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## V. ENVIRONMENTAL IMPACT ANALYSIS

### B. AIR QUALITY

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#### INTRODUCTION

This section describes existing air quality conditions in the region and potential project impacts to local and regional air quality. Mitigation measures to reduce or eliminate potentially significant air quality impacts are identified, where appropriate. This section has been prepared using methodologies and assumptions recommended in the air quality impact assessment guidelines of the Bay Area Air Quality Management District (BAAQMD).<sup>1</sup> The EIR preparers reviewed the BAAQMD permit application for the proposed project, which is included in Volume II, Appendix D of this Draft EIR:

- *Application to the Bay Area Air Quality Management District, Barge Off-Loading Facility and Hot Mix Asphalt Plant*, prepared by Justice & Associates, September 2004.

The project proposes to incorporate the following design features to minimize impacts associated with criteria pollutant emissions, toxic air contaminant emissions, and potential effects on ambient air quality:

- Construction emissions would be minimized using techniques specified by BAAQMD CEQA guidelines;
- Emissions from the drum plant, silo loading, and truck loadout would be abated using best available control technology;
- Silo loading emissions would be captured and sent to the drum plant combustion chamber, reducing organic emission, blue smoke, and odors;
- The truck loadout would be enclosed in a shroud and vented to two 12,000 Cubic Feet per Minute (CFM) baghouses, controlling blue smoke and fugitive particulate emissions; and
- The drum plant would be vented to a cyclone and a baghouse, reducing particulate emissions. The captured particulate would be routed back to the drum plant, where organic material (including toxic condensable organic material) would be destroyed.

The new drum plant would replace the existing, smaller drum plant. This section estimates emissions of air pollutants based on maximum operation of the new drum plant, accounting for the shutdown of the existing drum plant.

#### AIR QUALITY SETTING

The project site is located within the San Francisco Bay Area Air Basin (Basin). The Basin encompasses approximately 5,600 square miles and includes all of Alameda, Contra Costa, Marin, Napa, San Francisco, Santa Clara, and San Mateo counties, the western portion of Solano County, and the southern portion of Sonoma County.

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<sup>1</sup> BAAQMD, 1999, *BAAQMD CEQA Guidelines, Assessing the Air Quality Impacts of Projects and Plans*, December.

### ***Climate and Meteorology***

The Basin is a large, shallow basin adjacent to the Pacific Ocean and the San Francisco Bay. The Basin is surrounded by coastal mountain ranges with sheltered inland valleys. Marine air coming into the Basin from the Pacific Ocean creates cool summers, mild winters, and infrequent rainfall. The average temperature in Petaluma ranges from 66.4 to 46.9 degrees Fahrenheit (F°). The highest temperatures generally occur in late summer or early fall, and reaches into the 80s. Low temperatures, around 38F°, generally occur in December and January.<sup>2</sup>

Petaluma is located in the Petaluma Valley, which is in the northern portion of the Basin. The valley is bordered on the east by the Sonoma Mountains, while to the west are a series of low hills extending to the Estero Lowlands. The region from the Estero Lowlands to the San Pablo Bay is known as the Petaluma Gap.<sup>3</sup>

Wind patterns in Petaluma are strongly influenced by the Petaluma Gap, with winds flowing predominantly from the west.<sup>4</sup> As shown in the wind rose on Figure V.B-1, the prevailing wind direction in the project site vicinity is generally from the north to northwest, with wind velocities typically between four and eight miles per hour.

Generally, air pollution is low in the Petaluma Valley because of marine air that enters the valley through the Petaluma Gap, and because of its low population density.<sup>5</sup> However the area can experience elevated air pollutant levels during stagnant conditions in the morning hours when airflow inland is weak or when an eastern or southeastern wind pattern in the afternoon brings in pollution from the Carquinez Strait and Central Valley.<sup>6</sup>

## **REGULATORY SETTING**

### **Air Quality Standards**

The Federal Clean Air Act (CAA) of 1970, and subsequent Federal Clean Air Act Amendments (CAAA) of 1977 and 1990, required the establishment of national ambient air quality standards (NAAQS) for six “criteria pollutants” (Table V.B-1). The standards are intended to protect all aspects of the public health and welfare with a reasonable margin of safety. The criteria pollutants are ozone, particulate matter, carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), and lead. The CAA and CAAA require the states to designate areas as attainment or nonattainment for each criteria pollutant NAAQS (Table V.B-2). Particulate matter has two separate standards: respirable particulate matter (PM<sub>10</sub>)<sup>7</sup> and fine particulate matter (PM<sub>2.5</sub>).<sup>8</sup> The CAA and CAAA also require that states develop State Implementation Plans (SIP) for areas that are in nonattainment for any of the NAAQS.

<sup>2</sup> *World Climate*, <http://www.worldclimate.com>, Source: Petaluma Fire Station #2, averages derived from 1,015 months between 1893 and 1996.

<sup>3</sup> *BAAQMD, 1999, op. cit.*

<sup>4</sup> *Ibid.*

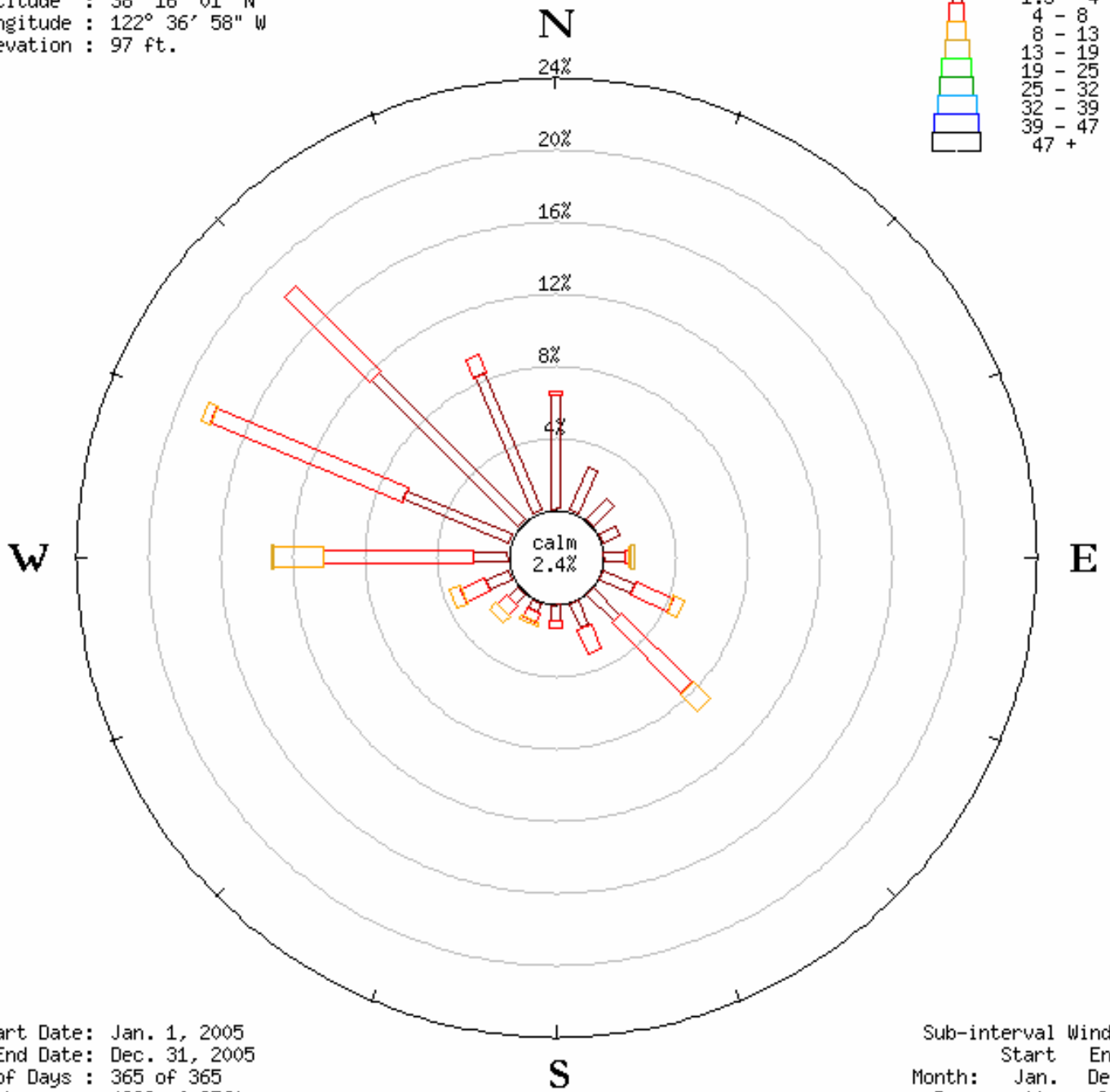
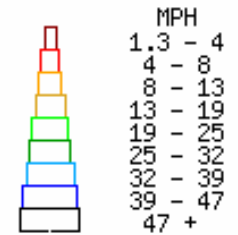
<sup>5</sup> *Ibid.*

<sup>6</sup> *Ibid.*

<sup>7</sup> *At or smaller than ten microns in size.*

<sup>8</sup> *At or smaller than 2.5 microns in size.*

Station : **Petaluma East California**  
 Latitude : 38° 16' 01" N  
 Longitude : 122° 36' 58" W  
 Elevation : 97 ft.



Start Date: Jan. 1, 2005  
 End Date: Dec. 31, 2005  
 # of Days : 365 of 365  
 # obs:poss: 4388 of 8760  
 ©Western Regional Climate Center

Sub-interval Windows  
 Start End  
 Month: Jan. Dec.  
 Day: 01 31  
 Hour: 00 23

Source: Western Regional Climate Center



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Figure V.B-1  
 Wind Rose From Petaluma  
 Municipal Airport



**Table V.B-1  
State and National Ambient Air Quality Standards**

Pollutant	Averaging Time	California Standard	National Standard	Violation Criteria	
				State	National
O <sub>3</sub>	1-hour	0.09 ppm	–	If exceeded	If exceeded on more than 3 days in 3 years.
	8-hour	0.070 ppm	0.08 ppm	If exceeded	If the fourth highest 8-hour concentration in a year, averaged over 3 years, is exceeded.
PM <sub>10</sub>	24-hour	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	If exceeded	If expected number of days with average 24-hr concentration is over one.
	Annual mean	20 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>	If exceeded	If exceeded.
PM <sub>2.5</sub>	24-hour	–	65 µg/m <sup>3</sup>	If exceeded	If 98% of average 24-hour daily concentration, averaged over 3 years, is exceeded.
	Annual mean	12 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>	If exceeded	If exceeded.
CO	1-hour	20 ppm	35 ppm	If exceeded	Not to be exceeded more than one day a year.
	8-hour	9.0 ppm	9 ppm	If exceeded	Not to be exceeded more than one day a year.
NO <sub>2</sub>	1-hour	0.25 ppm	–	If equaled or exceeded	NA
	Annual mean	–	0.053 ppm	NA	Not to be exceeded more than one day a year.
SO <sub>2</sub>	1-hour	0.25 ppm	–	If equaled or exceeded	NA
	24-hour	0.04 ppm	0.14 ppm	If equaled or exceeded	Not to be exceeded more than one day a year.
	Annual mean	–	0.03 ppm	NA	Not to be exceeded more than one day a year.

Source: CARB Ambient Air Quality Standards Table, 29 November 2005.  
Notes: ppm = parts per million.  
g/m<sup>3</sup> = micrograms per cubic meter.  
"–" = no standard.  
NA = not applicable.

**Table V.B-2  
Ambient Air Quality Attainment Status for San Francisco Air Basin**

<b>Pollutant</b>	<b>State-Level Attainment Status</b>	<b>National-Level Attainment Status</b>
Ozone (1-hour)	Nonattainment (serious)	N/A
Ozone (8-hour)	Unclassified	Nonattainment (marginal)
Respirable Particulates (PM <sub>10</sub> )	Nonattainment	Attainment
Fine Particulates (PM <sub>2.5</sub> )	Nonattainment	Attainment
Carbon Monoxide (CO)	Attainment	Attainment
Nitrogen Dioxide (NO <sub>2</sub> )	Attainment	Attainment
Sulfur Dioxide (SO <sub>2</sub> )	Attainment	Attainment
Hydrogen Sulfide	Attainment	N/A
Vinyl Chloride	No information available	N/A
Visibility Reducing Particles	Attainment	N/A
<i>Note: N/A = not applicable</i>		
<i>Source: CARB, <a href="http://www.arb.ca.gov/desig/adm/adm.htm">http://www.arb.ca.gov/desig/adm/adm.htm</a>, updated February 3, 2006.</i>		

Analogous to the CAA and CAAA, the 1988 California Clean Air Act (CCAA) establishes state ambient air quality standards (SAAQS) (Table V.B-1) and also requires areas of the state to be designated as attainment or nonattainment areas for the SAAQS (Table V.B-2). In addition to standards for the criteria pollutants identified under the CAA, the CCAA includes standards for hydrogen sulfide, vinyl chloride, and visibility reducing particles. Under the CCAA, air districts not meeting SAAQS for ozone, CO, SO<sub>2</sub>, or NO<sub>2</sub> are required to prepare attainment plans intended to improve air quality and attain the standards.

