

3.2.1 INTRODUCTION

This section addresses the air quality impacts related to implementation of the proposed Updated 2009 Redevelopment Plan and the associated general plan amendment and zone change on the two sites covered by the Updated 2009 Redevelopment Plan, Hill Town and Sycamore Crossing. The two sites are collectively termed "Added Area" in the discussion below.

This section was prepared in accordance with the air quality impact assessment guidelines of the Bay Area Air Quality Management District (BAAQMD)¹ and considers regional and local air quality, air quality-induced health risks, and greenhouse gases/global climate change. This section is based on an Air Quality Impact Analysis prepared for the project by Donald Ballanti, Certified Consulting Meteorologist, in December 2008. This analysis is included in **Appendix 3.2** of this draft EIR.

3.2.2 ENVIRONMENTAL SETTING

3.2.2.1 Climatology

The concentration of a given pollutant in the atmosphere is determined by the amount of pollutant released and the atmosphere's ability to transport and dilute the pollutant. The major determinants of transport and dilution are wind, atmospheric stability, terrain and, for photochemical pollutants, sunshine.

The proposed project is located in Hercules, in western Contra Costa County just south of the Carquinez Strait and within the nine-county San Francisco Bay Area Air Basin (SFBAAB). Its location near San Pablo Bay and the Carquinez Strait has a major influence on the climate and air quality of the area. The Carquinez Strait is the only sea-level gap between San Francisco and the Central Valley. During the summer and fall months, high pressure offshore coupled with temperature-related low pressure in the Central Valley causes marine air to flow eastward through the strait. The wind is strongest in the afternoon. During the nighttime weaker down-slope "drainage" flows are common, particularly in winter.

The pollution potential of the Updated 2009 Redevelopment Plan area is relatively low compared to other portions of the Bay Area. Ventilation is relatively good, and there is limited transport of pollutants from other upwind urban areas. However, during periods of light or calm winds, which typically occur in the

¹ Bay Area Air Quality Management District, *BAAQMD CEQA Guidelines*, April 1996 (Revised 1999)

fall and winter months, the entire Bay Area Air Basin is subject to stagnation and poor air quality circulation.

3.2.2.2 Ambient Air Quality

The state and national ambient air quality standards cover a wide variety of pollutants. Only a few of these pollutants are of concern in the Bay Area, due either to the strength of the emission or the climate of the region. The BAAQMD maintains a network of monitoring sites in the Bay Area. The monitoring sites closest to the Added Area are located in San Pablo several miles southwest of the site and in Vallejo several miles northeast of the site. **Table 3.2-1, Summary of Air Quality Data for San Pablo and Vallejo**, summarizes violations of air quality standards at these monitoring sites for 2005–2007. **Table 3.2-1** shows that the federal ambient air quality standards are met in the project area with the exception of PM_{2.5}. No state ambient air quality standards are exceeded in this area with the exception of ozone and PM₁₀.

Table 3.2-1
Summary of Air Quality Data for San Pablo and Vallejo

Pollutant	Standard	Monitoring Site	Days Exceeding Standard in:		
			2005	2006	2007
Ozone	Federal 1-Hour	San Pablo	NA	NA	NA
		Vallejo	NA	NA	NA
Ozone	State 1-Hour	San Pablo	0	0	0
		Vallejo	0	0	0
Ozone	Federal 8-Hour	San Pablo	0	0	0
		Vallejo	0	0	0
Ozone	State 8-Hour	San Pablo	0	0	0
		Vallejo	0	0	0
Carbon Monoxide	State/Federal 8-Hour	San Pablo	0	0	0
		Vallejo	0		
Nitrogen Dioxide	State 1-Hour	San Pablo	0	0	0
		Vallejo	0	0	0
PM ₁₀	Federal 24-Hour	San Pablo	0	0	0
		Vallejo	0	0	0
PM ₁₀	State 24-Hour	San Pablo	0	2	2
		Vallejo	1	0	2
PM _{2.5}	Federal 24- Hour	San Pablo	-	-	-
		Vallejo	0	2	4

N.A= Not Applicable. The federal 1-hour standard was rescinded in 2005 and replaced with the federal 8-hour standard.

Source: Air Resources Board, Aerometric Data Analysis and Management (ADAM), 2008. (<http://www.arb.ca.gov/adam/cgi-bin/adamtop/d2wstart>)

3.2.2.3 Toxic Air Contaminants

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TACs) are considered another group of air pollutants of concern. There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least 40 different TACs. The most significant contaminants in terms of health risk are diesel particulate, benzene, formaldehyde, 1, 3-butadiene, and acetaldehyde.

Public exposure to TACs can result from emissions from normal operations, as well as accidental releases. Potential health effects of TACs include cancer, birth defects, neurological damage, and death.

3.2.3 REGULATORY FRAMEWORK

3.2.3.1 Local, State, and Federal Air Quality Agencies

The proposed Added Area is located within the San Francisco Bay Area Air Basin, which is regulated by the BAAQMD, the California Air Resources Board (CARB or Board), and the US Environmental Protection Agency (EPA).

At the federal level, the US EPA is the primary agency responsible for regulating air quality nationwide. The EPA implements the provisions of the Federal Clean Air Act (FCAA). This Act established the National Ambient Air Quality Standards (NAAQS), which are applicable nationwide. The EPA designates areas with pollutant concentrations that do not meet the NAAQS as non-attainment areas for each criteria pollutant. States are required by the FCAA to prepare State Implementation Plans (SIP) for designated non-attainment areas. The SIP is required to demonstrate how the areas will attain the NAAQS by the prescribed deadlines and what measures will be required to attain the standards. The EPA also oversees implementation of the prescribed measures. Areas that achieve the NAAQS after a non-attainment designation are redesignated as maintenance areas and must have approved Maintenance Plans to ensure continued attainment of the NAAQS.

On the state level, CARB was established in 1967 by the California Legislature to attain and maintain healthy air quality, conduct research into the causes and solutions to air pollution, and systematically attack the serious problem caused by motor vehicles, which are the major causes of air pollution in the State. CARB is the state agency responsible for the SIP, as required by the FCAA. In addition, CARB also sets the health-based California Ambient Air Quality Standards (CAAQS) and monitors air quality levels throughout the state. CARB sets and enforces emission standards for motor vehicles, fuels, and consumer products. The Board identifies and sets control measures for TACs. The Board also performs air quality

related research, provides compliance assistance for businesses, and produces education and outreach programs and materials. CARB provides assistance for local air quality districts, such as BAAQMD.

