following adjustments to convert CO<sub>2</sub> emissions to GHG emissions on a CO<sub>2</sub>e basis were used:

- **Area sources (natural gas combustion and landscaping equipment):** The CO<sub>2</sub> emissions from natural gas consumption for the project were adjusted based on emission factors for CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O for natural gas combustion from URBEMIS2007 and the CCAR.<sup>159</sup>
- **Motor vehicles:** The CO<sub>2</sub> emissions associated with project-generated trips were multiplied by a factor based on the assumption that CO<sub>2</sub> represents 95 percent of the CO<sub>2</sub>e emissions associated with passenger vehicles, which account for most of the project-related trips.<sup>160</sup>

The project would also result in indirect GHG emissions from electricity consumption, water supply, treatment, and distribution, wastewater collection and treatment, and solid waste generation.

Electricity would not only be used on the project site, but would also be used in the water and wastewater treatment process, as well as in the conveyance process where in-line pumps would be required. GHG emission factors from project electrical demand were obtained from the CARB *Local Government Operations Protocol*.<sup>161</sup> The estimated annual electrical demand for the project was obtained from **Section 5.14, Energy**. The estimated annual water demand, wastewater generation, and solid waste generation rates were obtained from **Section 5.11, Utilities – Water Supply**, **Section 5.12, Utilities – Sanitary Sewer**, and **Section 5.13, Utilities – Solid Waste Disposal**, respectively. The annual electrical demand factor for water treatment and distribution<sup>162</sup> was obtained from the CEC. GHG emission factors for solid waste disposal were obtained from the U.S. EPA.<sup>163</sup>

Fugitive GHG emissions would result from the leakage of high-GWP gases from refrigeration and air conditioning equipment. Estimating these fugitive emissions carries a high degree of uncertainty because they largely occur through accidental leaks or unexpected damage to the equipment. In addition, refrigeration and air conditioning equipment may use a wide variety of HFCs, or mixtures of several different HFCs, all of which have GWP values that range from 140 to 6,300. The U.S. EPA has published a

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<sup>159</sup> California Climate Action Registry, *General Reporting Protocol: Reporting Entity-Wide Greenhouse Gas Emissions*, Version 3.1, (2009) 101–103.

<sup>160</sup> U.S. Environmental Protection Agency, Office of Transportation and Air Quality, *Greenhouse Gas Emissions from a Typical Passenger Vehicle (EPA420-F-05-004)*, (2005) 4.

<sup>161</sup> California Air Resources Board, *Local Government Operations Protocol: For the quantification and reporting of greenhouse gas emission inventories*, Version 1.0, (2008).

<sup>162</sup> California Energy Commission, *Refining Estimates of Water-Related Energy Use in California, PIER Final Project Report (CEC-500-2006-118)*, (2006) 22. Prepared by Navigant Consulting, Inc.

<sup>163</sup> U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, *Greenhouse Gas Emission Factors for Management of Selected Materials in Municipal Solid Waste (EPA-530-R-98-013)*, (1998).

methodology with default emission factors for estimating fugitive HFC emissions.<sup>164</sup> This assessment provides an estimate of the fugitive HFC emissions associated with refrigeration and air conditioning equipment associated with the project utilizing the U.S. EPA's methodology with the understanding that the calculations carry a high degree of uncertainty.

The project contains features that are not required by statute or regulation that would reduce the project's overall GHG emissions compared to the BAU case. In addition, several new statutes and regulations have been promulgated since the 2002 through 2004 baseline period. The SJVAPCD allows projects to take credit for GHG reductions that result from project features not required by statute or regulation and from new statutes and regulations that have been promulgated since the 2002 through 2004 baseline period. This is consistent with AB 32 because CARB projected the 2020 emissions using emission standards from the 2002 through 2004 period. Therefore, a project that demonstrates a reduction in GHG emissions of 29 percent compared to a BAU case with a 2002 through 2004 baseline is also consistent with AB 32.

The reduction in GHG emissions due to the project's features and statutory and regulatory changes that have taken place since 2004 are summarized below in **Table 5.1-16, GHG Reductions from Project Features and Regulations**. As noted earlier, the process for establishing source performance standards is ongoing, as mitigation measures and GHG emission reduction techniques evolve and improve over time. Therefore, quantifiable emission reductions are not possible for some of the measures.