In California, the task of air quality management and development of regulations has been legislatively granted to the California Air Resources Board (CARB) and local air quality management districts. The BAAQMD is the local air quality management district for this project. The BAAQMD coordinates with CARB in the effort to ensure that the Basin complies with both national and state standards.

Hazardous air pollutants (HAPs) or toxic air contaminants (TACs) are a category of air pollutants regulated separately from criteria pollutants. The TACs are suspected, or known, to cause cancer, birth defects, neurological damage, or death. There are no established ambient air quality standards for TACs; instead they are managed on a case-by-case basis depending on the quantity and type of emissions, and proximity to potential receptors. Their effects tend to be localized and directly attributable to specific stationary sources.

#### **Air Quality Planning and Attainment Status**

The CARB is responsible for oversight of air quality management in the state, including establishing emissions standards and regulations for certain mobile sources (e.g., autos, light-duty trucks) and overseeing the efforts of local air quality management districts. At the local level, the BAAQMD is responsible for demonstrating that attainment of the ambient air quality standards is either achieved, based on data from air monitoring stations, or will be achieved through regional planning. The BAAQMD directly regulates stationary emission sources through its permit authority and indirectly manages emissions from mobile sources through coordination with regional municipalities and transportation planning agencies. Air plans

for the Basin are prepared by BAAQMD in cooperation with the Metropolitan Transportation Commission (MTC), and the Association of Bay Area Governments (ABAG).

The Bay Area Air Basin is currently classified as a "nonattainment" area for the 8-hour national ozone standard and the 1-hour ozone, PM<sub>10</sub>, and PM<sub>2.5</sub> state standards. For all other criteria pollutants, the Bay Area is classified as either in "attainment" or "unclassified." The air quality standards and attainment status are summarized in Table V.B-2.

As a serious nonattainment area for the SAAQS for ozone, the Basin is required to adopt measures requiring best available retrofit control technology (BARCT) on existing sources of air pollution, and best available control technology (BACT) for new and modified sources with a potential to emit ten pounds per day or more of ozone precursors. The CCAA does not require planning documents for PM<sub>10</sub> or PM<sub>2.5</sub> nonattainment areas; however, CARB is aggressively pursuing policies to reduce particulate matter emissions from mobile sources. On a statewide basis, diesel exhaust is estimated to account for one percent of the airborne PM<sub>10</sub> and two percent of the airborne PM<sub>2.5</sub>.<sup>9</sup>

The BAAQMD works with CARB to prepare plans for attaining and maintaining ambient air quality standards in the Basin, adopt and enforce rules and regulations concerning air pollutant sources, issue permits for stationary sources of air pollutants, inspect stationary sources of air pollutants, monitor ambient air quality and meteorological conditions, award grants to reduce motor vehicle emissions, and conduct public education campaigns. The Bay Area Clean Air Plan (CAP) and subsequent updates are developed in cooperation with MTC and the ABAG. The ABAG develops projections of future population and transportation trends, which are used to develop and evaluate strategies to bring the Basin into compliance with national and state air quality standards. The first CAP was adopted in 1991, and updates to the CAP occurred in 1994, 1997, and, most recently, 2000.

### **Criteria Pollutant Health Effects**

Air pollutants come from stationary sources, area-wide sources, mobile sources, and natural sources. Much of the degradation of ambient air quality in the Basin is due to emission of criteria air pollutants from intensive use of motor vehicles (mobile sources).<sup>10</sup> Stationary sources (emissions from industry or urban development) contribute significantly less criteria pollutants to the ambient air. The primary pollutants of concern for the Basin are ozone, carbon monoxide, and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>).

#### ***Ozone***

Ozone is not emitted directly into the environment, but generated from complex chemical reactions in the presence of sunlight. The primary chemicals involved in these reactions are nitrogen oxides (NOx) and reactive organic gases (ROG); these components are often referred to as ozone precursors. The single largest source of ozone precursors in the Basin is motor vehicle exhaust. Ozone exposure causes eye irritation and damage to lung tissue in humans. Ozone also harms vegetation, reduces crop yields, and accelerates deterioration of paints, finishes, rubber products, plastics, and fabrics. The Basin is in nonattainment for the national and state ozone standards.

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<sup>9</sup> CARB, 2006, *The California Almanac of Emissions and Air Quality*.

<sup>10</sup> *Ibid.*

### ***Carbon Monoxide (CO)***

CO is released directly into the atmosphere by stationary and mobile sources. CO is an odorless, colorless gas formed by the incomplete combustion of fuels. The primary source of CO is motor vehicle emissions. The CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood when inhaled at high concentrations. Symptoms from exposure to high levels of CO include headaches, fatigue, slow reflexes, and dizziness.<sup>11</sup> The Basin is currently in attainment for the national and state CO standards. In contrast to ozone, which is a regional pollutant, CO has a localized impact because it dissipates fairly quickly as the distance increased from the source.<sup>12</sup> For this reason, CO is evaluated where it is likely to create high concentrations or "hot spots", such as highly congested intersections, where there are nearby human receptors.

### ***PM<sub>10</sub>***

PM<sub>10</sub> is also released directly into the atmosphere by stationary and mobile sources. The PM<sub>10</sub> consists of a wide range of solid and liquid particles, including smoke, dust, aerosols, and metallic oxides. Similar to ozone precursors and CO, the single largest source of PM<sub>10</sub> is motor vehicles. Approximately 50 percent of the particulate matter in the Basin is due to motor vehicles. PM<sub>10</sub> is emitted from automobile tailpipes, brake pad and tire wear, and movement of road dust from vehicle travel. PM<sub>10</sub> is among the most harmful of all air pollutants. PM<sub>10</sub> evades the respiratory system's natural defenses and can lodge deep in the lungs when inhaled. PM<sub>10</sub> can aggravate chronic respiratory diseases and can cause health problems for everyone, although children, the elderly, and those suffering from asthma, bronchitis, heart disease, or lung disease are more vulnerable. Long-term exposure to PM<sub>10</sub> at levels exceeding state standards can lead to an increase in respiratory and cardiac illness, exacerbation of asthma and chronic bronchitis, and increased death rates. Short-term exposure to PM<sub>10</sub> may lead to increased emergency room visits and an increase in days of restricted activity. The Basin is currently in attainment for the national PM<sub>10</sub> standard, but is in nonattainment for the state PM<sub>10</sub> standard.

### ***PM<sub>2.5</sub>***

Fine particulate matter, PM<sub>2.5</sub>, are those particles with an aerodynamic diameter less than or equal to 2.5 microns. PM<sub>2.5</sub> is classified as either primary or secondary particulates. Primary PM<sub>2.5</sub> is either carbonaceous or geological (crustal), but predominantly consists of carbonaceous PM<sub>2.5</sub>, which is generated from combustion of fossil fuels or biomass. Carbonaceous PM<sub>2.5</sub> combustion sources include gasoline and diesel exhaust, wood stoves and fireplaces, land clearing, prescribed burning of wild land, and wild fires. Geological (crustal) PM<sub>2.5</sub>, which makes up a minor amount of primary PM<sub>2.5</sub>, is generated from fugitive emission sources, including paved and unpaved roads, dust, crustal material from construction activities, agricultural tilling, and wind erosion. Secondary PM<sub>2.5</sub> is created through atmospheric heterogeneous (gas to particle) reactions of gaseous oxides of sulfur (SOx) and NOx precursor emissions. The reactions involve chemical and physical interactions with the precursor emissions in the atmosphere.

Exposure to fine particulate matter has been linked to a variety of health problems; including bronchitis, acute and chronic respiratory symptoms (e.g., shortness of breath and painful breathing), and premature death. People with existing heart or lung disease (e.g., chronic obstructive pulmonary disease, congestive heart

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<sup>11</sup> *Ibid.*

<sup>12</sup> *Ibid.*

disease, ischemic heart disease) are at risk of premature death or admission to hospitals or emergency rooms when exposed to PM<sub>2.5</sub>. The elderly, individuals with cardiopulmonary disease, and children appear to be at greatest risk. Most of the premature deaths are among the elderly because their immune systems are generally weaker due to age or other health problems. Children are also susceptible to the health risks of PM<sub>2.5</sub> because their immune and respiratory systems have not yet matured. In addition, PM<sub>2.5</sub> particles are a major source of visibility impairment in most parts of the United States. The Basin is currently unclassified for the national PM<sub>2.5</sub> standard, but in nonattainment for the state PM<sub>2.5</sub> standard.

### ***Toxic Air Contaminants (TACs)***

The Legislature enacted the Air Toxics Hot Spots Information and Assessment Act, AB 2588 (Toxics Hot Spots Act), in September 1987. This law requires stationary sources to report the types and quantities of certain substances their facilities routinely release into the air. Emissions of interest are those that result from the routine operation of a facility or that are predictable, including but not limited to continuous and intermittent releases and process upsets or leaks. The goals of the Air Toxics Hot Spots Act are to collect emission data, identify facilities having localized impacts, ascertain health risks, and notify nearby residents of significant risks based on estimated cancer and non-cancer health risks. Senate Bill 1731 amended the Toxics Hot Spots Act in 1992 to require owners of facilities that produce emissions resulting in significant health risks to the public to reduce their impact on air quality to an acceptable level.

The BAAQMD's Toxics Hot Spots Program is intended to identify and reduce ambient concentrations of TACs. TACs are non-criteria air pollutants. CARB identifies 192 substances as TACs (CCR §93001). The Toxics Hot Spots program includes the evaluation of health risks due to routine and predictable TAC emissions from industrial and commercial facilities. The BAAQMD has established specific public notification measures for various levels of risk identified under the program (Levels 1, 2, and 3). Level 3 corresponds to a cancer risk greater than 500 people in a population of one million (500 per million); Level 2 corresponds to a cancer risk between 100 and 500 per million; and Level 1 corresponds to a cancer risk between 10 and 100 per million.

Approximately 90 percent of the health risk from TACs in the Bay Area is due to diesel particulate matter (DPM), benzene, and 1,3-butadiene, primarily from mobile sources.<sup>13</sup> The majority of that risk is from DPM, which CARB identified as a TAC in 1998. Mobile sources such as trucks, buses, automobiles, trains, ships, and farm equipment are the largest source of diesel emissions.

### ***Diesel Particulate Matter***

In 2000, the EPA identified DPM as a "likely human carcinogen." The EPA established a comprehensive national control program to regulate diesel fuel and heavy-duty diesel vehicles. The program includes new regulatory standards based on the use of alternative fuels and high-efficiency exhaust emission control devices. The standards include the following major requirements:

- Promulgated particulate matter emissions standard for new heavy-duty engines of 0.01 gram per brake-horsepower-hour (g/bhp-hr), to take full effect in 2007.
- Required refiners to produce diesel fuel for use in highway vehicles with sulfur content of no more than 15 parts per million (ppm) as of June 1, 2006. By June 2007, refiners must produce low-sulfur

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<sup>13</sup> *Ibid.*

(500 ppm) diesel fuel for off-road, locomotive, and marine diesel engines. Besides reducing emissions from the existing diesel fleet, these clean fuels will enable the use of advanced after-treatment technologies such as catalytic reduction systems on new engines.

- Required technologies like particulate traps, capable of emission reductions of 90 percent, under new standards set to begin phasing into the highway sector in 2007 and into the off-road sector in 2011.

Although the new EPA standards will improve diesel emissions in the future, these standards will primarily impact new engines. Because of their durability and long life, older uncontrolled diesel engines would continue to make up a significant portion of the heavy-duty vehicle fleet for years to come. As a result, efforts are underway to improve emissions from diesel engines already in operation and include a variety of strategies from fuel reformulation to engine retrofit through the Voluntary Diesel Retrofit Program.

The California Air Resources Board (CARB) identified particulate emissions from diesel-fueled engines as a toxic air contaminant (TAC) in August 1998. In California, mobile sources, such as trucks, buses, automobiles, trains, ships, and farm and construction equipment, are the largest source of diesel emissions. On-road engines account for about 27 percent of the emissions, off-road engines about 66 percent, and stationary and portable engines for the remaining seven percent.<sup>14</sup> CARB estimates that diesel engine emissions are responsible for a majority of California's estimated cancer risk attributable to air pollution.<sup>15</sup> The California Air Resources Board formed the Diesel Advisory Committee consisting of staff from CARB, EPA, state and local agencies, industry, environmental groups, and interested public to study this issue. With the help of the committee, CARB developed a Diesel Risk Reduction Plan to reduce particulate matter emissions from diesel-fueled engines and vehicles, which was approved on September 28, 2000.<sup>16</sup> The Diesel Risk Reduction Plan calls for reducing diesel PM 75 percent by 2010 and 85 percent by 2020 from the 2000 level. The plan contains the following components:

- New regulatory standards for all new on-road, off-road, and stationary diesel-fueled engines and vehicles to reduce diesel PM emissions by about 90 percent, overall, from current levels;
- New retrofit requirements for existing on-road, off-road, and stationary diesel-fueled engines and vehicles where determined to be technically feasible and cost effective; and
- New Phase 2 diesel fuel regulations to reduce the sulfur content of diesel fuel to no more than 15 parts per million to provide the quality of diesel fuel needed by the advanced diesel PM emission controls.

Although the new EPA standards will improve diesel emissions in the future, these standards will primarily impact new engines. Because of their durability and long life, older diesel engines will continue to make up a significant portion of the heavy-duty vehicle fleet for years to come. As a result, efforts are underway to improve emissions from diesel engines already in operation and include a variety of strategies from fuel reformulation to engine retrofit through the Voluntary Diesel Retrofit Program.