The California Clean Air Act (CCAA) required all air pollution control districts in the state to prepare a plan prior to December 31, 1994 to reduce pollutant concentrations exceeding the CAAQS and ultimately achieve the CAAQS. The districts are required to review and revise these plans every three years.

3.2.3.2 Ambient Air Quality Standards

The federal and state Ambient Air Quality Standards (AAQS) establish the levels of air quality considered safe, with an adequate margin of safety, to protect public health and welfare. They are designed to protect those people most susceptible to respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise, considered "sensitive receptors." Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed. Recent research has shown, however, that chronic exposure to ozone (the primary ingredient in photochemical smog) may lead to adverse respiratory health even at concentrations close to the ambient standard.

Criteria Pollutants

Both the EPA and CARB have established AAQS for common pollutants. These AAQS signify levels of contaminants that are considered safe in order to avoid adverse health effects associated with each pollutant. The AAQS cover "criteria" air pollutants, named because the health and other effects of each pollutant are described in criteria documents. **Table 3.2-2, Major Criteria Pollutants**, identifies the major criteria pollutants, characteristics, health effects, and typical sources. The federal and California state AAQS are summarized in **Table 3.2-3, Federal and State Ambient Air Quality Standards**.

The federal and state ambient standards were developed independently of each other, based on differing purposes and methodology, although both processes are aimed at avoiding adverse health-related effects. In some cases, the federal and state standards differ. However, the California state standards are generally more stringent. This is particularly true for ozone and particulate matter (PM₁₀ and PM_{2.5})

**Table 3.2-2
Major Criteria Pollutants**

Pollutant	Characteristics	Health Effects	Major Sources
Ozone	A highly reactive photochemical pollutant created by the action of sunshine on ozone precursors (primarily reactive hydrocarbons and oxides of nitrogen. Often called photochemical smog.	Eye Irritation Respiratory function impairment.	The major sources of ozone precursors are combustion sources such as factories and automobiles, and evaporation of solvents and fuels.
Carbon Monoxide	Carbon monoxide is an odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels.	Impairment of oxygen transport in the bloodstream. Aggravation of cardiovascular disease. Fatigue, headache, confusion, dizziness. Can be fatal in the case of very high concentrations.	Automobile exhaust, combustion of fuels, combustion of wood in woodstoves and fireplaces.
Nitrogen Dioxide	Reddish-brown gas that discolors the air, formed during combustion.	Increased risk of acute and chronic respiratory disease.	Automobile and diesel truck exhaust, industrial processes, fossil-fueled power plants.
Sulfur Dioxide	Sulfur dioxide is a colorless gas with a pungent, irritating odor.	Aggravation of chronic obstruction lung disease. Increased risk of acute and chronic respiratory disease.	Diesel vehicle exhaust, oil-powered power plants, industrial processes.
Particulate Matter	Solid and liquid particles of dust, soot, aerosols, and other matter which are small enough to remain suspended in the air for a long period of time.	Aggravation of chronic disease and heart/lung disease symptoms.	Combustion, automobiles, field burning, factories and unpaved roads. Also a result of photochemical processes.

Attainment Status and Regional Air Quality Plans

The federal CAA and the state CCAA require that the CARB, based on air quality monitoring data, designate portions of the state where the federal or state ambient air quality standards are not met as "nonattainment areas." Because of the differences between the national and state standards, the designation of nonattainment areas is different under the federal and state legislation.

The EPA has classified the San Francisco Bay Area as a non-attainment area for the federal 8-hour ozone standard. The Bay Area was also designated as unclassifiable/attainment for the federal PM₁₀ and PM_{2.5} standards. Under the state CCAA, Contra Costa County, where the Redevelopment Plan Area is located is

a nonattainment area for ozone and particulate matter (PM₁₀ and PM_{2.5}). The County is either in attainment or unclassified for other pollutants.

**Table 3.2-3
Federal and State Ambient Air Quality Standards**

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour	--	0.09 PPM
	8-Hour	0.08 PPM	0.07 PPM
Carbon Monoxide	8-Hour	9.0 PPM	9.0 PPM
	1-Hour	35.0 PPM	20.0 PPM
Nitrogen Dioxide	Annual Average	0.05 PPM	0.03 PPM
	1-Hour	--	0.18 PPM
Sulfur Dioxide	Annual Average	0.03 PPM	--
	24-Hour	0.14 PPM	0.04 PPM
	1-Hour	--	0.25 PPM
PM ₁₀	Annual Average	--	20 µg/m ³
	24-Hour	150 µg/m ³	50 µg/m ³
PM _{2.5}	Annual	15 µg/m ³	12 µg/m ³
	24-Hour	35 µg/m ³	--
Lead	Calendar Quarter	1.5 µg/m ³	--
	30-Day Average	--	1.5 µg/m ³
Sulfates	24 Hour	25 µg/m ³	--
Hydrogen Sulfide	1-Hour	0.03 PPM	--
Vinyl Chloride	24-Hour	0.01 PPM	--

PPM = Parts per Million

µg/m³ = Micrograms per Cubic Meter

Source: California Air Resources Board, Ambient Air Quality Standards (2/22/07): <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>

Air districts periodically prepare and update plans to achieve air quality standards. The BAAQMD air quality management plans are prepared with the cooperation of the Metropolitan Transportation Commission (MTC), and the Association of Bay Area Governments (ABAG). Ozone Attainment Demonstrations are prepared for the national ozone standard and Clean Air Plans are prepared for the attainment of the California ozone standard. In general, the plans analyze emissions inventories (estimates of current and future emissions from industry, motor vehicles, and other sources) and combine that information with air monitoring data (used to assess progress in improving air quality) and computer modeling simulations to test future strategies to reduce emissions in order to achieve air

quality standards. Air quality plans usually include measures to reduce air pollutant emissions from industrial facilities, commercial processes, motor vehicles, and other sources.