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<sup>164</sup> U.S. Environmental Protection Agency, *Direct HFC and PFC Emissions from Use of Refrigeration and Air Conditioning Equipment*, (2008).

**Table 5.1-16  
GHG Reductions from Project Features and Regulations**

Feature/Regulation	Reductions in GHG Emissions	Consistency
<p><b>Title 24 Building Code Standards:</b></p> <ul style="list-style-type: none"> <li>The Title 25 standards were revised by the California Energy Commission in 2008.</li> </ul>	<ul style="list-style-type: none"> <li>Project-wide reductions related to the Title 24 (2008) standards relative to the previous standard for new nonresidential buildings: 9.40% natural gas; 4.90% electricity. (CEC 2007)</li> </ul>	CEC; SJVAPCD.
<p><b>Reduction in Travel Length:</b></p> <ul style="list-style-type: none"> <li>Mixed Uses: The proposed project would locate a retail center with multiple uses within 0.25 mile of existing and future residential development. This would provide nearby residents with the opportunity to walk for services or reduce travel lengths.</li> <li>Infill Development: Project site is on a vacant infill site, redevelopment area, or brownfield or greyfield lot that is highly accessible to regional destinations, where the destinations rating of the development site (measured as the weighted average travel time to all other regional destinations) is improved by 100% when compared to an alternate greenfield site.</li> </ul>	<ul style="list-style-type: none"> <li>Reductions for mixed uses: 3% reduction in transportation emissions.</li> <li>Infill Development: Reduces vehicle trips and VMT by 3% and 20%, respectively (Fehr &amp; Peers 2007).</li> </ul>	AG; CAPCOA: MM D-10; CARB: SPM-6 (Regional Transportation-Related Greenhouse Gas Targets); OPR; SJVAPCD: BPS-24
<p><b>Lighting:</b></p> <ul style="list-style-type: none"> <li>The entire store will include occupancy sensors in most non-sales areas, including restrooms, break rooms, and offices. The sensors automatically turn the lights off when the space is unoccupied.</li> <li>Interior Lighting: All lighting in the store will be T-8 fluorescent lamps and electronic ballasts, resulting in up to a 15-20 percent reduction in energy load.</li> <li>All exterior building signage and many refrigerated food cases will be illuminated with LEDs. In refrigerated food cases, LEDs perform well in the cold and produce less heat than fluorescent bulbs – heat which must be compensated for by the refrigeration equipment. LEDs also contain no mercury or lead.</li> <li>LED technology is up to 52 percent more energy efficient than fluorescent lights.</li> <li>Total estimated energy savings for LED lighting in the store's grocery section is approximately 59,000 kWh per year, enough energy to power five single family homes.</li> </ul>	<ul style="list-style-type: none"> <li>Reductions related to the use of T-8 fluorescent lamps and electronic ballasts: 15% electricity (reduction applied to Walmart store only).</li> <li>Reductions related to the use of LED lighting in Walmart's grocery store: 1.14% electricity (reduction applied to Walmart store only).</li> </ul>	AG; CARB: SPM-3 (Energy Efficiency), SPM-13 (Green Building Strategy); OPR.