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<sup>14</sup> CARB, 2000, *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*, 28 September.

<sup>15</sup> *Ibid.*

<sup>16</sup> *Ibid.*

## **Greenhouse Gases**

Gases that trap heat in the atmosphere are called greenhouse gases. The major concern is that increases in greenhouse gases as a result of human activity are contributing to Global Climate Change. Global Climate Change is a change in the average weather on earth that can be measured by wind patterns, storms, precipitation and temperature. Although there is tremendous disagreement as to the speed of global warming and the extent of the impacts attributable to human activities, most agree that there is a direct link between increased emission of so-called greenhouse gases and long term global temperature. What greenhouse gases have in common is that they allow sunlight to enter the atmosphere, but trap a portion of the outward-bound infrared radiation and warm up the air. The process is similar to the effect greenhouses have in raising the internal temperature, hence the name greenhouse gases. Both natural processes and human activities emit greenhouse gases. The accumulation of greenhouse gases in the atmosphere regulates the earth's temperature, but emissions from human activities such as electricity production and motor vehicles have elevated the concentration of greenhouse gases in the atmosphere.

This accumulation of greenhouse gases has contributed to an increase in the temperature of the earth's atmosphere and contributed to Global Climate Change, also known as global warming. The principal greenhouse gases are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), sulfur hexafluoride (SF<sub>6</sub>), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and water vapor (H<sub>2</sub>O). Carbon dioxide is the reference gas for climate change because it is the most prevalent greenhouse gas. To account for the warming potential of greenhouse gases, emissions of all greenhouse gases are often quantified and reported as CO<sub>2</sub> equivalents (CO<sub>2</sub>E). Large emission sources are reported in million metric tons of CO<sub>2</sub> equivalents.

### **State Standards**

In 2005, Governor Schwarzenegger established Executive Order S-3-05, which sets forth a series of target dates by which statewide emission of greenhouse gases would be progressively reduced, as follows:

- By 2010, reduce greenhouse gas emissions to 2000 levels;
- By 2020, reduce greenhouse gas emissions to 1990 levels; and
- By 2050, reduce greenhouse gas emissions to 80 percent below 1990 levels.

In 2006, California passed the California Global Warming Solutions Act of 2006 (Assembly Bill No. 32, or AB 32; Health and Safety Code, Sections 38500, et seq.). AB 32 identifies global warming as a serious environmental threat with the potential to exacerbate air quality problems, reduce the quantity and supply of water from the Sierra snowpack, cause a rise in sea levels, damage marine ecosystems, and increase human health-related problems. AB 32 requires CARB to adopt rules and regulations that, by 2020, would achieve greenhouse gas (GHG) emissions equivalent to statewide levels in 1990. On April 20, 2007, CARB published Proposed Early Actions to Mitigate Climate Change in California, a list of discrete greenhouse gas emission reduction measures that can be implemented. Emission reductions shall include carbon sequestration projects and best management practices that are technologically feasible and cost-effective. As defined under AB 32, GHGs include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. By January 1, 2009, CARB must design and adopt an overall plan to reduce GHG emissions to 1990 levels, including the recommendation of a de minimis threshold for GHG emissions below which emission reduction requirements would not apply. CARB has until January 1, 2011 to adopt the necessary regulations to implement that plan. Implementation begins no later than January 1,

2012 and the emissions reduction target must be fully achieved by January 1, 2020.

Under the law, CARB, the State Energy Resources Conservation and Development Commission (Energy Commission), and the California Climate Action Registry all have responsibilities with respect to the control of emissions of greenhouse gases, and the Secretary for Environmental Protection is required to coordinate emission reductions of greenhouse gases and climate change activity in state government. AB 32 does not indicate what role local land use planning should play in the statewide strategy, however, nor identifies implications to environmental review under CEQA. Guidelines on how to prepare an impact assessment for a project's GHG emissions contribution to Global Climate Change (GCC), or identified a significance threshold for project impacts have yet to be developed by CARB, the California EPA, the U.S. EPA, or any other appropriate governmental organizations.<sup>17</sup>

The CARB is proposing "Early Action Measures" in three groups, and together these measures will make a substantial contribution to the overall 2020 statewide GHG emission reduction goal of approximately 174 million metric tons of carbon dioxide equivalent<sup>18</sup> gases.<sup>19</sup> These measures that would relate to potential climate change impacts from the proposed project are summarized as follows. It should be noted that none of the early action measures address how local agencies should address GHG emissions associated with land use approvals.

#### Group 1: Discrete Early Action Measures

Three new GHG-only regulations are proposed to meet the narrow legal definition of "discrete early action GHG reduction measures": a low-carbon fuel standard, reduction of refrigerant losses from motor vehicle air conditioning system maintenance, and increased CH<sub>4</sub> capture from landfills. These regulations are expected to take effect by January 1, 2010.

- Measure 1-1, Low carbon fuel standard.

#### Group 2: Additional Greenhouse Gas Reduction Strategies

The CARB is initiating work on 23 other GHG emission-reducing measures in the 2007 to 2009 time period with rulemaking to occur as soon as possible, where applicable. These GHG measures relate to the following sectors: agriculture, commercial, education, energy efficiency, fire suppression, forestry, oil and gas, and transportation.

- Measure 2-6 and 2-7, Education: Guidance/protocols for local governments and businesses to facilitate GHG emission reductions.
- Measures 2-14, Transportation: Heavy-duty vehicle emission reductions, efficiency improvements.
- Measure 2-20, Transportation: Tire inflation program.

#### Group 3: Criteria and Air Toxic Control Measures

The CARB is initiating work on ten conventional air pollution controls aimed at criteria and toxic air pollutants, but with concurrent climate co-benefits through reductions in CO<sub>2</sub> or non-Kyoto pollutants

<sup>17</sup> Association of Environmental Professionals, *White Paper on Global Climate Change, Revised Draft 10 April 2007.*

<sup>18</sup> The term "carbon dioxide equivalent" is used to account for the differences in global warming potential among the six greenhouse gases.

<sup>19</sup> CARB, 2007, *Proposed Early Actions to Mitigate Climate Change in California, 20 April.*

(i.e., diesel particulate matter, other light-absorbing compounds, and/or ozone precursors) that contribute to global warming.

- Measure 3-1, Fuels: Diesel – Commercial harbor craft rule.
- Measure 3-2, Fuels: Diesel – Privately owned on-road trucks.
- Measure 3-3, Fuels: Diesel – Vessel speed reductions.
- Measure 3-4, Fuels: Diesel – Offroad equipment (non-agricultural).
- Measure 3-10, Fuels: Evaporative standards for aboveground tanks.

In consultation with CARB and the California Public Utilities Commission, the California Energy Commission (CEC) is currently establishing a GHG emission performance standard for local, public-owned electric utilities (pursuant to Senate Bill No. 1368). This standard will limit the rate of GHG emissions to a level that is no higher than the rate of emissions of GHGs for combined-cycle natural gas baseload generation. The rulemaking shall consider, but not necessarily be limited to, establishing a GHG emission performance standard for baseload generation facilities by June 30, 2007, a process for calculating the emissions of GHGs from baseload facilities and enforcing the standard, and a process for reevaluating and revising as necessary the GHGs emission performance standard. This standard must take into consideration the effect of the standard on rates, reliability, and financial resources, while recognizing the Legislature's intent to encourage use of renewable resources and its goal of environmental improvement.

In 2007, Governor Schwarzenegger signed SB 97, which requires the California Resources Agency, by 2010, to adopt guidelines for the mitigation of GHG emissions and their effects, including effects associated with transportation. SB 97 also amended CEQA to state that the failure to adequately analyze the effects of GHG emissions in a CEQA document for certain transportation projects shall not create a cause of action for a violation of the statute until 2010 or later.

## **AIR QUALITY REGULATIONS – STATIONARY SOURCES**

### **Federal Regulations**

#### ***Title V Operating Permit***

Title V was added to the Clean Air Act in 1990, and introduced an operating permit program. It required EPA to promulgate regulations setting forth provisions under which states would develop operating permit programs for major facilities and submit them to the EPA for approval. A major facility is defined as any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit ten tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants.<sup>20</sup> The BAAQMD is the local agency with permit authority over most types of stationary emission sources, which the BAAQMD exercises through its Rules and Regulations.

#### ***Standards of Performance for New Stationary Sources***

Section 111 of the Clean Air Act, "Standards of Performance of New Stationary Sources," requires U.S. EPA to establish national emission standards for source categories, which cause or contribute significantly to air

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<sup>20</sup> . *Clean Air Act, Sec. 112. Hazardous Air Pollutants*

pollution. These standards are intended to promote use of the best air pollution control technologies, taking into account the cost of such technology and any other non-air quality, health, and environmental impact and energy requirements. The U.S. EPA has established New Source Performance Standards (NSPS) for several source categories (40 CFR 60). The New Source Performance Standards program is implemented by the BAAQMD.

Two of the NSPS apply to the proposed facility. These include NSPS Subpart I: Standards of Performance for Asphaltic Concrete Plants and Subpart UU: Standards of Performance for Asphalt Processing and Asphalt Roofing Manufacture. Subpart I prohibits the discharge into the atmosphere from any affected facility any gases which: 1) contain particulate matter in excess of 90 milligrams per dry standard cubic meter (0.04 grain per dry standard cubic meter) or 2) exhibit 20 percent opacity, or greater. Subpart UU prohibits the discharge into the atmosphere from any asphalt storage tank exhaust gases with opacity greater than 0 percent, except for one consecutive 15-minute period in any 24-hour period when the transfer lines are being blown for clearing.

### ***Prevention of Significant Deterioration***

The Prevention of Significant Deterioration (PSD) process requires states in their SIPs to ensure that areas already in compliance with the national ambient air quality standards do not deteriorate to or above those standards at too rapid a pace. Such areas, depending upon the quality of their air in a baseline year, must control the emissions of certain pollutants such that the concentration of those pollutants increases no more than the allowable increment as set forth in the CAA. Before any new source may be built or any existing source may be modified, such sources must apply for and be issued a PSD permit, which demonstrates that they will comply with the PSD program. The BAAQMD also administers this program through Rules and Regulations.

### ***BAAQMD Regulations***

The BAAQMD has specific permitting procedures for hot mix asphalt facilities. A hot mix asphalt facility is defined by the U.S. EPA (40 CFR, Subpart I, 60.91) as any facility “used to manufacture hot mix asphalt by heating and drying aggregate and mixing with asphalt cements.”

The *CEQA Guidelines*<sup>21</sup> state that “each public agency should, in its implementing regulations or ordinances, provide an identification or itemization of its projects and actions which are deemed ministerial under the applicable laws and ordinances.” The BAAQMD has determined that the issuance of permits following prescribed procedures is a ministerial activity.<sup>22</sup>

Permits, prepared in accordance with the BACT/TBACT Workbook and Permit Handbook, are deemed “ministerial” for the purposes of CEQA. Permits that deviate from these documents, or permits for sources not covered by either document, will be reviewed on a case-by-case basis for compliance with CEQA.<sup>23</sup> The air emission achievement standards for hot mix asphalt plants using BACT are:

- 12 parts per million by volume (ppmv) NO<sub>x</sub> at 15 percent oxygen (O<sub>2</sub>) dry;

<sup>21</sup> Title 14, CCR, Chapter 3, Guidelines for Implementation of California Environmental Quality Act.

<sup>22</sup> Bay Area Air Quality Management District, Permit Handbook Chapters, retrieved from website: [www.baaqmd.gov/pmt/handbook/default.htm](http://www.baaqmd.gov/pmt/handbook/default.htm)

<sup>23</sup> Ibid.

- 133 ppmv CO at 15 percent O<sub>2</sub> dry; and
- 0.01 grain per dry standard cubic foot.

The following are the BAAQMD's rules and regulations that apply to the proposed project.

#### *Regulation 1 General Provisions and Definitions*

Regulation 1 contains the general provisions and definitions of the terms used in the BAAQMD's rules. The standard for violations of air pollution regulations are defined as a public nuisance, i.e., "No person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public; or which endangers the comfort, repose, health or safety of any such persons or the public, or which causes, or has a natural tendency to cause, injury or damage to business or property." For purposes of this section, three or more violation notices validly issued in a 30 day period to a facility for public nuisance shall give rise to a rebuttable presumption that the violations resulted from negligent conduct.

#### *Regulation 2, Rule 1 Permits – General Requirements*

The BAAQMD's Regulation 2 Rule 1 describes the permit requirements for sources of air pollution. In general, any equipment or operation that emits pollutants into the atmosphere requires a Permit to Operate from the BAAQMD unless it is excluded from BAAQMD Regulations per Regulation 1 or exempted from BAAQMD permit requirements by a specific section of Regulation 2 Rule 1. Any air pollution control equipment, associated with a source that requires a BAAQMD permit, is also required to have a Permit to Operate from the BAAQMD.

#### *Regulation 2, Rule 2 Permits - New Source Review*

This rule applies to new or modified air pollution sources. The rule contains requirements for Best Available Control Technology (BACT) and emission offsets. Rule 2 implements the Federal New Source Review and Prevention of Significant Deterioration requirements.