3.2.3.3 Global Climate Change and Greenhouse Gas Regulations

Greenhouse Effect

The greenhouse effect is a natural process by which some of the radiant heat from the sun is captured in the lower atmosphere of the earth. The gases that help capture the heat are called greenhouse gases (GHGs). Some GHGs occur naturally in the atmosphere, while others result from human activities. Naturally occurring GHGs include water vapor, carbon dioxide, methane, nitrous oxide, and ozone. Certain human activities add to the levels of most of these natural occurring gases. While GHGs are not normally considered air pollutants, the effect of these gases have been identified as causing a warming of the earth's atmosphere and oceans above naturally occurring temperatures.

Greenhouse Gases

The following gases are considered to be the primary GHGs and with the exception of water vapor, are regulated under the Kyoto Protocol (discussed in detail below):

- *Water Vapor (H₂O)*. Although water vapor has not received as much scrutiny as the other GHGs, it is the primary contributor to the greenhouse effect. Water vapor and clouds contribute 66 to 85 percent of the greenhouse effect (water vapor alone contributes 36 to 66 percent).² Natural processes such as evaporation from oceans and rivers and transpiration from plants contribute 90 percent and 10 percent of the water vapor in our atmosphere, respectively.³ The primary human-related source of water vapor comes from fuel combustion in motor vehicles; however, this is not believed to contribute a significant amount (less than 1 percent) to atmospheric concentrations of water vapor.⁴ Therefore, the control and reduction of water vapor emissions is not within reach of human actions. The Intergovernmental Panel on Climate Change (IPCC) has not determined a GWP for water vapor.
- *Carbon Dioxide (CO₂)*. Carbon dioxide primarily is generated by fossil fuel combustion from stationary and mobile sources. Due to the emergence of industrial facilities and mobile sources over the past 250 years, the concentration of carbon dioxide in the atmosphere has increased 35 percent.⁵ Carbon

² Gavin A. Schmidt, "Water Vapour: Feedback or Forcing?" <http://www.realclimate.org/index.php?p=142>. 2005.

³ United States Geological Survey, "The Water Cycle: Evaporation," <http://ga.water.usgs.gov/edu/watercycleevaporation.html>. 2007.

⁴ Energy Information Administration, "Alternatives to Traditional Transportation Fuels 1994," <http://www.eia.doe.gov/cneaf/alternate/page/environment/exec2.html>. 2008.

⁵ United States Environmental Protection Agency, "Inventory of US Greenhouse Gas Emissions and Sinks 1990-2006," <http://www.epa.gov/climatechange/emissions/usinventoryreport.html>. 2008.

dioxide is the most widely emitted GHG and is the reference gas (GWP of 1) for determining the GWPs of other GHGs. In 2004, 83.8 percent of California's GHG emissions were carbon dioxide.⁶

- *Methane (CH₄)*. Methane is emitted from biogenic sources, incomplete combustion in forest fires, landfills, manure management, and leaks in natural gas pipelines. In the United States, the top three sources of methane are landfills, natural gas systems, and enteric fermentation.⁷ Methane is the primary component of natural gas, which is used for space and water heating, steam production, and power generation. The GWP of methane is 21.
- *Nitrous Oxide (N₂O)*. Nitrous oxide is produced by both natural and human-related sources. Primary human-related sources include agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. The GWP of nitrous oxide is 310.
- *Hydrofluorocarbons (HFCs)*. HFCs typically are used as refrigerants in both stationary refrigeration and mobile air conditioning. The use of HFCs for cooling and foam blowing is growing particularly as the continued phaseout of chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) gains momentum. The GWP of HFCs range from 140 for HFC-152a to 6,300 for HFC-236fa.
- *Perfluorocarbons (PFCs)*. Perfluorocarbons are compounds consisting of carbon and fluorine. They are primarily created as a byproduct of aluminum production and semiconductor manufacturing. Perfluorocarbons are potent GHGs with a GWP several thousand times that of carbon dioxide, depending on the specific PFC. Another area of concern regarding PFCs is their long atmospheric lifetime (up to 50,000 years).⁸ The GWPs of PFCs range from 5,700 to 11,900.
- *Sulfur Hexafluoride (SF₆)*. Sulfur hexafluoride is a colorless, odorless, nontoxic, nonflammable gas. It is most commonly used as an electrical insulator in high voltage equipment that transmits and distributes electricity. Sulfur hexafluoride is the most potent GHG that has been evaluated by the IPCC with a GWP of 23,900. However, its global warming contribution is not as high as the GWP would indicate due to its low mixing ratio, as compared to carbon dioxide (4 parts per trillion [ppt] of SF₆ in 1990 versus 365 parts per million [ppm] of CO₂).⁹

In addition to the primary GHGs discussed above, many other compounds have the potential to contribute to the greenhouse effect. Some of these substances previously were identified as stratospheric ozone depletors; therefore, their gradual phaseout currently is in effect. Some of the noteworthy compounds are discussed below:

⁶ California Energy Commission, *Inventory of California Greenhouse Gas Emissions and Sinks 1990 to 2004*. Figure 2. <http://www.energy.ca.gov/2006publications/CEC-600-2006-013/CEC-600-2006-013-SF.PDF>. 2006.

⁷ United States Environmental Protection Agency, "Methane: Sources and Emissions," <http://www.epa.gov/methane/sources.html>. n.d.

⁸ Energy Information Administration, "Other Gases: Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride," http://www.eia.doe.gov/oiaf/1605/gg00rpt/other_gases.html. n.d.

⁹ United States Environmental Protection Agency, "High GWP Gases and Climate Change," <http://www.epa.gov/highgwp/scientific.html#sf6>. n.d.