Feature/Regulation	Reductions in GHG Emissions	Consistency
<p><b>Day Lighting:</b></p> <ul style="list-style-type: none"> <li>The store will include a daylight harvesting system, which incorporates more efficient lighting, electronic continuous dimming ballasts, skylights and computer controlled daylight sensors that monitor the amount of natural light available. During periods of higher natural daylight, the system dims or turns off the store lights if they are not needed, thereby reducing energy usage. This program will help the store save a substantial amount of energy. Dimming and turning off building lights also helps eliminate unnecessary heat in the building.</li> <li>Daylight harvesting can reduce up to 75 percent of the electric lighting energy used in a Walmart store during daylight hours. Each system can save up to an average of 800,000 kWh annually, enough energy to power 73 single family homes (11,020 kWh average annual use.) for an entire year.</li> </ul>	<ul style="list-style-type: none"> <li>Reductions related to the use of a day lighting system in Walmart: 15.49% electricity (reduction applied to Walmart store only).</li> </ul>	<p>AG; CAPCOA: MM E-22; CARB: SPM-3 (Energy Efficiency), SPM-13 (Green Building Strategy).</p>
<p><b>Central Energy Management System:</b></p> <ul style="list-style-type: none"> <li>Walmart employs a centralized EMS to monitor and control the heating, air conditioning, refrigeration, and lighting systems for all stores from Walmart's corporate headquarters in Bentonville, Arkansas. The EMS enables Walmart to constantly monitor and control the expanded store's energy usage, analyze refrigeration temperatures, observe HVAC and lighting performance, and adjust system levels from a central location 24 hours per day, seven days per week. Energy usage for the entire store will be monitored and controlled in this manner.</li> <li>The store will employ one of the industry's most efficient heating, ventilating and air conditioning (HVAC) units available.</li> <li>The building will include a dehumidifying system that allows Walmart to operate the store at a higher temperature, use less energy, and allow the refrigeration system to operate more efficiently.</li> </ul>	<ul style="list-style-type: none"> <li>According to data published by CAPCOA, projects that optimize a building's thermal distribution by separating ventilation and thermal conditioning systems have a low potential to reduce GHG emissions (1%-10%; EDAW 2006). Reductions are not included for the project due to lack of specific details.</li> </ul>	<p>AG; CAPCOA: MM E-20; CARB: SPM-3 (Energy Efficiency), SPM-13 (Green Building Strategy).</p>

Feature/Regulation	Reductions in GHG Emissions	Consistency
<p><b>White Roofs:</b></p> <ul style="list-style-type: none"> <li>The store will feature a white membrane roof instead of the typical darker colored roof materials employed in commercial construction. The white membrane roof's higher reflectivity helps reduce building energy consumption and reduces the heat island effect, as compared to buildings utilizing darker roofing colors.</li> </ul>	<ul style="list-style-type: none"> <li>According to data published by CAPCOA and SMAQMD, emission reductions are available based on use of Energy Star compliant (highly reflective) and high emissivity roofing (emissivity of at least 0.9 when tested in accordance with ASTM 408) for a minimum of 75% of the roof surface.</li> <li>Reductions related to the use of white roofs at Walmart: 1% electricity (reduction applied to Walmart store only).</li> </ul>	<p>AG; CAPCOA: MM E-13; CARB: SPM-3 (Energy Efficiency), SPM-13 (Green Building Strategy).</p>
<p><b>Refrigeration:</b></p> <ul style="list-style-type: none"> <li>Walmart uses non ozone-depleting refrigerants. It uses R404a for the refrigeration equipment. For air conditioning, Walmart has converted to R410a refrigerant.</li> <li>Refrigeration equipment will be roof-mounted close to the refrigerated cases. This reduces the amount of copper refrigerant piping, insulation, potential for leaks and refrigerant charge needed.</li> </ul>	<ul style="list-style-type: none"> <li>Both R404a and R410a do not contribute to ozone depletion, unlike R22, which is being phased out under the Montreal Protocol (ratified by the U.S. in 1987). Reductions from the use of these compounds are not included for the project.</li> </ul>	<p>CARB: SPM-14 (High-GWP Gases).</p>
<p><b>Heat Reclamation:</b></p> <ul style="list-style-type: none"> <li>The Walmart store will reclaim waste heat from on-site refrigeration equipment to supply approximately 70% of the hot water needs for the store.</li> </ul>	<ul style="list-style-type: none"> <li>While this measure will reduce GHG emissions associated with heating water, information is not available to determine the reductions for the project.</li> </ul>	<p>CARB: SPM-3 (Energy Efficiency), SPM-13 (Green Building Strategy).</p>
<p><b>Water Conservation:</b></p> <ul style="list-style-type: none"> <li>Walmart will install high-efficiency urinals that use only 0.125 gallon (one pint) of water per flush.</li> <li>This fixture reduces water use by 87 percent compared to the conventional 1 gallon per flush urinal.</li> <li>The 0.125 gallon urinal also requires less maintenance than waterless urinals, making this the better option for Walmart.</li> <li>All restroom sinks will use sensor-activated 0.5 gallon per minute high-efficiency faucets.</li> <li>These faucets reduce water usage by approximately 75 percent compared to mandated 1992 EPA Standards.</li> <li>During use, water flows through turbines built into the faucets to generate the electricity needed to operate the motion sensors.</li> <li>All restroom toilets will be highly efficient and reduce water use.</li> </ul>	<ul style="list-style-type: none"> <li>Reductions related to the use of water conservation measures in Walmart: 70% water-related electricity (reduction applied to Walmart store only).</li> </ul>	<p>AG; CAPCOA: MM D-17, MM E-23; CARB: SPM-17 (Water); OPR.</p>