The following air pollutants are regulated by the BAAQMD:

- Nitrogen oxides and volatile organic compounds;
- Any pollutant for which a national ambient air quality standard has been promulgated;
- Any Class I or Class II ozone depleting substance subject to a standard promulgated under Title VI of the Federal Clean Air Act;
- Any pollutant that is subject to any standard promulgated under Section 111 of the Federal Clean Air Act;
- Any pollutant that is subject to any standard promulgated under Section 112 of the Federal Clean Air Act, except that a pollutant that is subject solely to Section 112 is not a regulated air pollutant; and
- Any of the asphalt production equipment with less than 10 million British Thermal Units (BTU) per hour rated heat input if fired exclusively with natural gas is exempt from the requirements.<sup>24</sup>

#### *Regulation 2, Rule 5 Permits - New Source Review of Toxic Air Contaminants*

This rule provides for the review of new and modified sources of toxic air contaminant (TAC) emissions to

<sup>24</sup> The hot oil tanks would use a 2.0 million BTU/hr burner to heat the oil and is fired on natural gas.

evaluate potential public exposure and health risk, to mitigate potentially significant health risks resulting from these exposures, and to provide net health risk benefits by improving the level of control when existing sources are modified or replaced. The rule applies to a new or modified source of toxic air contaminants that is required to have an authority to construct or permit to operate pursuant to Regulation 2, Rule 1. New and modified sources with Hazardous Air Pollutant emissions may also be subject to the Maximum Achievable Control Technology (MACT) requirement of Regulation 2, Rule 2, Section 317.

#### *Regulation 2, Rule 6 Permits - Major Facility Review*

This rule implements the operating permit requirements of Title V of the Federal Clean Air Act as amended in 1990. This rule applies to major facilities, Phase II acid rain facilities, subject solid waste incinerator facilities, and any facility in a source category designated by the Administrator of the EPA in a rulemaking as requiring a Title V permit. This rule also provides a means by which facilities may avoid the Title V or other requirements by limiting their potential to emit.

A major facility is defined as: 1) a facility that has the potential to emit 100 tons per year or more of any regulated air pollutant except total suspended particulate. or 2) a facility that has the potential to emit 10 tons per year or more of a single hazardous air pollutant, 25 tons per year or more of a combination of hazardous air pollutants, such lesser quantity as the EPA Administrator may establish by rule; or 3) a facility with permit conditions that limit emissions to a level that is greater than the above thresholds is defined as a major facility.

#### *Regulation 6 Matter and Visible Emissions*

The purpose of this Regulation is to limit the quantity of particulate matter in the atmosphere through the establishment of limitations on emission rates, concentration, visible emissions, and opacity using the following standards:

**6-301 Ringelmann No. 1 Limitation:** Prohibits a person from emitting from any source for a period or periods aggregating more than three minutes in any hour, a visible emission that is as dark or darker than No. 1 on the Ringelmann Chart,<sup>25</sup> or of such opacity as to obscure an observer's view to an equivalent or greater degree.

**6-302 Opacity Limitation:** Prohibits a person from emitting from any source for a period or periods aggregating more than three minutes in a any hour an emission equal to or greater than 20 percent opacity as perceived by an opacity sensing device, where such device is required by BAAQMD regulations.

**6-303 Ringelmann No. 2 Limitation:** Prohibits a person from emitting for a period or periods aggregating more than three minutes in any hour, a visible emission which is as dark or darker than No. 2 on the Ringelmann Chart, or of such opacity as to obscure an observer's view to an equivalent or greater degree, nor shall said emission, as perceived by an opacity sensing device in good working order, where such device is required by BAAQMD regulations, be equal to a greater than 40 percent opacity, from: 1) internal combustion engines of less than 25 liters displacement, or any engine used solely as a standby source of motive power; 2) laboratory equipment used exclusively for chemical or physical analyses or experimentation; or 3) portable brazing, soldering, or welding equipment.

#### *Regulation 7 Odorous Substances*

<sup>25</sup> *The Ringelmann Chart provides examples of graduated shades of gray, between white and black, for the comparison of smoke density.*

This Regulation places general limitations on odorous substances and specific emission limitations on certain odorous compounds. A person must meet all limitations of this Regulation, but meeting such limitations shall not exempt such person from any other requirements of the BAAQMD, state or national law.

The limitations of this regulation shall not be applicable until the BAAQMD receives odor complaints from ten or more complainants within a 90-day period, alleging that a person has caused odors perceived at or beyond the property line of such person and deemed to be objectionable by the complainants in the normal course of their work, travel, or residence. When the limits of this regulation become effective, as a result of citizen complaints described above, the limits shall remain effective until such time as no citizen complaints have been received by BAAQMD for one year. The limits of this Regulation shall become applicable again when the BAAQMD receives odor complaints from five or more complainants within a 90-day period.

#### *Regulation 10 Standards of Performance for New Stationary Sources*

This regulation incorporates the provisions of the federal regulations for new stationary source review (Title 40 of the Code of Federal Regulations Part 60; Standards of Performance for New Stationary Sources) as discussed earlier.

BAAQMD also has regulations that limit the use or manufacturing of certain types of asphalt:

- Regulation 8-15 limits the use of rapid-cure liquid asphalt, medium-cure liquid asphalt, emulsified asphalt, and slow-cure liquid asphalt (road oil); and
- Regulation 12-3-301 prohibits air blowing of asphalt unless all effluents are incinerated at temperatures above 1202 °F for not less than 0.3 second, or use of an effective air pollution control as determined by the BAAQMD.

## **EXISTING CONDITIONS**

### **Air Quality - Sonoma County**

Mobile sources, such as motor vehicles, produce most of the air pollutants in the county. The state regulates air pollution from mobile sources through exhaust emissions standards, while local agencies can reduce emissions through improvement in the transportation system to reduce trips or traffic congestion. Stationary sources include mining operations, industrial and agricultural activities, and lumber mills. The BAAQMD regulates stationary sources through the Title V permitting process.

The BAAQMD operates a network of air monitoring sites within the Basin. The monitoring stations nearest to the project site are at 837 5th Street in the City of Santa Rosa, approximately 20 miles north of the project site, and 534 4th Street in the City of San Rafael, approximately 20 miles south of the project site. The ambient air concentrations of hydrogen sulfide and sulfur dioxide are not monitored at these stations because they are not expected to exceed air quality standards. Tables V.B-3 and V.B-4 summarize air quality data for the five major criteria pollutants from these monitoring stations during the 2004-2006 reporting period. The tables also summarize the number of days that the state or national standards were exceeded. The data indicate the monitoring stations have measured exceedances of the state 24-hour PM<sub>10</sub> standard in 2006; the San Rafael monitoring station also measured exceedances of the state 24-hour PM<sub>10</sub> standard in 2004. None of the other national and state standards was exceeded during the past three years.

The California Air Resources Board's (CARB) stationary source facility database indicates that the facilities shown in Table V.B-5 are major air pollutant dischargers in Petaluma. The data represent emission inventory estimates for the year 2002.

CARB maintains emission inventory data from stationary sources within the County. Table V.B-6 presents the emission inventory for ROG, CO, NO<sub>x</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> for Sonoma County in 2004. The inventory indicates that, as stated earlier, motor vehicles are the largest contributor to degradation of the air quality in the County. For non-mobile sources, consumer products and farming operations are the largest contributors to ROG, residential fuel consumption and food and agricultural processing are the largest contributors to CO and NO<sub>x</sub>, and residential fuel consumption and construction and demolition are the largest contributors to PM<sub>10</sub> and PM<sub>2.5</sub>.

**Table V.B-3**  
**837 5<sup>th</sup> Street, Santa Rosa Ambient Air Monitoring Station**

Pollutant	Measurement	2004	2005	2006
Ozone	Highest 1-hour average (ppm)	0.760	0.072	0.077
	Highest 8-hour average (ppm)	0.06	0.051	0.058
	Days over State 1-hour standard (0.09 ppm)	0	0	0
	Days over National 1-hour standard (0.12 ppm)	0	0	0
	Days over National 8-hour standard (0.08 ppm)	0	0	0
Carbon Monoxide	Highest 8-hour average (ppm)	1.57	1.36	1.36
PM <sub>10</sub>	Highest State 24-hour average ( $\mu\text{g}/\text{m}^3$ )	48.14	38.9	89.5
	Highest National 24-hour average ( $\mu\text{g}/\text{m}^3$ )	47.4	36.5	87.1
	Days over State 24-hour standard (50 $\mu\text{g}/\text{m}^3$ )	0	0	11.8
	Days over National 24-hour average (150 $\mu\text{g}/\text{m}^3$ )	0	0	0
PM <sub>2.5</sub>	Highest National 24-hour average ( $\mu\text{g}/\text{m}^3$ )	26.6	33.6	59
	3-year State annual average ( $\mu\text{g}/\text{m}^3$ )	0	0	—
	Days over National 24-hour standard (65 $\mu\text{g}/\text{m}^3$ )	NA	NA	NA
Nitrogen Dioxide	Highest 1-hour measurement (ppm)	0.048	0.047	0.044
	Annual average (ppm)	0.011	0.011	0.011
	Days over State 1-hour standard (0.25 ppm)	0	0	0
<i>Notes: (<math>\mu\text{g}/\text{m}^3</math>) = micrograms per cubic meter</i> <i>ppm = part per million</i> <i>— = insufficient data</i> <i>NA = not available</i> <i>Source: CARB website <a href="http://www.arb.ca.gov">http://www.arb.ca.gov</a></i>				

**Table V.B-4**  
**534 4<sup>th</sup> Street, San Rafael Ambient Air Monitoring Station**

Pollutant	Measurement	2004	2005	2006
Ozone	Highest 1-hour average (ppm)	0.091	0.081	0.089
	Highest 8-hour average (ppm)	0.063	0.072	0.058
	Days over State 1-hour standard (0.09 ppm)	0	0	0
	Days over National 1-hour standard (0.12 ppm)	0	0	0
	Days over National 8-hour standard (0.08 ppm)	0	0	0
Carbon Monoxide	Highest 8-hour average (ppm)	1.77	1.57	1.36
PM <sub>10</sub>	Highest State 24-hour average (µg/m <sup>3</sup> )	52.3	39.1	68.2
	Highest National 24-hour average (µg/m <sup>3</sup> )	51	37.1	64.8
	Days over State 24-hour standard (50 µg/m <sup>3</sup> )	6.1	0	5.8
	Days over National 24-hour average (150 µg/m <sup>3</sup> )	0	0	0
PM <sub>2.5</sub>	Highest National 24-hour average (µg/m <sup>3</sup> )	NA	NA	NA
	3-year State annual average (µg/m <sup>3</sup> )	NA	NA	NA
	Days over National 24-hour standard (65 µg/m <sup>3</sup> )	NA	NA	NA
Nitrogen Dioxide	Highest 1-hour measurement (ppm)	0.057	0.054	0.054
	Annual average (ppm)	0.015	0.013	0.014
	Days over State 1-hour standard (0.25 ppm)	0	0	0
<i>Notes: (µg/m<sup>3</sup>) = micrograms per cubic meter</i> <i>ppm = part per million</i> <i>— = insufficient data</i> <i>NA = not available</i> <i>Source: CARB website <a href="http://www.arb.ca.gov">http://www.arb.ca.gov</a></i>				

**Table V.B-5  
Existing Facilities in Petaluma, Emission Inventory (tons/year)**

Facility Name	Address	ROG	CO	NOx	SOx	PM <sub>10</sub>
Sonoma County Dept. of Public Works	500 Mecham Rd.	79.9	122	42.0	6.07	13.4
Hunt and Behrens, Inc.	30 Lakeville St.	0.01	0.06	0.25	0.56	8.24
Willowbrook Feeds	40 Ely Rd.	0.01	0.27	1.06	0.00	4.77
Dutra Materials	1600 Petaluma Blvd. S.	0.012	0.76	3.05	0.01	3.6
Dairy Farmers of America	621 Western Ave.	0.08	2.17	8.69	0.04	0.17
Mrs. Grossman's Paper Company	3810 Cypress Dr.	5.18	0.00	0.00	0.00.	0.00
Sonoma Compost	550 Mecham Rd.	0.09	0.28	1.27	0.00	3.25
Cisco Systems	1435 N. McDowell Blvd.	0.07	0.75	3.00	1.09	0.30
North Bay Total Resource Recovery	Sonoma County Central	0.47	0.47	1.75	0.11	0.18
City of Petaluma	4400 Lakeville Hwy.	1.07	0.02	0.08	0.00	0.01
Srm Alliance Hospital Services	400 N. McDowell Blvd.	0.05	0.23	1.29	0.01	0.12
Hansel RV	1221 Petaluma Blvd.	0.82	0.00	0.00	0.00	0.00
Feed Sources, Inc.	900 Petaluma Blvd.	0.00	0.01	0.03	0.00	0.29