- *Hydrochlorofluorocarbons (HCFCs)*. HCFCs are solvents, similar in use and chemical composition to CFCs. The main uses of HCFCs are for refrigerant products and air conditioning systems. As part of the Montreal Protocol, all developed countries that adhere to the protocol are subject to a consumption cap and gradual phaseout of HCFCs. The United States is scheduled to reduce its HCFC consumption to the allowed cap by 2030. The GWPs of HCFCs range from 93 for HCFC-123 to 2,000 for HCFC-142b.¹⁰
- *1,1,1-trichloroethane*. 1,1,1-trichloroethane or methyl chloroform is a solvent and degreasing agent that was commonly used by manufacturers. In 1992, the US EPA issued Final Rule 57 FR 33754, which scheduled the phaseout of methyl chloroform by 2002.¹¹ This was later accelerated to a 1995 phaseout. The GWP of methyl chloroform is 110 times that of carbon dioxide.¹²
- *Chlorofluorocarbons (CFCs)*. CFCs are used as refrigerants, cleaning solvents, and aerosol spray propellants. CFCs also were part of the US EPA's Final Rule 57 FR 3374, and were phased out in 1995. Currently, CFCs have been replaced by HFCs in cooling systems and a variety of alternatives for cleaning solvents. Nevertheless, CFCs remain suspended in the atmosphere, contributing to the greenhouse effect. CFCs are potent GHGs with GWPs ranging from 4,600 for CFC-11 to 14,000 for CFC-13.¹³
- *Ozone (O₃)*. Ozone occurs naturally in the stratosphere¹⁴ where it is largely responsible for filtering harmful ultraviolet (UV) radiation. In the troposphere, ozone acts as a GHG by absorbing and re-radiating the infrared energy emitted by the Earth. As a result of the industrial revolution and rising emissions of oxides of nitrogen and volatile organic compounds, both of which act as ozone precursors, the concentrations of ozone in the troposphere have increased.¹⁵ Due to the short life span of ozone in the troposphere, its concentration and contribution to global climate change is not well established. However, the greenhouse effect of tropospheric ozone is considered small, as the radiative forcing¹⁶ of ozone is 25 percent of that of CO₂.¹⁷

¹⁰ United States Environmental Protection Agency, "Protection of Stratospheric Ozone: Listing of Global Warming Potential for Ozone-Depleting Substances," <http://www.epa.gov/fedrgstr/EPA-AIR/1996/January/Day-19/pr-372.html>. 1996.

¹¹ United States Environmental Protection Agency, "The Accelerated Phase-Out of Class 1 Ozone-Depleting Substances," <http://www.epa.gov/ozone/title6/phaseout/acfact.html>. 2007.

¹² United States Environmental Protection Agency, "Protection of Stratospheric Ozone."

¹³ United States Environmental Protection Agency, "Class I Ozone Depleting Substances," <http://www.epa.gov/ozone/ods.html>. 2006.

¹⁴ The stratosphere is defined as the layer of the Earth's atmosphere above the troposphere from approximately 10 to 12 miles up to 30 to 35 miles. The ozone layer is located in the stratosphere.

¹⁵ Intergovernmental Panel on Climate Change, "Climate Change 2001: Tropospheric Ozone," http://www.grida.no/climate/ipcc_tar/wg1/142.htm. n.d.

¹⁶ Radiative forcing, measured in Watts/m², is an externally imposed perturbation (e.g., stimulated by greenhouse gases) in the radiative energy budget of the Earth's climate system (i.e., energy and heat retained in the troposphere minus energy passed to the stratosphere).

¹⁷ Intergovernmental Panel on Climate Change, "Climate Change 2007: The Physical Science Basis, Summary for Policymakers," http://ipcc-wg1.ucar.edu/wg1/docs/WG1AR4_SPM_PlenaryApproved.pdf. 2007.

Scientists have established a Global Warming Potential (GWP) for each GHG based on its ability to absorb and re-radiate long-wave radiation. The GWP of a gas is determined using CO₂ as the reference gas with a GWP of 1. As an example, a gas with a GWP of 10 is 10 times more potent than CO₂ over a specified time period (typically 100 years) with respect to its ability to absorb and re-radiate long-wave radiation. The use of GWP allows GHG emissions to be reported using CO₂ as a baseline. The sum of each GHG multiplied by its associated GWP is referred to as carbon dioxide equivalents (CO₂e). This essentially means that 1 metric ton of a GHG with a GWP of 10 is equivalent to 10 metric tons of CO₂ over a specified time period.

The BAAQMD has prepared a GHG emissions inventory for the Bay Area using 2002 as the base year. The BAAQMD estimated that 85.4 million tons of CO₂-equivalent¹⁸ GHG gases were emitted from anthropogenic (human activity) sources in the Bay Area in 2002. Fossil fuel consumption in the transportation sector (on-road motor vehicles) accounted for approximately 43 percent. Stationary sources, including industrial and commercial sources, power plants, oil refineries, and landfills were responsible for approximately 49 percent. Construction and mining equipment was estimated to account for approximately two percent (or about 1.7 million tons) of the total anthropogenic GHG emissions.¹⁹

Climate Change Effects in California

According to the 2006 California Climate Action Team Report²⁰ (CCAT), the following climate change effects are predicted in California over the course of the next century:

- A diminishing Sierra snowpack declining by 70 percent to 90 percent, threatening the state's water supply.
- Increasing temperatures from 8 to 10.4 degrees F under the higher emission scenarios, leading to a 25 to 35 percent increase in the number of days ozone pollution levels are exceeded in most urban areas.
- Coastal erosion along the length of California and sea water intrusion into the delta from a 4- to 33-inch rise in sea level. This would exacerbate flooding in already vulnerable regions.
- Increased vulnerability of forests due to pest infestation and increased temperatures.

¹⁸ Greenhouse gases are converted into CO₂-equivalent values based on their potential to absorb heat in the atmosphere. For instance, CH₄ traps 25 times more heat per molecule than CO₂ and, therefore, one pound of CH₄ has a CO₂-equivalent value of 25 pounds.

¹⁹ Bay Area Air Quality Management District, *Source Inventory of Bay Area Greenhouse Gas Emissions*. 2006.

²⁰ California Environmental Protection Agency Climate Action Team, *Climate Action Team Report to Governor Schwarzenegger and the Legislature*, March 2006.

- Increased challenges for the state's important agriculture industry from limited water shortage, increasing temperatures, and saltwater intrusion into the Delta.
- Increased electricity demand, particularly in the hot summer months.

International and Federal Greenhouse Gas Regulations

Globally, the overarching treaty that was developed to respond to global climate change and reduce GHG emissions is known as the Kyoto Protocol. The Kyoto Protocol was negotiated in December 1997 and came into force on February 16, 2005. For the Protocol to have entered into force, no less than 55 countries must have ratified the treaty and these minimum of 55 needed to together accounted for at least 55 percent of the total carbon dioxide emissions for 1990 of industrialized countries, referred to as "Annex I countries." Participating nations are separated into Annex 1 (i.e., industrialized countries) and Non-Annex 1 (i.e., developing countries) countries, each with differing requirements for GHG reductions. The United States has not ratified the Protocol.