Feature/Regulation	Reductions in GHG Emissions	Consistency
<p><b>Water Conservation (cont'd):</b></p> <ul style="list-style-type: none"> <li>• The fixture uses 20 percent less water compared to mandated EPA Standards, of 1.6 gallon per flush fixtures.</li> <li>• The toilets utilize built-in water turbines to generate the power required to activate the flush mechanism.</li> <li>• These turbines save energy and material by eliminating electrical conduits required to power automatic flush valve sensors.</li> <li>• It is estimated that Walmart's water conservation measures could save approximately 70% of water used annually at this store.</li> </ul>		
<p><b>Materials and Finishes:</b></p> <ul style="list-style-type: none"> <li>• <b>Cement Mixes:</b> The newly constructed store will be built using cement mixes that include 15-20 percent fly ash, a waste product of coal-fired electrical generation, or 25-30 percent slag, a byproduct of the steel manufacturing process. By incorporating these waste product materials into its cement mixes, Walmart offsets the greenhouse gases emitted in the cement manufacturing process.</li> <li>• The store will use Non-Reinforced Thermoplastic Panel (NRP) in lieu of Fiber Reinforced Plastic (FRP) sheets on the walls in areas where plastic sheeting is appropriate, including food preparation areas, utility and janitorial areas, and associate break rooms. NRP can be recycled, has better impact resistance, and like FRP, is easy to keep clean.</li> <li>• The store will use a plant based oil extracted from a renewable resource as a concrete form release agent (a product sprayed on concrete forms to allow ease of removal after the concrete has set). This release agent is non-petroleum based non-toxic and a biodegradable agent.</li> <li>• For the store's exterior and interior field paint coatings, Walmart will use low volatile organic compound (VOC) paint.</li> <li>• Paint products required for the project will be primarily purchased in 55 gallon drums and 275 gallon totes, reducing the number of 1 gallon and 5 gallon buckets needed. These plastic buckets are filled from the drums and totes and then returned to the paint supplier for cleaning and reuse.</li> </ul>	<ul style="list-style-type: none"> <li>• While these measures will reduce GHG emissions associated with the project, information is not available to determine the reductions for the project.</li> </ul>	N/A

Feature/Regulation	Reductions in GHG Emissions	Consistency
<p><b>Materials and Finishes (cont'd):</b></p> <ul style="list-style-type: none"> <li>Exposed concrete floors are used “to reduce surface applied flooring materials,” eliminating the need for most chemical cleaners, wax strippers and propane-powered buffing.</li> </ul>		
<p><b>Recycled Building Materials:</b></p> <ul style="list-style-type: none"> <li>Construction of the new store will use steel containing approximately 90-98 percent recycled structural steel, which utilizes less energy in the mining and manufacturing process than does new steel.</li> <li>All of the plastic baseboards and much of the plastic shelving included in the expansion area will be composed of recycled plastic.</li> </ul>	<ul style="list-style-type: none"> <li>While these measures will reduce GHG emissions associated with the project, the reductions are anticipated to be low.</li> </ul>	AG; CARB: SPM-15 (Recycling and Waste); OPR.
<p><b>Construction and Demolition (C&amp;D) Recycling:</b></p> <ul style="list-style-type: none"> <li>Walmart will employ a Construction and Demolition (C&amp;D) program at this location in order to capture and recycle as much of the metals, woods, floor and ceiling tiles, concretes, asphalts and other materials generated as part of Walmart’s demolition and construction process as possible. Walmart will work with a waste management company to fully research all available C&amp;D recycling facilities in the area, and its C&amp;D program will seek to include the widest possible range of materials recovery options.</li> </ul>	<ul style="list-style-type: none"> <li>While this measure will reduce GHG emissions associated with the project, the reductions are anticipated to be low.</li> </ul>	AG; CARB: SPM-15 (Recycling and Waste); OPR.
<p><b>Landscaping and Pedestrian Access:</b></p> <p>Walmart will provide a shaded parking lot and walkways to reduce the urban heat island effect and encourage pedestrian access to the site by employing the following measures:</p> <ul style="list-style-type: none"> <li>Shaded parking lot and driveway areas at a minimum rate of one tree per eight parking spaces.</li> <li>A minimum of 5 percent of the parking area are to be shaded with other plant materials.</li> <li>A minimum of 50 percent of walkways are to be shaded from trees and architectural features within seven years of project completion.</li> <li>Trees along the Springville Avenue, Indiana Street, Vandalia Avenue, and Route 190 frontages of the property.</li> <li>Bike lockers and or shaded racks to encourage employee and patron bicycle use.</li> </ul>	<ul style="list-style-type: none"> <li><b>Pedestrian Network:</b> Project will provide a pedestrian path of access from Springville Avenue, Indiana Street, and Vandalia Avenue to all store fronts on the project site: 1% reduction in transportation emissions (reduction applied to Walmart store only).</li> <li><b>Pedestrian Pathway through Parking:</b> Landscaped or shaded pedestrian spines will also be located through all major parking lots to provide pedestrian connectivity: 0.5% reduction in transportation emissions (reduction applied to Walmart store only).</li> </ul>	AG; CAPCOA: MM T-1, MM T-2, MM T-5, MM T-12, MM T-14; CARB: SPM-6 (Regional Transportation-Related Greenhouse Gas Targets), SPM-13 (Green Building Strategy); OPR; SJVAPCD: BPS-1, BPS-2, BPS-5, BPS-14.