Source: <http://www.arb.ca.gov/ei/areasrc/pointsources.htm>

**Table V.B-6  
Sonoma County - 2004 Estimated Annual Average Stationary Sources Emissions (tons/day)**

Category	ROG	CO	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Stationary Sources</b>					
Electric Utilities	0.18	0.01	0.0	0.46	0.27
Oil and Gas Production (Combustion)	0.01	0.02	0.08	0.01	0.01
Manufacturing and Industrial	0.02	.021	0.2	0.03	0.03
Food and Agricultural Processing	0.09	3.74	0.26	0.02	0.02
Service and Commercial	0.01	0.65	0.42	0.03	0.03
Sewage Treatment	0.01	0.0	0.0	0.0	0.0
Landfills	0.26	0.0	0.0	0.0	0.0
Incinerators	0.0	0.0	0.0	0.0	0.0
Soil Remediation	0.01	0.0	0.0	0.0	0.0
Laundering	0.02	0.0	0.0	0.0	0.0
Degreasing	0.6	0.0	0.0	0.0	0.0
Coatings and Related Process Solvents	1.9	0.0	0.0	0.0	0.0
Printing	0.13	0.0	0.0	0.0	0.0
Adhesives and Sealants	0.44	0.0	0.0	0.0	0.0
Petroleum Marketing	1.37	0.0	0.0	0.0	0.0
Chemical	0.06	0.0	0.0	0.0	0.0
Food and Agriculture	0.58	0.0	0.0	0.14	0.05
Mineral Processes	0.0	0.07	0.01	0.81	0.35
Wood and Paper	0.0	0.0	0.0	0.2	0.12

**Table V.B-6**  
**Sonoma County - 2004 Estimated Annual Average Stationary Sources Emissions (tons/day)**

Category	ROG	CO	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>
Electronics	0.02	0.0	0.0	0.0	0.0
Other (Industrial Processes)	0.26	0.11	0.29	0.21	0.09
<b>Stationary Source Subtotal</b>	<b>6.0</b>	<b>4.9</b>	<b>1.3</b>	<b>1.8</b>	<b>1.0</b>
<b>Area Wide Sources</b>					
Consumer Products	3.37	0.0	0.0	0.0	0.0
Architectural Coatings and Related Process Solvents	1.63	0.0	0.0	0.0	0.0
Pesticides / Fertilizers	0.95	0.0	0.0	0.0	0.0
Asphalt Paving / Roofing	0.23	0.0	0.0	0.0	0.0
Residential Fuel Combustion	1.35	20.63	1.34	2.74	2.64
Farming Operations	2.43	0.0	0.0	0.61	0.19
Construction and Demolition	0.0	0.0	0.0	3.1	0.65
Paved Road Dust	0.0	0.0	0.0	4.28	0.72
Unpaved Road Dust	0.0	0.0	0.0	1.45	0.31
Fugitive Windblown Dust	0.0	0.0	0.0	0.8	0.18
Fires	0.01	0.23	0.01	0.02	0.01
Managed Burning and Disposal	0.12	1.18	0.04	0.19	0.18
Cooking	0.05	0.0	0.0	0.25	0.15
Other (Miscellaneous Processes)	0.0	0.06	0.0	0.05	0.03
<b>Area Wide Source Subtotal</b>	<b>10.1</b>	<b>22.1</b>	<b>1.4</b>	<b>13.5</b>	<b>5.1</b>
<b>Mobile Sources</b>					
On-Road Motor Vehicles	15.45	145.7	26.15	0.75	0.5
Aircraft	0.06	1.75	0.01	0.0	0.0
Trains	0.01	0.04	0.24	0.02	0.02
Ships and Commercial Boats	0.05	0.14	0.3	0.02	0.02
Recreational Boats	2.1	13.1	0.58	0.16	0.12
Off-Road Recreational Vehicles	0.04	0.64	0.02	0.0	0.0
Off-Road Equipment	2.73	24.85	7.56	0.56	0.5
Farm Equipment	0.48	3.32	3.31	0.22	0.2
Fuel Storage and Handling	0.64	0.0	0.0	0.0	0.0
<b>Mobile Source Subtotal</b>	<b>21.6</b>	<b>189.6</b>	<b>38.2</b>	<b>1.7</b>	<b>1.4</b>
<b>Sonoma County Total</b>	<b>37.7</b>	<b>216.5</b>	<b>40.8</b>	<b>17.0</b>	<b>7.4</b>
<i>Source: <a href="http://www.arb.ca.gov/ei/maps/statemap/cntymap.htm">http://www.arb.ca.gov/ei/maps/statemap/cntymap.htm</a></i>					

### Sensitive Receptors

Ambient air quality standards have been established to identify air quality levels considered sufficient, with an adequate margin of safety, to protect public health and welfare. They are designed to protect that segment of the public most susceptible to respiratory distress, such as children under 14, the elderly over 65, persons engaged in strenuous work or exercise, and people with cardiovascular and chronic respiratory diseases. Areas of specific concern are where sensitive receptors are to be found, such as facilities that house or attract children, the elderly, or people with illnesses; or places where people engage in strenuous work or exercise.

The nearest school and daycare center to the proposed project, Montessori School of Petaluma and Shining Star Preschool, respectively, are located a mile or more to the northwest. These sensitive receptor locations are situated upwind from the proposed project, based on the prevailing wind direction (see Figure V.B-1). Shollenberger Park, the nearest park, is located approximately 525 feet across the Petaluma River to the east. The nearest sensitive receptors are the residents of the homes along the riverfront, approximately 300 feet east (downwind) of the proposed facility.

### **Former Petaluma Asphalt Plant Regulatory Compliance**

Dutra Materials continues to operate an asphalt plant at their temporary location of 1601 Petaluma Boulevard South in Petaluma. A review of the regulatory record indicated that the plant had one recorded violation since permit issuance in 1992. The plant's operating permit limited tugboat trips to 25 round trips during any rolling 12 consecutive month period. On October 29, 2003, the plant exceeded the limit on tugboat trips and was levied a \$700 fine. The plant had not had any nuisance or air quality emission complaints or violations.

## **ENVIRONMENTAL IMPACTS**

The proposed project would affect air quality during construction and operation. The criteria of significance for air quality impacts are identified below and are followed by a discussion of impacts.

### **Thresholds of Significance**

According to the environmental checklist in the *CEQA Guidelines*,<sup>26</sup> a project could have a potentially significant air quality impact on the environment if it would:

- 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 nonattainment under an applicable national 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.

BAAQMD has developed thresholds of significance for ROG, NO<sub>x</sub>, and PM<sub>10</sub> emissions from project operations as the result of vehicle trips and area source emissions (Table V.B-7). Project related ROG, NO<sub>x</sub>, or PM<sub>10</sub> emissions would be considered significant if they would were to exceed BAAQMD thresholds.

Because this project involves the relocation and shutdown of the existing asphalt facility, the impact is evaluated based on the net increase in emissions due to construction and operation of the new facility. The new facility includes recycling of asphalt and a higher asphalt production capacity and, therefore, is expected to result in some increase in emissions. This evaluation used the five-year historic average production rate of 131,498 tons of asphalt per year and a maximum daily production rate of 2,000 tons per day that occurred at the original (now closed) facility and the temporary facility in Petaluma.

<sup>26</sup> *California Code of Regulations (CCR), 2004. Title 14, Chapter 3, Guidelines to Implementation of the California Environmental Quality Act, Appendix G, 6 February.*

**Table V.B-7  
BAAQMD Thresholds of Significance**

Pollutant	Pounds/Day	Tons/Year
ROG	80	15
NO <sub>x</sub>	80	15
PM <sub>10</sub>	80	15
CO	550	NE

*Source: BAAQMD CEQA Guidelines, 1999.*

BAAQMD recognizes that construction equipment emit ozone precursors, but that these emissions are temporary and are generally accounted for in the emission inventory projections that provide the basis for regional air quality plans.<sup>27</sup> Therefore, temporary ROG, NO<sub>x</sub>, and PM<sub>10</sub> emissions during construction are not expected to impede attainment or maintenance of ozone standards in the Bay Area. The BAAQMD CEQA Guidelines emphasize implementation of effective and comprehensive control of PM<sub>10</sub> emissions rather than a detailed quantification of construction emissions.<sup>28</sup> The BAAQMD does not consider air quality impacts resulting from construction activities significant if appropriate construction control mitigation measures listed in the BAAQMD guidelines are incorporated.<sup>29</sup> The BAAQMD guidelines specify that an evaluation of the potential for CO “hot spots” at intersections as a result of the project should be performed where:

- Vehicle emissions of CO would exceed 550 pounds per day;
- Project traffic would impact intersections or roadway links operating at Levels of Service (LOS) D, E, or F or would cause LOS to decline to D, E, or F; or
- Project traffic would increase traffic volumes on nearby roadways by ten percent or more. CO concentrations need not be estimated if the increase in traffic volume is less than 100 vehicles per hour.

Under the guidelines, projects contributing to CO concentrations exceeding the SAAQS of nine parts per million (ppm) averaged over eight hours and 20 ppm for one hour (i.e., if it creates a “hot spot”) would be considered to have a significant air quality impact.

The BAAQMD’s Risk Management Policy has set a health risk threshold for significance impacts due to TACs at the “probability of contracting cancer for the maximally exposed individual exceeds ten in one million” and a “ground-level concentration of non-carcinogenic toxic air contaminants would result in a hazard index (HI) greater than one”.<sup>30</sup>

<sup>27</sup> BAAQMD, 1999, *op. cit.*

<sup>28</sup> *Ibid.*

<sup>29</sup> *Ibid.*

<sup>30</sup> The HI is calculated by summing the hazard quotients for substances that affect the same target organ or organ system (e.g., respiratory system). The hazard quotient is the ratio of potential exposure to the substance and the level at which no adverse health effects are expected. An HI of less than 1 indicates no adverse health effects are expected as a result of exposure and an HI greater than 1 indicates adverse health effects are possible.

## Project Impacts and Mitigation Measures

### ***Impact AQ-1 Project Construction Would Result in Emissions of Criteria Pollutants***

Construction activities associated with development of the start-up and full build out phases of the project would include site preparation, soil excavation, backfilling, grading, and equipment vehicular traffic on paved and possibly unpaved roads. Soil disturbance caused by construction activities could be exacerbated by wind erosion. As a result, short-term dust emissions could cause a temporary increase in localized PM<sub>10</sub> emissions. PM<sub>10</sub> generated from construction-related activities is highly dependent on several factors, including activity level, specific operations, equipment type, and weather conditions. The operation of construction equipment would also result in the emission of criteria pollutants PM<sub>2.5</sub>, ROG, NO<sub>x</sub>, and CO. Construction activities associated with project development would also result in short-term exhaust emissions from construction-related equipment. The primary pollutants associated with exhaust emissions from construction equipment are ozone precursors (ROG and NO<sub>x</sub>), CO, and PM<sub>10</sub>.

BAAQMD considers PM<sub>10</sub> emissions to be the greatest pollutant of concern associated with construction activities and has established feasible control measures for PM<sub>10</sub> emissions from construction-related activities. There are several levels of appropriate control measures based on the size of the construction project. BAAQMD recommends that further optional control measures be implemented at construction areas that are large in area, located near sensitive receptors, or may for any other reason be warranted.

Project sizes that are greater than four acres are recommended to use enhanced control measures. The BAAQMD would consider project construction activities to be *significant* if the established control measures are not implemented.

### ***Mitigation Measure AQ-1a***

The following mitigation measures apply to activities associated with the proposed asphalt plant construction and are intended to reduce the temporary generation of fugitive dust to a less-than-significant level. The measures to reduce construction-related PM<sub>10</sub> emissions reflect basic and optional dust control measures recommended by BAAQMD:

- All active construction areas shall be watered at least twice daily.
- All trucks hauling soil, sand, and other loose materials shall be covered with tarpaulins or other effective covers.
- All unpaved access roads, parking areas, and staging areas at the construction site shall be paved; otherwise, water or non-toxic soil stabilizers shall be applied to all unpaved access roads. In addition, paved access roads, parking areas, and staging areas shall be swept daily with a water sweeper. Streets shall be swept daily with a water sweeper in areas where visible soil material is carried onto adjacent public streets.
- The applicant shall hydroseed or apply non-toxic soil stabilizers to inactive construction areas (previously graded area inactive for ten days or more).
- The applicant shall enclose, cover, water twice daily or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.).
- The applicant shall limit traffic speeds on unpaved roads to 15 miles per hour.

- The applicant shall install sandbags or other erosion control measures to prevent silt runoff to public roadways.
- The applicant shall replant vegetation in disturbed areas as quickly as possible.
- The applicant shall construct a gravel pad at all exits used by construction equipment or trucks to minimize soil adhering to the vehicle tires or tracks from leaving the construction site. The pads shall be constructed by placing crushed aggregate (greater than 3 inches and smaller than 6 inches) over geotextile fabric to at least 12 inches in depth. The pad shall be a minimum of 20 feet wide and 50 feet in length.
- During periods when trucks are transporting soil to or from the site, dirt that may have been tracked off the site shall be removed daily from the street. The area to be cleaned is to extend to the limit of noticeable dirt tracked from the site or for a distance of 75 feet on each side of a vehicle entrance or exit, whichever is greater. If water is used to clean the street, then the quantity of water used shall not result in sediment being washed into the storm sewer catch basins. Street sweepings shall be disposed of as a waste along with waste soil in accordance with applicable regulations.
- The applicant shall terminate excavation and grading activities when winds exceed 25 mph or when fugitive dust emissions are visible for a distance of at least 100 feet from the origin of such emissions, and there is visible evidence of wind driven fugitive dust. Wind speed would be determined when an on-site anemometer registers at least two wind gusts in excess of 25 miles per hour within a consecutive 30-minute period.