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

In December 2007, President Bush signed the Energy Independence and Security Act of 2007, which sets a mandatory Renewable Fuel Standard (RFS) requiring fuel producers to use at least 36 billion gallons of biofuel in 2022 and sets a national fuel economy standard of 35 miles per gallon by 2020. The Act also contains provisions for energy efficiency in lighting and appliances and for the implementation of green building technologies in Federal buildings. The Act is positioned as a response to President Bush's Twenty-in-Ten plan.

Most recently, on July 11, 2008, the US EPA issued an Advance Notice of Proposed Rulemaking (ANPRM) on regulating GHGs under the Clean Air Act. The ANPRM reviews the various CAA

provisions that may be applicable to the regulation of GHGs and presents potential regulatory approaches and technologies for reducing GHG emissions. In the ANPRM, the US EPA sought further public comment on the regulation of GHG emissions under the CAA.²¹ The public commenting period ended on November 28, 2008.

State Greenhouse Gas Regulations

Assembly Bill 1493

California Assembly Bill 1493 (Pavley) was enacted on July 22, 2002. It requires CARB to develop and adopt regulations that reduce GHG emitted by passenger vehicles and light duty trucks. Regulations adopted by CARB will apply to 2009 and later model year vehicles. CARB estimates that the regulation will reduce climate change emissions from light duty passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030 (CARB, 2004)²². CARB has applied to the Federal government for a “waiver” to allow it to implement AB 1493. California is still awaiting the federal government’s permission to implement this law.

Executive Order S-3-05

California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following GHG emission reduction targets:

- by 2010, reduce GHG emissions to 2000 levels;
- by 2020, reduce GHG emissions to 1990 levels;
- by 2050, reduce GHG emissions to 80 percent below 1990 levels (CA 2005).

The California Climate Action Team’s (CAT) Report to the Governor contains recommendations and strategies to help ensure the targets in Executive Order S-3-05 are met (CAT 2006).

Assembly Bill 32

In furtherance of the goals established in Executive Order S-3-05, the Legislature enacted Assembly Bill 32 (AB 32, Nuñez and Pavley), the California Global Warming Solutions Act of 2006, which Governor

²¹ US Environmental Protection Agency, “Advance Notice of Proposed Rulemaking: Regulating Greenhouse Gas Emissions under the Clean Air Act,” <http://www.epa.gov/climatechange/anpr.html>. 2008.

²² California Air Resources Board. December 10, 2004. *Fact Sheet, Climate Change Emission Control Regulations*. www.arb.ca.gov/cc/factsheets/cc_newfs.pdf.

Schwarzenegger signed on September 27, 2006. AB 32 represents the first enforceable statewide program to limit GHG emissions from all major industries with penalties for noncompliance.

CARB is responsible for carrying out and developing the programs and requirements necessary to achieve the goals of AB 32—the reduction of California's GHG emissions to 1990 levels by 2020. The first action under AB 32 resulted in CARB's adoption of a report listing three specific early action greenhouse gas emission reduction measures on June 21, 2007. On October 25, 2007, CARB approved an additional six early action GHG reduction measures under AB 32. These early action GHG reduction measures are to be adopted and enforced before January 1, 2010, along with 32 other climate-protecting measures CARB is developing between now and 2011. The early action measures are divided into three categories:

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

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

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

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

- Reduction of aerodynamic drag, and thereby fuel consumption, from existing trucks and trailers through retrofit technology;
- Reduction of auxiliary engine emissions of docked ships by requiring port electrification;
- Reduction of perfluorocarbons from the semiconductor industry;
- Reduction of propellants in consumer products (e.g., aerosols, tire inflators, and dust removal products);
- Require that all tune-up, smog check and oil change mechanics ensure proper tire inflation as part of overall service in order to maintain fuel efficiency; and

- Restriction on the use of sulfur hexafluoride (SF₆) from non-electricity sectors if viable alternatives are available.

As required under AB 32, on December 6, 2007, CARB approved the 1990 greenhouse gas emissions inventory, thereby establishing the emissions limit for 2020. The 2020 emissions limit was set at 427 MMTCO_{2e}. The inventory revealed that in 1990, transportation, with 35 percent of the state's total emissions, was the largest single sector, followed by industrial emissions, 24 percent; imported electricity, 14 percent; in-state electricity generation, 11 percent; residential use, 7 percent; agriculture, 5 percent; and commercial uses, 3 percent. AB 32 does not require individual sectors to meet their individual 1990 GHG emissions inventory; the total statewide emissions are required to meet the 1990 threshold by 2020.

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

As indicated above, AB 32 requires CARB to adopt a scoping plan indicating how reductions in significant GHG sources will be achieved through regulations, market mechanisms, and other actions. After receiving public input on their discussion draft of the Proposed Scoping Plan released in June 2008, CARB released the Climate Change Proposed Scoping Plan in October 2008 that contains an outline of the proposed State strategies to achieve the 2020 greenhouse gas emission limits. The CARB Governing Board approved the Proposed Scoping Plan on December 11, 2008. Key elements of the Scoping Plan include the following recommendations:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;

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

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

Table 3.2-4, AB 32 Scoping Plan Measures, lists CARB’s preliminary recommendations for achieving greenhouse gas reductions under AB 32 along with a brief description of the requirements and applicability.

**Table 3.2-4
AB 32 Scoping Plan Measures**

Scoping Plan Measure	Description
SPM-1: California Cap-and-Trade Program linked to Western Climate Initiative	Implement a broad-based cap-and-trade program that links with other Western Climate Initiative Partner programs to create a regional market system. Ensure California’s program meets all applicable AB 32 requirements for market-based mechanisms. Capped sectors include transportation, electricity, natural gas, and industry. Projected 2020 business-as-usual emissions are estimated at 512 MTCO _{2e} ; preliminary 2020 emissions limit under cap-and-trade program are estimated at 365 MTCO _{2e} (29 percent reduction).
SPM-2: California Light-Duty Vehicle GHG Standards	Implement adopted Pavley standards and planned second phase of the program. AB 32 states that if the Pavley standards (AB 1493) do not remain in effect, CARB shall implement equivalent or greater alternative regulations to control mobile sources.