Feature/Regulation	Reductions in GHG Emissions	Consistency
	<ul style="list-style-type: none"> <li>• Non-roof Surfaces: Shaded parking lot and driveway areas at a minimum rate of one tree per eight parking spaces; A minimum of 5 percent of the parking area are to be shaded with other plant materials; A minimum of 50 percent of walkways are to be shaded from trees and architectural features within seven years of project completion; Trees along the Springville Avenue, Indiana Street, Vandalia Avenue, and Route 190 frontages of the property: 1% reduction in electricity (reduction applied to Walmart store only).</li> <li>• Bicycle Parking: Bike lockers will be provided along store fronts to encourage employee and patron bicycle use: 0.625% reduction in transportation emissions (reduction applied to Walmart store only).</li> <li>• End of Trip Facilities: Bike lockers will be provided along store fronts to encourage employee and patron bicycle use: 0.625% reduction in transportation emissions (reduction applied to Walmart store only).</li> </ul>	

Source: Impact Sciences, Inc., (2010).

Notes:

AG = Attorney General, The California Environmental Quality Act –Addressing Global Warming Impacts at the Local Agency Level, (2008).

CAPCOA = California Air Pollution Control Officers Association, CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act, (2008).

CARB = California Air Resources Board, Climate Change Scoping Plan, (2008).

CEC = California Energy Commission, Impact Analysis: 2005 and 2008 Update to the California Energy Efficiency Standards, (2003 and 2007).

OPR = Office of Planning and Research, Technical Advisory: CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review, (2008).

SJVAPCD = San Joaquin Valley Air Pollution Control District, Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA, (2009).

The estimated maximum annual GHG emissions are shown in **Table 5.1-17, Estimated Annual Operational GHG Emissions**, for the BAU case (which does not apply the emissions reductions above) and for the proposed project (which includes the reductions associated with the project features and regulations above). Detailed emission calculations are provided in **Appendix 5.1**.

**Table 5.1-17**  
**Estimated Annual Operational GHG Emissions**

GHG Emissions Source	Emissions (Metric Tons CO <sub>2</sub> e/year)		
	BAU Project	Proposed Project with Features	Percent Reduced from BAU
Amortized Construction	11.81	11.81	0.0%
Motor Vehicles	11,799.97	7,052.23	40.2%
Area Sources (Natural Gas and Landscaping Equipment)	390.98	354.28	9.4%
Electricity Consumption	1,590.20	976.54	38.6%
Solid Waste Generation	161.54	161.54	0.0%
Water Supply, Treatment, and Distribution	9.70	3.75	61.4%
Wastewater Treatment	1.07	0.43	59.9%
Fugitive HFC Emissions (Refrigeration)	2,543.41	2,543.41	0.0%
Fugitive HFC Emissions (Air Conditioning)	926.49	705.31	23.9%
<b>Annual Total GHG Emissions</b>	<b>17,435.17</b>	<b>11,809.30</b>	<b>32.3%</b>