### ***Mitigation Measure AQ-1b***

Implementation of the following mitigation measures would reduce short-term exhaust emissions from construction-related equipment to a less-than-significant level:

- The idling time of all construction equipment used at the site shall not exceed five minutes.
- The applicant shall limit the hours of operation of heavy-duty equipment and/or the amount of equipment in use.
- All equipment shall be properly tuned and maintained in accordance with the manufacturer's specifications. Emissions from all off-road diesel powered equipment used on the project site shall not exceed 40 percent opacity for more than three minutes in any hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately. A visual survey of all in-operation equipment shall be made at least weekly throughout the duration of the project construction. A record of the inspection shall be maintained on-site. The BAAQMD and/or other officials may conduct periodic site inspections to determine compliance.
- The applicant shall require construction contractors to install particulate traps when appropriate on diesel engines.
- The applicant shall use the minimum practical engine size for construction equipment.
- Gasoline-powered equipment shall be equipped with catalytic converters, where feasible.

**Impact AQ-2      Project Operation Would Result in Emissions of Criteria Pollutants**

Project operations would produce emissions of criteria pollutants, or their precursors (ROG and NO<sub>x</sub>), from operation of the asphalt and recycling facility, vehicle and barge emissions from the import of raw materials, truck emissions from the export of raw materials and finished product (asphalt), and employee vehicle trips.

To determine the net impact from the proposed asphalt and recycling facility, the EIR preparers calculated the emissions of criteria pollutants from the operation of both the existing and new facility. The emissions from the existing and proposed asphalt plants were evaluated using the BAAQMD guideline for Hot Asphalt Mixing Plant.<sup>31</sup> Emissions from the recycling of asphalt at the proposed facility included PM<sub>10</sub> emissions, which were evaluated using emission factors from U.S. EPA Office of Air Quality Planning and Standards' AP-42 emission factors. Emissions from truck trips were estimated using the vehicle and trip data provided in the Traffic Section and vehicle emission factors from CARB's EMFAC software for the year 2008.<sup>32</sup> Emissions from the barge diesel engines were calculated based on EPA guidance for marine vessel emissions.<sup>33</sup> The assumption used and the calculations are provided in the spreadsheets included in Appendix D.

**Asphalt Plant Emissions**

Both facilities were evaluated using the same BAAQMD recommended emission factors. Most hot mix asphalt facilities are comprised of the same basic air pollution sources: the dryer, burner-blower, exhaust fan, dust collection system, asphalt cement heating and storage, and reclaimed asphalt paving (RAP) area.<sup>34</sup> The proposed facility would be subject to the New Source Review permit system, which is designed to produce a net air quality improvement using BACT. Because the proposed project's emissions of ROG, NO<sub>x</sub>, PM<sub>10</sub>, and CO are estimated to exceed ten pounds per day at the highest permitted production rate, the applicant has proposed to meet BACT requirements for the various processes. Methods to be employed include the following:

- Reducing PM<sub>10</sub> emissions during aggregate off-loading from barges by using water sprays and a conveyor system;
- Reducing PM<sub>10</sub> emissions by the use of a baghouse for the aggregate drying operation (capable of a 99 percent removal) and using water sprays;
- Reducing NO<sub>x</sub> emissions from dryer by using a low NO<sub>x</sub> (12 ppmv at 15 percent O<sub>2</sub>) burner to heat the aggregate; and
- Using a blue smoke control filter pack to control PM<sub>10</sub> and ROG emissions at the loadout silos.

The EIR preparers calculated the net increase in emissions using the same emission factors for evaluating the asphalt plant's emissions, and did not take into account that the reductions in the emissions due to BACT controls and newer, more efficient equipment. Table V.B-8 summarizes the annual increase in emissions

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<sup>31</sup> BAAQMD, *Engineering Evaluation Template for Hot Mixing Asphalt Facilities*, retrieved from website: [www.baaqmd.gov/pmt/handbook/s11c02ev.htm](http://www.baaqmd.gov/pmt/handbook/s11c02ev.htm) on November 4, 2007.

<sup>32</sup> EMFAC-2007.

<sup>33</sup> U.S. EPA, 2000, *Analysis of Commercial Marine Vessel Emissions and Fuel Consumption*.

<sup>34</sup> Bay Area Air Quality Management District, *Permit Handbook Chapters* retrieved from website: [www.baaqmd.gov/pmt/handbook/default.htm](http://www.baaqmd.gov/pmt/handbook/default.htm)

from the existing and proposed facilities. Detailed calculations are provided in Appendix D; emissions from the existing asphalt plant are estimated in Tables D-1 through D-7 and emissions from the proposed asphalt and recycling plant are estimated in Tables D-8 through D-13.

**Table V.B-8**  
**Net Increase in Emissions of Criteria Pollutants from Asphalt Production (tons/year)**

Criteria Pollutants	PM <sub>10</sub>	VOCs <sup>1</sup>	SOx	NOx	CO
<b>Existing Asphalt Facility</b>					
Total Annual Emissions <sup>2</sup>	2.1	1.3	0.0080	2.5	1.1
<b>Proposed Asphalt and Recycling Facility</b>					
Total Annual Emissions <sup>3</sup>	4.3	2.8	0.0170	5.4	2.4
<b>Increase in Criteria Air Pollutant Emissions</b>					
Total Annual Increase	2.3	1.5	0.0092	2.9	1.3
<sup>1</sup> VOCs are synonymous with ROG.					
<sup>2</sup> Based on 131,498 tons of asphalt per year.					
<sup>3</sup> Based on 225,000 tons of asphalt and 150,000 tons of recycled asphalt per year.					

#### *Vehicle Emissions*

Raw materials are brought to the existing asphalt plant, and would be brought to the proposed asphalt and recycling plant by trucks and barges. On-site equipment, such as front-loaders used to manage aggregate stockpiles, would also emit criteria pollutants. The proposed project would result in an increase in truck trips because of increased production capacity, import of RAP, and the export of raw materials locally. The number of truck trips was estimated based on the amount of raw material imported by trucks and the amount of raw and finished asphalt product that would be exported from the site. The distance trucks would travel was estimated based on the fact that the next nearest source of asphalt is Santa Rosa to the north and San Rafael to the south, both approximately 25 miles from the proposed project site. The truck emission factors were obtained by running CARB's EMFAC-2007 software, which provides composite emission factors for vehicle classes. The composite emission factor based on the number and age of vehicles in specific vehicle classes (e.g., passenger vehicles or heavy duty trucks) expected to operate in southern Sonoma County, using emission factors from 1965 through the target year. The emissions from the existing asphalt plant were based on 2007 emission rates while the emissions from the proposed asphalt and recycling plant were based on 2008 emission rates. Equipment emissions were estimated using emission factors from CARB's software, OFFROAD2007. This software provides emission factors for off-road equipment based on horsepower rating, fuel type, and age of the engine. It was assumed for this evaluation that the equipment was manufactured in the year 2000. The detailed calculations are provided in Tables D-15 through D-17 in Appendix D, the estimates of criteria pollutants from off-road equipment and on-road trucks for the existing and proposed asphalt plants, and the net increase, are provided in Table V.B-9.

**Table V.B-9**  
**Net Increase in Emissions of Criteria Pollutants from Truck Trips (tons/year)**

Criteria Pollutants	PM <sub>10</sub>	ROG	SO <sub>x</sub>	NO <sub>x</sub>	CO
<b>Existing Asphalt Facility</b>					
Total Annual Emissions	0.39	0.35	0.088	9.5	2.2
<b>Proposed Asphalt and Recycling Facility</b>					
Total Annual Emissions	1.0	1.3	0.12	27	11
<b>Increase in Criteria Air Pollutant Emissions</b>					
Total Annual Increase	0.59	1.0	0.03	17	8.4

### *Barge Emissions*

The barges are primarily used to import aggregate from the San Rafael Quarry via the Petaluma River by 4,000-ton capacity barges pulled by tugboats. It is estimated that the proposed project would result in an increase in tugboat trips from 25 (allowed under BAAQMD's permit for the previously active plant) to 125 trips per year. The increase in tugboat emissions from tugboat trips was estimated using EPA methodology.<sup>35</sup> These emission factors are applicable to tugboats and marine freighters. The resulting emissions are provided in Table V.B-10. This evaluation did not consider potential energy savings, and therefore decreased emissions, as a result of the tugboats traveling with the tide. It is assumed that each tugboat would operate on the Bay for approximately 8 hours each round-trip: one hour maneuvering, five hours in slow cruise, and two hours on standby at the dock. The main engines would operate six hours, and the auxiliary engine two hours while docked. The SO<sub>x</sub> emissions have been adjusted to account for the use of low sulfur fuel, which is currently required by law. Table V.B-10 summarizes the annual increase in emissions from barge trips for the existing and proposed facilities. Detailed calculations are provided in Table D-18 in Appendix D.

The overall increase in criteria pollutants from the operation of the proposed facility is the sum of the increase from asphalt plant emissions, truck trips, and barge trips. The total net impact is summarized in Table V.B-11.

**Table V.B-10**  
**Net Increase in Emissions of Criteria Pollutants from Barge Trips (tons/year)**

Pollutant	Existing Plant Emissions	Proposed Plant Emissions	Increase in Emissions
PM <sub>10</sub>	0.021	0.11	0.085
ROG	0.022	0.11	0.090
SO <sub>x</sub>	0.15	0.76	0.61
NO <sub>x</sub>	0.83	4.2	3.3
CO	0.17	0.84	0.67

<sup>35</sup> U.S. EPA, 2000, *Analysis of Commercial Marine Vessel Emissions and Fuel Consumption*.

**Table V.B-11**  
**Net Increase in Emissions of Criteria Pollutants from Proposed Project (tons/year)**

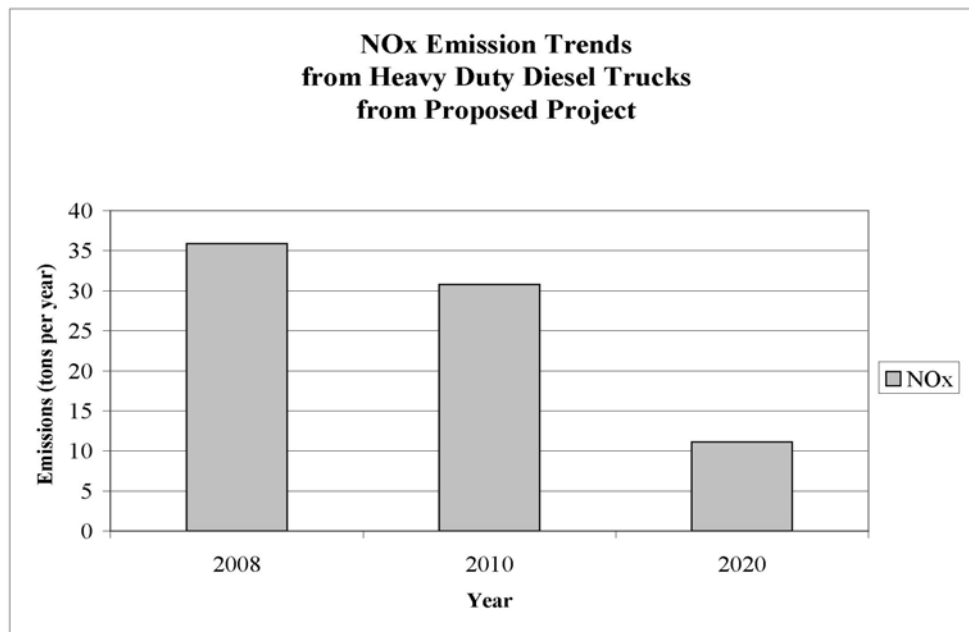
Criteria Pollutants	PM <sub>10</sub>	ROG	SO <sub>x</sub>	NO <sub>x</sub>	CO
Existing Plant Estimated Criteria Air Pollutant Emissions	2.5	1.7	0.25	13	3.5
Proposed Plant Estimated Annual Criteria Air Pollutant Emissions	5.4	4.2	0.89	36	14
Net Increase in Criteria Air Pollutant Emissions	2.9	2.6	0.64	23	10

The net increase of 23 tons of NO<sub>x</sub> per year exceeds the BAAQMD's threshold of significance of 15 tons per year (Table V.B-7), resulting in a *significant* impact. As shown on Table D-19, the NO<sub>x</sub> emission would also exceed the daily threshold, assuming that the plants were running at maximum capacity. It should be noted that the number of days that the new asphalt and recycling plant could run at maximum capacity is limited by the annual production cap proposed for the facility. The plant could only run at the maximum capacity of 4,000 tons per day for approximately 56 days before reaching the annual cap of 225,000 tons. As shown in the tables above, the increase in NO<sub>x</sub> emissions is primarily the result of truck emissions, which accounts for over 70 percent of the increase. In the vast majority of cases, these trucks would not be owned or operated by the proposed facility and not under the project's direct control, and therefore, mitigation measures cannot be imposed upon these trucks. Mitigation measures will be implemented to require newer off-road equipment, which have lower emissions of criteria pollutants than older equipment and operational procedures to reduce emissions of particulate matter. However, this impact would remain significant and unavoidable.