Scoping Plan Measure	Description
SPM-3: Energy Efficiency	Maximize energy efficiency building and appliance standards, and pursue additional efficiency efforts. The Proposed Scoping Plan considers green building standards as a framework to achieve reductions in other sectors, such as electricity.
SPM-4: Renewables Portfolio Standard	Achieve 33 percent Renewables Portfolio Standard by both investor-owned and publicly owned utilities.
SPM-5: Low Carbon Fuel Standard	Develop and adopt the Low Carbon Fuel Standard (LCFS). CARB identified the LCFS as a Discrete Early Action item and is developing a regulation for Board consideration in late 2008. In January 2007, Governor Schwarzenegger issued Executive Order S-1-07, which called the reduction of the carbon intensity of California's transportation fuels by at least 10 percent by 2020.
SPM-6: Regional Transportation-Related Greenhouse Gas Targets	Develop regional greenhouse gas emissions reduction targets for passenger vehicles. SB 375 requires CARB to develop, in consultation with metropolitan planning organizations (MPOs), passenger vehicle greenhouse gas emissions reduction targets for 2020 and 2035 by September 30, 2010. SB 375 requires MPOs to prepare a sustainable communities strategy to reach the regional target provided by CARB.
SPM-7: Vehicle Efficiency Measures	Implement light-duty vehicle efficiency measures. CARB is pursuing fuel-efficient tire standards and measures to ensure properly inflated tires during vehicle servicing.
SPM-8: Goods Movement	Implement adopted regulations for port drayage trucks and the use of shore power for ships at berth. Improve efficiency in goods movement operations.
SPM-9: Million Solar Roofs Program	Install 3,000 MW of solar-electric capacity under California's existing solar programs.
SPM-10: Heavy/Medium-Duty Vehicles	Adopt heavy- and medium-duty vehicle and engine measures. Measures targeting aerodynamic efficiency, vehicle hybridization, and engine efficiency are recommended.
SPM-11: Industrial Emissions	Require assessment of large industrial sources to determine whether individual sources within a facility can cost-effectively reduce greenhouse gas emissions and provide other pollution reduction co-benefits. Reduce greenhouse gas emissions from fugitive emissions from oil and gas extraction and gas transmission. Adopt and implement regulations to control fugitive methane emissions and reduce flaring at refineries.
SPM-12: High Speed Rail	Support implementation of a high-speed rail (HSR) system. This measure supports implementation of plans to construct and operate a HSR system between Northern and Southern California serving major metropolitan centers.
SPM-13: Green Building Strategy	Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.
SPM-14: High GWP Gases	Adopt measures to reduce high global warming potential gases. The Proposed Scoping Plan contains 6 measures to reduce high GWP gases from mobile sources, consumer products, stationary sources, and semiconductor manufacturing.

Scoping Plan Measure	Description
SPM-15: Recycling and Waste	Reduce methane emissions at landfills. Increase waste diversion, composting, and commercial recycling. Move toward zero waste.
SPM-16: Sustainable Forests	Preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation. The federal government and California's Board of Forestry and Fire Protection has the regulatory authority to implement the Forest Practice Act to provide for sustainable management practices. This measure is expected to play a greater role in the 2050 goals.
SPM-17: Water	Continue efficiency programs and use cleaner energy sources to move water. California will also establish a public goods charge for funding investments in water efficiency that will lead to as yet undetermined reductions in greenhouse gases.
SPM-18: Agriculture	In the near-term, encourage investment in manure digesters and at the five-year Scoping Plan update determine if the program should be made mandatory by 2020. Increase efficiency and encourage use of agricultural biomass for sustainable energy production. CARB has begun research on nitrogen fertilizers and will explore opportunities for emission reductions.

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

Executive Order S-1-07

Executive Order S-1-07 was approved by the Governor on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. It also requires that a Low Carbon Fuel Standard for transportation fuels be established for California.

Senate Bill 375

There has also been California legislative activity acknowledging the relationship between land use planning and transportation sector GHG emissions. The California Legislature passed SB 375 (Steinberg) in August 2008 and it was signed by the Governor on September 30, 2008. SB 375 requires CARB to set regional greenhouse gas reduction targets after consultation with local governments. Reductions in GHG emissions would be achieved by, for example, locating housing closer to jobs, retail, and transit. Under the bill, each Metropolitan Planning Organization would be required to adopt a sustainable community strategy to encourage compact development so that the region will meet a target, created by CARB, for reducing GHG emissions. Additionally, SB 375 reforms the environmental review process to create incentives to implement the strategy, especially transit priority projects. CARB is not expected to issue regional GHG reduction targets to local governments until 2010.

Title 24

California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. In October 2005, amendments were made to require new homes to use half the energy they used only a decade ago. Energy efficient buildings require less electricity, and electricity production by fossil fuels results in greenhouse gas emissions. On July 18, 2008, the building code was further amended to include green building requirements. Such requirements mandate reduction in building energy use, conservation of potable water, job-site erosion control, recycling of construction waste and a range of steps to improve indoor air quality.²³ Increased energy efficiency results in decreased greenhouse gas emissions.

CARB Proposal for Significance Thresholds for GHGs under CEQA

On October 24, 2008, CARB staff released a *Preliminary Draft Staff Proposal: Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under CEQA* for determining whether the emissions related to proposed new projects are significant impacts under CEQA. While the proposal is focused on helping lead agencies determine under which conditions a project may be found exempt from the preparation of an EIR, the proposal also provides a guide for establishing significance thresholds for projects for which EIRs would be prepared regardless of the project's climate change impact. According to this proposal, the threshold for determining whether a project's emissions are significant is not zero emissions, but must be a stringent performance-based threshold to meet the requirements of AB 32. If the project meets certain specific yet to be developed performance standards for several categories of emissions, including construction emissions, building energy use, water use, solid waste, and transportation and the project emits no more than a certain to be determined amount of metric tons of carbon equivalents per year, the project's impact would not be significant. According to CARB, California Energy Commission Tier II building energy use standards are proposed to be used, which generally require a reduction in energy usage of 30 per cent beyond Title 24 building code requirements. CARB has also proposed a 7,000 metric ton carbon dioxide equivalent (MTCO_{2e}) threshold for industrial projects, but has not yet proposed thresholds for residential and commercial projects. The annual threshold does not explicitly include emissions associated with construction- and transportation-related activities.

²³ California Green Building Standards Code. http://www.documents.dgs.ca.gov/bsc/prpsd_std/combined_green_et_7_08.pdf.