*Source: Impact Sciences, Inc. Emissions calculations are provided in Appendix 5.1.  
Totals in table may not appear to add exactly due to rounding.*

As shown in **Table 5.1-17**, GHG emissions from motor vehicles represent over half of the total emissions associated with operation of the proposed project. Neither the state nor the federal government regulates tailpipe GHG emissions. However, several regulatory actions have taken place at the federal and state level that would reduce GHG emissions from motor vehicles, and these reductions were not accounted for in the emissions model.

This assessment is conservative because it does not account for improvements in fuel economy standards for cars, light trucks, and sport utility vehicles. On September 15, 2009, the U.S. EPA and the NHTSA issued a joint proposal to establish a national program consisting of new standards for model year 2012 through 2016 light-duty vehicles that will reduce GHG emissions and improve fuel economy. The proposed standards would be phased in and would require passenger cars and light-duty trucks to comply with a declining emissions standard starting in 2012. By 2016, the vehicles would have to meet an average standard of 250 grams of CO<sub>2</sub> per mile and 35.5 miles per gallon. Additionally, as mentioned above, California has adopted the Low Carbon Fuel Standard. Under CARB's Climate Change Scoping Plan, fuel-efficient tire standards are being pursued (Scoping Plan Measure 7). These anticipated reductions are not accounted for in the air quality models.

Similarly, the GHG emissions associated with electricity, natural gas, and water consumption represent conservative estimates since the effect of many of the project design features (discussed below) are not included in the emission calculations. Furthermore, as building code standards require even more energy-efficiency measures in the future and as mandates to decrease the carbon footprint of electricity in California are adopted, the assessment will become even more conservative. For these reasons, the GHG emissions associated with electricity, natural gas, and water consumption represent conservative estimates.

While the proposed project would result in emissions of GHGs, no guidance exists to indicate what level of GHG emissions would be considered substantial enough to result in a significant adverse impact on global climate. Global climate change models are not sensitive enough to be able to predict the effect of a single project on global temperatures and the resultant effect on climate; therefore, they cannot be used to evaluate the significance of a project's impact.

It is generally the case that an individual project of this size is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory.<sup>165</sup> GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective.<sup>166</sup> In addition, man-made GHG emissions from the State of California as of 2008 totaled approximately 474 MMTCO<sub>2</sub>e (including GHG emissions associated with imported electricity).<sup>167</sup> The state's GHG emissions inventory in more recent years may differ; however, the data presented reflects the currently available emissions data. Assuming state GHG emissions of 474 MMTCO<sub>2</sub>e, the proposed project would contribute approximately 0.0025 percent to the annual state GHG inventory. For the reasons discussed in this section and because the project incorporates GHG reduction measures and strategies, the project by itself would have a less than significant impact on global climate change.

### 5.1.11 GLOBAL CLIMATE CHANGE CUMULATIVE IMPACTS

**Impact 5.1-7:                    The proposed project would not conflict with an applicable plan, policy, or regulation concerning greenhouse gas reductions. *Less than significant impact.***

Project impacts would have a cumulatively considerable contribution to global climate change impacts if the project is not consistent with an applicable plan, policy, or regulation concerning greenhouse gas

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<sup>165</sup> California Air Pollution Control Officers Association, *CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*, (2008) 35.

<sup>166</sup> California Air Pollution Control Officers Association, *CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*, (2008) 35.

<sup>167</sup> California Air Resources Board, *California 1990 Greenhouse Gas Emissions Level and 2020 Emissions Limit*, (2007) Table 3, p. 7.

reductions. The project's contribution to state, national, and global GHG emission inventories and the resultant effect on global climate should be evaluated on a cumulative basis. As the project would generate GHG emissions, it could potentially result in cumulative impacts of GHG emissions on global climate.