However, in 2001, CARB adopted new NO<sub>x</sub> emission standards to clean up large diesel engines that power heavy-duty trucks. The new standard went into effect in 2007 and reduces emissions of NO<sub>x</sub> to 0.20 g/bhp-hr on 2007 and subsequent engines; the manufacturer may use averaging, banking, or trading programs to achieve this standard. This is a 92 percent reduction from the existing NO<sub>x</sub> standard. Pending regulations will also require commercial marine vessels, such as barges, to use low-sulfur content of diesel fuels, which would also indirectly reduce NO<sub>x</sub> emissions. Average NO<sub>x</sub> emissions from heavy-duty diesel trucks are predicted to decrease, on a vehicle per mile (VPM) basis, as older vehicles are retired. Figure V.B-2 shows VPM emission rates from EMFAC-2007 for heavy-duty diesel trucks for the years 2008, 2010, and 2020. These rates indicate that future NO<sub>x</sub> emissions from the proposed project would decrease to below the threshold of significance of 15 tons per year.

#### Start-up Phase

During the initial start-up phase of the proposed project, raw materials such as aggregate and sand may be imported, primarily from the San Rafael quarry, until the barge off-loading facility is completed. This would result in an increase in truck trips associated with material imports. However, during the start-up phase, the allowed exports of asphalt product, sand, and aggregate would be approximately 35 percent less, and import and export of RAP would be 67 percent less than the anticipated annual rates under fully operational conditions. Therefore, the emissions from trucks would be less during the initial start-up phase than those estimated under fully operational conditions.



**Figure V.B-2**

***Mitigation Measure AQ-2a***

Off-road equipment used on-site shall use 2007 emission standards. Emission standards shall be met by upgrading to newer vehicles or retrofitting engines using CARB-verified retrofit technologies.

***Mitigation Measure AQ-2b***

Off-road equipment used on site shall be operated in the following manner:

- The idling time of all construction equipment used at the site shall not exceed five minutes.
- All equipment shall be properly tuned and maintained in accordance with the manufacturer's specifications. Emissions from all off-road diesel powered equipment used on the project site shall not exceed 40 percent opacity for more than three minutes in any hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately. A visual survey of all in-operation equipment shall be made at least weekly throughout the duration of the project construction. A record of the inspection shall be maintained on-site. The BAAQMD and/or other officials may conduct periodic site inspections to determine compliance.
- The minimum practical engine size shall be used for construction equipment.
- Gasoline-powered equipment shall be equipped with catalytic converters, where feasible.

**Mitigation Measure AQ-2c**

Although PM<sub>10</sub> impacts associated with operation of the asphalt plant and recycling facility were found to be less than significant, the following measures are recommended to further reduce dust emissions.

The following dust control measures shall be implemented during the movement of aggregate using heavy construction:

- Minimizing drop heights while loading/unloading aggregate to less than four feet, and
- Applying water as needed to maintain visible dust to less than No. 1 on the Ringelmann Chart measured over a three-minute period.

**Impact AQ-3 CO Hot Spots**

Truck and tugboat trips delivering raw materials and transporting the finished products would generate emissions of CO. The estimated net increase in daily CO emissions (Table D-19) is 66 pounds per day, which is much less than the 550 per day threshold of significance. In addition, due to the facilities' proximity to Highway 101, the trucks would not be expected to create CO hot spots at locations where receptors would be located adjacent to the roadway. Therefore, impacts related to CO "hot spots" would be *less than significant*.

**Impact AQ-4 Project Operation Emissions of TACs**

Operation of the facility would produce emissions of various materials that can be harmful to human health at high concentrations. BAAQMD requires permits for facilities that emit pollutants into the air from stationary sources. BAAQMD Regulation 2, Rule 5 specifies that all permit applications for new and modified sources must be screened for TACs.<sup>36</sup> If any project emits a TAC in an amount that exceed a listed trigger, then BAAQMD staff must complete a site-specific Health Risk Screening Analysis.<sup>37</sup> Estimates of public exposure and off-site worker receptor locations are then compared to BAAQMD risk standards (Regulation 2-5-301 and 302). Under regulation 2-5-301, the Best Available Control Technology for Toxics (TBACT)<sup>38</sup> requirements, the applicant shall apply TBACT to any new or modified source of TACs where the cancer risk is greater than 1.0 in one million (10<sup>-6</sup>),<sup>39</sup> and/or a chronic hazard index greater than 0.2.<sup>40</sup> Under regulation 2-5-302, an Authority to Construct or Permit to Operate for any new or modified source of

<sup>36</sup> A toxic air contaminant (TAC) is defined by BAAQMD as air pollutant that may cause or contribute to an increase in mortality or in serious illness or that may pose a present or potential hazard to human health (BAAQMD Website [www.baaqmd.gov](http://www.baaqmd.gov)), reviewed online 23 February 2006.

<sup>37</sup> Health Risk Screening Analysis guidelines generally conform to the Health Risk Assessment Guidelines adopted by California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA for use in the Air Toxics Hot Spots Program (BAAQMD Website [www.baaqmd.gov](http://www.baaqmd.gov)).

<sup>38</sup> Best Available Control Technology for Toxics (TBACT) requirements. The BAAQMD requires that an applicant shall apply TBACT to any new or modified source of TAC where the source risk is a cancer risk greater than 1.0 in one million (10<sup>-6</sup>) and/or a chronic hazard index greater than 0.20 (BAAQMD Website [www.baaqmd.gov](http://www.baaqmd.gov)), reviewed online 23 February 2006.

<sup>39</sup> Cancer risk is an estimate of the probability that an individual will develop cancer as a result of lifetime exposure to emitted carcinogens at a given location. A one in one million cancer risk represents one additional lifetime cancer developed from the exposure condition evaluated among one million persons exposed.

<sup>40</sup> The hazard quotient is a measure of the non-carcinogenic toxicity of a compound (not a probability). The chronic hazard quotient is the ratio of the estimated dose from exposure to compounds in air to a value, which is not believed to produce chronic adverse health effects. Adding all of these hazard quotients together results in the chronic hazard index.

TACs, the permit shall be denied if the project risk exceeds any of the following project risk limits: a cancer risk of 10.0 in one million ( $10^{-5}$ ); a chronic hazard index of 1.0; and acute hazard index of 1.0.<sup>41</sup>

BAAQMD completed a health risk screening analysis in support of an air permit for the proposed facility. BAAQMD calculated health risk using an initial proposed annual asphalt production of 880,000 tons/year; the project has since been revised to limit annual asphalt production to 225,000 tons/year.<sup>42</sup> Cancer risk is an estimate of the probability that an individual will develop cancer as a result of lifetime exposure to emitted carcinogens at a given location. A one in one million cancer risk represents one additional lifetime cancer developed from the exposure condition evaluated among one million persons exposed. Therefore, the excess cancer risk calculated by BAAQMD may be as much as four times the risks of the proposed plant. BAAQMD estimated emissions in accordance with the U.S. EPA AP-42 Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Fifth Edition. The analysis estimated that incremental health risk resulting from TAC emissions from operation of the plant. An air dispersion computer model was then used to estimate annual average ambient air concentrations from plant emissions using Petaluma meteorological data, information about stack heights for the proposed plant, and location of the nearest public receptor. Estimates of residential individual excess lifetime cancer risk assumed a continuous exposure to annual average TAC for 70 years.

The health risk screening analysis found that the project's estimated maximum cancer risk at a production capacity of 880,000 tons per year was 6.6 in a million ( $6.6 \times 10^{-6}$ ). According to the BAAQMD policies, this risk level is considered acceptable if the sources meet current toxic best available control technology (TBACT) requirements.<sup>43</sup> The proposed plant design includes current TBACT with the use of water sprays and baghouse to suppress  $PM_{10}$  emissions, and a blue smoke control filter pack to control  $PM_{10}$  and ROG emissions at the loadout silos.

The proposed project would generate diesel particulate matter (DPM) emissions from both off-road and on-road mobile sources. Mitigation Measure AQ-2a would result in a 60 percent reduction in DPM emissions compared to year 2000 off-road equipment diesel engines. The majority (86 percent) of the  $PM_{10}$  emissions from the proposed project would come from diesel fuel trucks used to import and export materials and finished asphalt product. The applicant would not have direct control over the trucks hauling material to and from the proposed project site; particulates from diesel exhaust are managed through vehicle emission control programs implemented on a state and federal level with the cooperation of fuel suppliers and vehicle and engine manufacturers. In addition, CARB has implemented a Diesel Risk Reduction Plan to reduce diesel particulate matter emissions through cleaner fuels, such as ultra, low-sulfur diesel, new diesel tailpipe regulations, and regulations governing operations such as idling restrictions. Therefore, DPM emissions from the proposed project would decline as regulations are implemented and older vehicles are retired. Some of the major regulations that have been implemented to reduce diesel PM emissions are summarized below:

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<sup>41</sup> BAAQMD Website, [www.baaqmd.gov](http://www.baaqmd.gov), reviewed online 23 February 2006.

<sup>42</sup> Taylor, Scott, 2006, Justice & Associates, Letter to J. Kirtley of Dutra Materials, Regarding CEQA Air Quality Analysis for Haystack Landing Barge Off Loading and Hot Mix Asphalt Plant, 7 April.

<sup>43</sup> Chong, Daphne, 2005, Bay Area Air Quality Management District, Interoffice Memorandum to T. Bui, Re: Results of Health Risk Screening Analysis for Dutra Materials (Petaluma, CA), Mix Drum Asphalt Plant, Plant #16483, Application #10901.

- In 2001, CARB adopted new PM and NO<sub>x</sub> emission standards to clean up large diesel engines that power big-rig trucks, trash trucks, delivery vans, and other large vehicles. The new standard for PM went into effect in 2007 and reduces emissions to 0.01 g/bhp-hr. This is a 90 percent reduction from the existing PM standard. New engines would meet the 0.01 g/bhp-hr PM standard with the aid of diesel particulate filters that trap the PM before exhaust leaves the vehicle.
- In 2002, CARB adopted the Diesel Emission Control Strategy Verification Procedure, Warranty, and In-Use Compliance Requirements (Title 13, CCR, §2700 through 2710) for on-road, off-road, and stationary diesel-fueled vehicles and equipment. CARB verifies diesel emission control strategies to ensure that they significantly reduce diesel PM, are durable, and have a mandatory warranty. Owners are required to use only CARB-verified products to ensure the mandated PM reductions are real and durable. The regulation established three levels of verification based on the proven ability of the technologies to reduce exhaust emissions. Level 1 reduces particulate matter emissions by 25 percent or more, Level 2 reduces particulate matter emissions by 50 percent or more, and Level 3 reduces particulate matter emissions by 85 percent or more, or to 0.01 g/bhp-hr or greater.
- In 2003, CARB passed the diesel fuel regulations with low-sulfur diesel fuel required for all highway vehicles, non-highway heavy equipment, and stationary diesel generators starting in 2006 (Title 13, CCR, §2281). Reducing the sulfur content of diesel fuels contributes directly to the reduction of SO<sub>x</sub> and diesel PM emissions and indirectly to the reduction in emissions of NO<sub>x</sub>, CO, and hydrocarbons. Fuel sulfur content can affect engine wear, deposit formation, and emission performance. Sulfur compounds in engine exhaust can also reduce the effectiveness of emission control equipment. With the implementation of diesel fuel standards in the 1990s, improvements in diesel fuel quality have brought significant reductions in diesel PM emissions from diesel engines.<sup>44</sup>
- On July 22, 2004, CARB adopted Title 13, CCR, §2485 Exhaust Emission Standards and Test Procedures, Off-Road Compression-Ignition Engines, which sets emissions requirements for new heavy-duty off-road compression-ignition engines, produced on or after January 1, 1996, and all other new 2000 and later model year off-road compression-ignition engines. This section defines exhaust emission standards, in grams per kilowatt-hour, relative to engine size/power output for all compression-ignition engines sold in the state based on model year and maximum rated power. The standards are set in stages or “tiers” (Tier 1, Tier 2, and Tier 3) with years by which the specific tier must be met.
- On November 8, 2004, the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines was approved by the Office of Administrative Law and filed with the Secretary of State. This regulation establishes a number of new requirements for both existing and new emergency and portable diesel engines. The ATCM requires all portable engines to be certified to Tier 1, 2, or 3 U.S. EPA/CARB off-road engine standards by 2010. After 2010, all fleets of portable engines are required to meet diesel PM emission averages that become more stringent in 2013, 2017, and 2020.

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<sup>44</sup> Lloyd, Alan C., and Thomas A. Cackette, 2001. *Diesel Engines: Environmental Impact and Control*, Environmental Manager, June.