3.2.4 THRESHOLDS OF SIGNIFICANCE

According to Appendix G of the *State CEQA Guidelines*, the project would have a significant impact with respect to air quality if it would

- conflict with or obstructs implementation of the applicable air quality plan;
- violate any air quality standard or contributes 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 non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);
- expose sensitive receptors to substantial pollutant concentrations; or
- create objectionable odors affecting a substantial number of people.

The *BAAQMD CEQA Guidelines*²⁴ provide the following clarifications with respect to the definition of a significant air quality impact:

- A project contributing to carbon monoxide (CO) concentrations exceeding the State Ambient Air Quality Standard of 9 parts per million (ppm) averaged over 8 hours or 20 ppm for 1 hour would be considered to have a significant impact.
- A project that generates criteria air pollutant emissions in excess of the BAAQMD annual or daily thresholds would be considered to have a significant air quality impact. The current thresholds are 15 tons/year or 80 pounds/day for Reactive Organic Gases (ROG), Nitrogen Oxides (NOx) or PM₁₀. Any proposed project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact.
- Any project with the potential to frequently expose members of the public to objectionable odors would be deemed to have a significant impact.

As a result, any project with the potential to expose sensitive receptors or the general public to substantial levels of toxic air contaminants would be deemed to have a significant impact.

Despite the establishment of both federal and state standards for PM_{2.5} (particulate matter, 2.5 microns), the BAAQMD has not developed a threshold of significance for this pollutant. For this analysis, PM_{2.5} impacts would be considered significant if project emissions of PM₁₀ exceed the BAAQMD PM₁₀ threshold of 80 pounds per day.

²⁴ Bay Area Air Quality Management District, BAAQMD CEQA Guidelines, 1996 (Revised December 1999).

The BAAQMD significance threshold for construction dust impact is based on the application of construction dust control measures for construction emission of PM₁₀. If the appropriate construction controls are implemented, then the impact from construction-phase air pollutant emissions would be considered less than significant.

3.2.5 IMPACTS AND MITIGATION MEASURES

3.2.5.1 Project Impacts

Impact AQ-1: The proposed Updated 2009 Redevelopment Plan would conflict with or obstruct implementation of the applicable air quality plan. (Significant; Significant and Unavoidable after Mitigation)

Management of air quality in the Basin is the responsibility of the BAAQMD. The BAAQMD is responsible for monitoring ambient air pollutant levels throughout the Basin and developing and implementing attainment strategies, and rules and regulations to ensure that future emissions will be within federal and state standards. The SFBAAB is currently in nonattainment/marginal for the federal standard for ozone-8 hour, and in nonattainment for the state standards of ozone-1 hour, ozone-8 hour, PM₁₀, and PM_{2.5}. Therefore, the BAAQMD, in cooperation with Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC), prepared the following plans that include strategies to attain the federal and state standards:

- *Bay Area 2000 Clean Air Plan and Triennial Assessment*
- *2001 Ozone Attainment Plan*
- *2005 Ozone Strategy*

The *Bay Area 2000 Clean Air Plan* and the *2005 Ozone Strategy* fulfill the planning requirements of the CCAA, while the *2001 Ozone Attainment Plan* fulfills the FCAA requirements.

Pursuant to the BAAQMD's *CEQA Guidelines*, when evaluating a local plan's consistency with the Clean Air Plan (CAP), the Lead Agency should consider the following: the local plan's consistency with CAP population and vehicle use projections, the extent to which the plan implements CAP transportation control measures, and whether the plan provides buffer zones around sources of odors and toxics.

The proposed project consists of the addition of two new areas to the Updated 2009 Redevelopment Plan area and the change in the land use designations of the involved sites. The proposed redesignations are intended to achieve consistency among the City's land use plans. However, the current *General Plan* does not account for the population and vehicles increases associated with buildout of the two sites under the

proposed project. As a result, the proposed project would not be consistent with the CAP's *General Plan*-based population and vehicle use projections.

The 2000 Clean Air Plan for the Bay Area included 19 Transportation Control Measures (TCMs), seven of which are measures that local governments should implement as part of area plans. These are as follows:

- TCM 1: Support voluntary employer-based trip reduction programs;
- TCM 9: Improve bicycle access and facilities;
- TCM 12: Improve arterial traffic management;
- TCM 15: Local clean air plans policies and programs should incorporate measures to reduce the number and length of single-vehicle occupant trips;
- TCM 17: Conduct demonstration projects which will reduce vehicle emissions;
- TCM 19: Promote pedestrian travel; and
- TCM 20: Promote traffic calming.

The conceptual mix of land uses in the proposed Added Area would place residents in close proximity to retail outlets, restaurants, commercial uses, employment centers, transit opportunities, and other destinations. Buildout of the Sycamore Crossing and Hill Town sites as envisioned in the City's *General Plan* and the Central Hercules Plan would place residents and employees within short distances from amenities, which facilitates short vehicle trips and increased pedestrian and bicycle modes of travel. Therefore, the proposed Updated 2009 Redevelopment Plan would further the City's vision for Sycamore Avenue to function as a "Main Street" adjacent to the Sycamore Crossing site. This "Main Street"-type development would be located amidst higher density residential uses, which supports an overall citywide reduction of vehicle trips. It should be further noted that the Sycamore Crossing and Hill Town sites are surrounded by land uses and transportation facilities that would further reduce vehicle trips and emissions from future development. Of specific note, the Hercules Transit Center is within walking distance of the Sycamore Crossing site and would be connected to the Hill Town site via a Western Contra Costa County Transit Authority (WestCAT) bus line. As such, the Sycamore Crossing and Hill Town sites are expected to generate less vehicular emissions than typical residential and commercial developments of similar scale. Furthermore, **Mitigation Measure AQ-5b** (under Impact AQ-5 below) requires the implementation of all feasible transportation reduction. Based on the above, the proposed project would be consistent with the TCMs applicable to local governments.

As discussed later under **Impact AQ-3** and **Impact AQ-7**, the proposed project provides sufficient buffers from sources of odors and air toxic emissions such that impacts would be less than significant.

In summary, although the proposed project would be consistent with the regional CAP because the City's land use planning would achieve the same results as TCMs and the land use plans provide adequate buffers around sources of odors and toxic air contaminants, the population and vehicle trip increases associated with the proposed project are not included in the CAP population and vehicle trip inventory. Therefore, the project would not be consistent with the CAP for the Bay Area. The impact would be significant.