Under Section 15064(h)(1) of the *State CEQA Guidelines*, a project must be assessed to determine if it would have a cumulatively considerable effect on a resource, where cumulatively considerable is defined as "the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects."<sup>168</sup> Section 15064(h)(4) further states, "The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable."<sup>169</sup> Therefore, the fact that the proposed project would result in emissions of GHGs (chiefly carbon dioxide), and that global GHGs emissions contribute to the greenhouse effect and the resultant impacts on global climate, does not necessarily mean that the project would have a cumulatively considerable impact on global climate.

In accordance with the SJVAPCD guidance, the project's significance with respect to GHG emissions and global climate change is based on project features and GHG reduction measures that are consistent with the SJVAPCD's recommended BPS and/or a 29 percent reduction target as compared with an established BAU baseline for commercial developments. The reduction in GHG emissions due to the project's features and statutory and regulatory changes that have taken place since 2004 are summarized in **Table 5.1-16**. As noted earlier, the process for establishing source performance standards is ongoing, as mitigation measures and GHG emission reduction techniques evolve and improve over time. Nonetheless, the project is estimated to reduce GHG emission compared to the BAU case by 32.3 percent, as shown in **Table 5.1-17**.

The proposed project would include features that are generally consistent with control measures established by other policymakers and agencies, including the Office of the Attorney General, CAPCOA, CARB, OPR, and the SJVAPCD. As summarized in **Table 5.1-16**, the proposed project includes numerous resource conservation and energy efficiency measures, green building standards, and would reduce dependency on automobiles by encouraging public transportation and pedestrian activity by locating in an infill development site near residential and commercial land uses. While the full magnitude of the GHG reductions cannot be determined at this point, based on compliance with the measures above, the proposed project would reduce its contribution to GHG emissions and global climate relative to BAU conditions.

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<sup>168</sup> California Code of Regulations (CCR), Title 14, Division 6, Chapter 3, *California Environmental Quality Act Guidelines*, Section 15064.

<sup>169</sup> California Code of Regulations (CCR), Title 14, Division 6, Chapter 3, *California Environmental Quality Act Guidelines*, Section 15064.

As shown in **Table 5.1-17**, the Project would result in unmitigated annualized GHG emissions of approximately 11,809 MTCO<sub>2e</sub> per year (0.012 MMTCO<sub>2e</sub> per year). It is generally not appropriate to compare a project's emissions with the cumulative emissions from nearby projects. The SJVAPCD has not identified a distance from a project with which to compare emissions in order to assess cumulative air quality impacts. Rather, addressing cumulative impacts should be done using an air basin-wide approach by assessing consistency with applicable air quality management plans. In the case of GHG emissions, state and local agencies have also not identified a distance from a project with which to assess cumulative GHG emissions, as GHG emissions from the entire state have the potential to impact global climate. Therefore, the potential for cumulative GHG impacts are addressed at the state and regional levels. Compared to the estimated GHG for all sources in California (474 MMTCO<sub>2e</sub> per year, including out-of-state electrical generation), the project's contribution to global climate would be imperceptible. Based on these calculations, the project would add approximately 0.0025 percent to the State of California GHG emissions inventory. As stated above, no quantitative emission thresholds or similar criteria have been established to evaluate the cumulative impact of a single project on global climate. However, based on the findings that the project incorporates objectives and GHG reduction measures that would reduce the contribution to cumulative GHG emissions by 32.3 percent, and that the project is generally consistent with control measures established under other programs, such as the Office of the Attorney General's recommended mitigation measures, AB 32, the CAPCOA white paper, the OPR technical advisory, and the SJVAPCD guidance, the project would have a less than significant cumulative impact on global climate change and would not result in cumulatively considerable GHG emissions.

### ***Off-Site GHG Reduction Options***

There are currently no feasible programs or opportunities to offset GHG emissions by purchasing offsets. CARB is currently working on a cap and trade program; however, it is not operational at this time. In addition, the SJVAPCD has begun work on the San Joaquin Valley Carbon Exchange under the Climate Change Action Plan; however, it is unknown at the time this report was written when the San Joaquin Valley Carbon Exchange program would be in effect; therefore, offsetting the project's GHG contribution is not feasible. Furthermore, current offset providers are not based in California and it is not known to what extent the offset programs would reduce emissions within California; therefore, it is unknown whether purchasing such offsets would assist the state in meeting its AB 32 goals.

### **Mitigation Measures**

No mitigations required.

### **Residual Impacts**

Impacts would be less than significant.