- On December 9, 2004, CARB adopted a fourth phase of emission standards (Tier 4). These standards are nearly identical to those finalized by the EPA on May 11, 2004 in its Clean Air Nonroad Diesel Rule. As such, engine manufacturers will be required to meet after-treatment-based exhaust standards for particulate matter and NOx starting in 2011 that are more than 90 percent lower than current levels, putting off-road engines on a virtual emissions par with on-road heavy-duty diesel engines.
- In 2005, CARB adopted a regulation (effective January 2008) requiring new heavy-duty on-road trucks to come equipped with an automatic engine shutoff device, limiting idling to five minutes. It also requires that trucks with sleeper cabs use alternatives to idling the main truck engine for heating and cooling during rest periods (Title 13, CCR, §2485).
- In 2007, CARB adopted regulations to reduce diesel PM from in-use off-road diesel fleets. The regulations require each fleet to meet target NOx and PM emission goals beginning in 2009. Target emission goals would be met through the use of verified diesel emission controls (Title 13, CCR, §2449). The new regulation requires all off-road diesel vehicle fleets to meet fleet average emission rate targets for particulate matter. The rule designates off-road diesel vehicle fleets by size based on total horsepower (hp) within the fleet. Large and medium fleets are required to meet fleet average emission rate targets for NOx. Fleets have the option to retrofit their vehicles with verified emission control devices, repower them with cleaner engines, or replace them with cleaner vehicles. The largest fleets are required to begin meeting the fleet average targets on March 1, 2009. Medium fleets must begin meeting the fleet average on March 1, 2010, and small fleets would have until March 1, 2012. The rule also requires that operators of off-road diesel vehicles shut down their vehicles rather than idle for more than five minutes, unless such idling is necessary for proper operation of the vehicle. The limit on unnecessary idling and the requirements to report information about affected vehicles begins in 2008.
- On February 16, 2007, new requirements regarding emission control labels (ECL) on heavy-duty diesel engines went into effect. Specifically, Title 13, CCR, §2183 (c) requires that no 1974 or newer diesel powered heavy-duty commercial vehicle shall operate in California without evidence that, at the time of manufacture, the installed engine met emission standards at least as stringent as applicable federal emission standards for the model year of the engine. CARB will determine whether an engine meets the above requirement by inspecting the ECL affixed to the vehicle's engine. A vehicle owner found in violation of the requirement is potentially subject to two distinct penalties: a) a tampered (missing) ECL carries a \$300 penalty, and b) the regulation presumes that an engine without an ECL (or other documentation from the engine manufacturer) did not meet EPA standards at the time of manufacture, which carries a \$500 penalty.

These regulations would result in significant future decreases in DPM emissions from trucks associated with the import and export of materials over existing conditions. In addition, CARB does not recommend locating new sensitive land uses within 500 feet of freeways with 100,000 vehicles per day to avoid DMP impact. At the maximum production capacity of 4,000 tons per day, and assuming large heavy duty trucks with a capacity of 23 tons per truck, which would be typical for a project requiring a large amount of asphalt, the rate of trucks entering and leaving the proposed asphalt and recycling plant would be about 175 trucks per day over a 10-hour day. As noted earlier, there is a limit to the number of days that the plant could operate

at maximum capacity; the average number of trucks per day would be expected to be much lower. Based on the truck volume, the nearest receptors would not be adversely affected by DPM. Impacts related to TACs would be *less than significant*.

#### **Mitigation Measure AQ-4**

Although PM<sub>10</sub> impacts associated with operation of the asphalt plant and recycling facility would be less than significant, the following measures are recommended to further reduce DPM emissions. Off-road mobile diesel equipment, including Caterpillar front-end loader, Kubota tractor, Caterpillar excavator, 10-wheel dump truck, and 10-wheel water truck, shall use diesel fuel consisting of 20 percent biodiesel (B20 diesel). The use of B20 has been shown to reduce emissions of DPM from off-road mobile equipment up 10 percent.

#### **Impact AQ-5      Odors**

Blue smoke is the leading cause of odor complaints at asphalt facilities. The odor could affect on-site employees and residences downwind of the project. The facility proposes to devote up to ten percent of annual production to rubberized asphalt. The manufacture of rubberized asphalt is known to cause nuisance odors if not abated.<sup>45</sup>

The project is implementing BACT, which includes the use of Blue Smoke Controls, which would substantially reduce the potential odor impact associated with operations.

The proposed Astec fiberbed mist collector would efficiently capture and clean blue smoke from silo and loadout operations. In the blue smoke control system, ducts route emissions from batching and mix transfer operations to the collector. The gas stream enters the enclosure and passes through prefilters. A large knock-out area at the front of the unit allows particle matter to drop out of the gas stream before the prefiltering process. The prefilters capture any remaining particulate matter in the gas stream.<sup>46</sup>

These controls should eliminate nuisance odors and complaints to the BAAQMD. Odor complaints to the BAAQMD would require action by the facility to further mitigate odors (BAAQMD Regulation 7). Impacts related to odors would be *less than significant*.

#### **Impact AQ-6      Conflict with or Obstruct Implementation of an Applicable Air Quality Plan**

The proposed project would require a General Plan Amendment to redesignate portions of the site from Limited Commercial to Limited Industrial, a Specific Plan Amendment to change the land use designation from Limited Commercial to Limited Industrial, and a Zone Change from LC (Limited Commercial) to M3 (Limited Rural Industrial). For General Plan amendments, the BAAQMD guidelines<sup>47</sup> recommend that the planning agency evaluate the impact of the change in land use designation with respect to vehicle miles traveled (VMT), and whether the change in land use designation would interfere with air quality planning. The change from Limited Commercial to Limited Industrial would not appear to generate a significant increase in VMT since: 1) the increased use of barges to transport aggregate to the proposed facility would result in less VMT and less criteria pollutants per ton of aggregate transported; and 2) the VMTs generated as export of asphalt and aggregate are not directly project related, i.e., if the proposed project were not implemented, other projects requiring asphalt or aggregate would purchase the materials at alternate locations,

<sup>45</sup> Pleasanton Weekly, 2003, "Haggerty on asphalt plant: 'Move it or close it'," 12 September.

<sup>46</sup> ASTEC Fiberbed Mist Collectors Improved Design for Clean Air, [www.astecinc.com](http://www.astecinc.com).

<sup>47</sup> BAAQMD, 1999, BAAQMD CEQA Guidelines, Assessing the Air Quality Impacts of Projects and Plans, December.

likely at further distances thus increasing VMT. The proposed project also would not result in a significant increase in employment or population. However, given that the proposed project would result in both project-level and cumulatively significant contributions to ozone emissions, that a General Plan amendment would be required for this project, and that the General Plan does not appear to be fully consistent with the Bay Area Clean Air Plan (CAP), per BAAQMD guidelines the project conflict with the CAP would appear to be *significant*.

## CUMULATIVE IMPACTS

### Criteria Pollutants

The exceedance of air quality standards is a region-wide problem with a multitude of stationary and mobile sources contributing to the problem. The Basin is currently in nonattainment for the state  $PM_{10}$  standard and the state and national ozone standards. The proposed project, in combination with pending development elsewhere in the City of Petaluma or Sonoma County, would contribute to the cumulative degradation of regional air quality.

Based on predictions of future emission inventories, which include the effect of adopting further rules and regulations to limit air pollutant emissions, the BAAQMD is formulating plans and strategies necessary to meet the state one-hour and the national eight-hour ozone standards. CARB's strategy to reduce emissions from heavy-duty diesel trucks would result in a significant reduction in the proposed project's regional impact. In addition, the asphalt plant would facilitate future transportation projects designed to reduce congestion and therefore reduce emissions of criteria pollutants from mobile sources. However, the BAAQMD CEQA Guidelines state that any proposed project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact. Therefore, cumulative impacts relative to regional air quality emissions would be *significant*.

**The proposed project would make an incremental contribution to cumulative GHG emissions. No accepted methodology or standards exist for determining the significance of these emissions.**

As discussed in the Setting section of this Chapter, no regulatory guidance or standard methodology yet exists for evaluating GHG emissions in the context of land use permitting and CEQA analysis. CEQA requires analysis of a project's environmental effects based on the net increment of change that would occur as a result of the project. Such an analysis requires a methodology to determine the increment of change, and appropriate standards for determining whether the change is significant. In the case of GHG emissions, the relevant federal, state, and local agencies have not yet identified either a methodology of standards for determining a land development project's incremental impact on climate change. Neither CARB nor the BAAQMD has developed guidelines for evaluating GHG emissions in the context of land use development. As noted previously, under SB 37, the State Office of Planning and Research has until July 1, 2009 to develop CEQA guidelines for addressing GHG emissions in environmental documents and to transmit those proposed guidelines to the State Resources Agency; the Resources Agency then has until January 1, 2010 to certify and adopt the proposed guidelines.

As indicated in the Governor's letter to the Senate upon signing SB 37, the development of CEQA significance thresholds and methodologies should be guided by the appropriate responsible agencies to achieve a standardized approach consistent with AB 32. This is especially important given the complexity of climate change and the State's leadership role in establishing California's response to this important

environmental issue. Without this guidance, a significance determination with respect to GHG emissions would be speculative and premature (see CEQA Guidelines, § 15145).

Nevertheless, this EIR does attempt to quantify the greenhouse gases that would be emitted by this project (see “Project Greenhouse Gas Inventory” below), evaluate the project's consistency with the State's GHG emissions reduction goal, and propose appropriate, feasible mitigation measures to reduce the project's incremental contribution to cumulative GHG emissions.

### **Project Greenhouse Gas Inventory**

For this EIR, GHG emissions were estimated using emission factors from the California Climate Action Registry, General Reporting Protocol, Version 2.2. Table V.B-12 provides the estimate of project-generated GHG emissions for 2007. Per convention, the total project-generated GHG emissions are estimated at 8,060 tons of CO<sub>2</sub> equivalent.

The majority of the emissions identified above would result from on-road truck traffic. According to the BAAQMD, 3.7 million tons of CO<sub>2</sub> equivalent gases were emitted in Sonoma County in 2002. The proposed project's net increase in CO<sub>2</sub> equivalent emissions is approximately 0.2 percent of Sonoma County's 2002 GHG emissions.

### **Consistency with the State Goal of Reducing GHG Emissions**

As estimated above, the project would result in the emissions of approximately 8,060 tons of CO<sub>2</sub> equivalents per year from on- and off-site operations. The project would not qualify as a major source of greenhouse gas emissions. In fact, under the new greenhouse gas mandatory reporting regulation now being developed by CARB, the project would not be required to report its emissions, since they would be only about 32 percent of the lower reporting limit of 25,000 metric tons per year. Furthermore, the project would account for only approximately 0.004 percent of the state's emission reduction goal of 174 million tons by 2020.

It should also be noted that the project, as mitigated, would incorporate a number of measures to minimize project air emissions, which include greenhouse gases. Mitigation Measure AQ-4 would specifically result in a 27-ton decrease in CO<sub>2</sub> equivalent emissions by requiring the use of B20 diesel fuel. The project would also be required to comply with Mitigation Measure AQ-5, below.

**Table V.B-12**  
**Net Increase in Greenhouse Gas Emissions from Proposed Project (tons/year)**

Greenhouse Gases	CO <sub>2</sub>	N <sub>2</sub> O	CH <sub>4</sub>	CO <sub>2</sub> eq
<b>Existing Asphalt Plant</b>				
On-Site Mobile Equipment	6.10E+02	6.73E-05	2.21E-10	6.10E+02
Off-Site Mobile Equipment	1.19E+03	3.39E-02	4.05E-02	1.20E+03
Fixed Sources	2.00E+03	1.22E-03	2.23E-01	2.01E+03
Indirect Sources (electrical)	1.11E+02	9.24E-04	5.10E-04	1.11E+02
<b>Proposed Asphalt and Recycling Plant</b>				
On-Site Mobile Equipment	6.10E+02	6.73E-05	2.21E-10	6.10E+02
Off-Site Mobile Equipment	7.61E+03	1.93E-01	2.31E-01	7.67E+02
Fixed Sources	3.43E+03	2.08E-03	3.81E-01	3.43E+03
Indirect Sources (electrical)	2.69E+02	2.24E-03	1.24E-03	2.70E+02
<b>Net Increase in Greenhouse Gases</b>	<b>8.00E+03</b>	<b>1.61E-01</b>	<b>3.50E-01</b>	<b>8.06E+03</b>

More importantly, the proposed project would provide a needed local source of asphalt and aggregate for construction projects within the County. As discussed in the Project Description, the project is specifically intended to reduce cumulative truck trips by locating the facility within reasonable distance of source quarries located in Sonoma and Marin Counties, as well as within reasonable proximity of the southern Sonoma County and Marin County markets. Accordingly, the proposed project would reduce the need for aggregate and asphalt to serve this area to alternatively come from more distant sources, and would therefore reduce longer haul truck travel distances and associated air emissions, including greenhouse gases. As a result, the proposed project would likely reduce local, state, and worldwide GHG emissions as compared to the No Project Alternative or a reduced project alternative, and would help rather than hinder the state's goal of reducing GHG emissions by 2020.

#### **Mitigation Measure AQ-5**

CARB is currently evaluating 23 action strategies to reduce statewide GHG emissions, including heavy-duty vehicle emission reductions, and will likely consider further strategies going forward. The project shall comply with any applicable strategies adopted by CARB through promulgated regulations.

#### **LEVEL OF SIGNIFICANCE AFTER MITIGATION**

The proposed project would increase emissions of nitrogen oxides (an ozone precursor), primarily from trucks hauling raw materials and asphalt product. Even with mitigation, this increase would remain above the threshold of significance established by the Bay Area Air Quality Management District and would contribute to the San Francisco Air Basin's air quality violation for ozone. Therefore, this impact and would be **significant and unavoidable**. The project would also result in **significant and unavoidable** impacts related to consistency with the CAP. In addition, cumulative impacts relative to regional air quality emissions would be **significant and unavoidable**. However, future emissions of NO<sub>x</sub> are expected to decrease with new heavy-duty diesel engine regulations, low-emission fuels, and retirement of older vehicles. All other air quality impacts are reduced to a **less-than-significant** level by implementation of recommended mitigation measures.