Mitigation Measure AQ-1: The City shall provide updated population projections that include the growth in population as a result of the buildout of Sycamore Crossing and Hill Town sites to the Association of Bay Area Governments and BAAQMD to incorporate into the air quality planning for the Bay Area.

Significance after Mitigation: Significant and unavoidable.

Impact AQ-2: **Demolition or construction activities permitted and/or facilitated by the proposed Updated 2009 Redevelopment Plan could generate construction-period exhaust emissions and fugitive dust that could temporarily affect local air quality. (Potentially Significant; Less than Significant with Mitigation)**

Construction activities associated with project-facilitated public and private development in the Added Area would include demolition, grading, new building construction, and paving. Generally, the most substantial air pollutant emissions associated with these activities would be dust generated from demolition or site grading. The physical demolition of existing structures and other infrastructure could generate substantial dust. In addition to the dust created during demolition, substantial dust emissions could be created as debris is loaded into trucks for disposal. Without adequate particulate matter dust control measures, visible dust clouds extending beyond the construction or demolition site could occur.

According to the *BAAQMD CEQA Guidelines*, emissions of ozone precursors (ROG and NO_x) and carbon monoxide related to construction equipment are already included in the emission inventory that is the basis for regional air quality plans, and thus are not expected to impede attainment or maintenance of ozone and carbon monoxide standards in the Bay Area. Therefore, the effects of construction activities would be increased dust emissions and locally elevated levels of PM₁₀ downwind of construction activity. This is considered a potentially significant impact. **Mitigation Measure AQ-2** requires implementation of all feasible dust control measures for construction emissions. According to the *BAAQMD CEQA Guidelines*, implementation of the following measures would reduce construction impacts of the project to

a less than significant level. Additionally, improvement measures are also included to reduce vehicle exhaust emissions. These measures should be applied to the extent feasible.

MM AQ-2: For all discretionary grading, demolition, or construction activity in the Updated 2009 Redevelopment Plan Area, require implementation of the following dust control measures by construction contractors, where applicable:

During demolition of existing structures:

1. Water active demolition areas to control dust generation during demolition of structures and break-up of pavement.
2. Cover all trucks hauling demolition debris from the site.
3. Use dust-proof chutes to load debris into trucks whenever debris being loaded is sufficiently elevated above the truck.

During all construction phases:

1. Water all active construction areas at least twice daily.
2. Water or cover stockpiles of debris, soil, sand, or other materials that can be blown by the wind.
3. Cover all trucks hauling soil, sand, and other loose materials, or require all trucks to maintain at least 2 feet of freeboard.
4. Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
5. Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites.
6. Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.
7. Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more).
8. Enclose, cover, water twice daily, or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.).
9. Limit traffic speeds on unpaved roads to 15 miles per hour.
10. Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
11. Replant vegetation in disturbed areas as quickly as possible.

The following additional mitigation measures, which are recommended by the BAAQMD to reduce engine exhaust emissions, shall be considered for construction activities in the proposed Updated 2009 Redevelopment Plan area but are not required to reduce construction impacts to a less than significant level:

1. Use alternative fueled construction equipment;
2. Minimize idling time (5 minutes maximum);
3. Maintain properly tuned equipment;
4. Limit the hours of operation of heavy equipment and/or the amount of equipment in use.

Significance after Mitigation: Less than significant.

Impact AQ-3: **During construction and operation of the various development projects that would be facilitated by the proposed Redevelopment Plan, sensitive receptors could be exposed to toxic air contaminants. (*Potentially Significant; Less than Significant with Mitigation*)**

In 1998 CARB identified particulate matter from diesel-fueled engines as a toxic air contaminant (TAC). CARB has completed a risk management process that identified potential cancer risks for a range of activities using diesel-fueled engines.²⁵ High volume freeways, stationary diesel engines and facilities attracting heavy and constant diesel vehicle traffic (distribution centers, truck stop) were identified as having the highest associated risk.

Health risks from TACs are a function of both concentration and duration of exposure. Unlike the above types of sources, construction diesel emissions are temporary, affecting an area for a limited period at any one location. Additionally, construction-related TAC sources are mobile and transient in nature and the bulk of the emission would, therefore, not be likely to be concentrated at a particular nearby sensitive receptor. Because of its short duration and the area's good ventilation characteristics during daylight hours, health risks from construction emissions of particulate matter from diesel emissions would be less than significant.

In terms of TACs associated with operational emissions, development of the Hill Town site has the potential to result in the construction of new residences that would be closer than 500 feet from the

²⁵ California Air Resources Board, *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*, October 2000.

nearest traffic lane of I-80. CARB has published an air quality/land use handbook,²⁶ that was developed in response to recent studies that have demonstrated a link between exposure to poor air quality and respiratory illnesses, both cancer and non-cancer related. The CARB handbook recommends that planning agencies strongly consider proximity to these sources when finding new locations for "sensitive" land uses such as homes, medical facilities, daycare centers, schools, and playgrounds. Air pollution sources of concern include freeways, rail yards, ports, refineries, distribution centers, chrome plating facilities, dry cleaners, and large gasoline service stations.

Key recommendations in the handbook include taking steps to avoid siting new, sensitive land uses:

- Within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day;
- Within 1,000 feet of a major service and maintenance rail yard;
- Immediately downwind of ports (in the most heavily impacted zones) and petroleum refineries;
- Within 300 feet of any dry cleaning operation (for operations with two or more machines, provide 500 feet);
- Within 300 feet of a large gasoline dispensing facility.

While the CARB recommendation does not preclude residential development in these areas, the handbook recommends that a site-specific analysis be made whenever possible. However, buildout of the Hill Town site would result in the location of sensitive receptors within 500 feet of the freeway, which would be considered a potentially significant impact. It should be noted that, based on the conceptual site plan, residences on the Hill Town site would be located upwind of I-80 under prevailing wind conditions, and much of the site is topographically isolated from the adjacent freeway segment by both elevation difference and an intervening ridgeline.

In order to prevent significant TAC impacts to sensitive receptors, **Mitigation Measure AQ-3** requires future project level design for the Hill Town site to be developed in consideration of proximity to the adjacent source of TAC (I-80). **Mitigation Measure AQ-3** would reduce the indirect impact of locating sensitive receptors near a freeway to a less than significant level. It should also be noted that alternative ventilation systems such as are described in **Mitigation Measure AQ-3** (item 3) would likely be required for noise impact reduction. See **Section 3.9, Noise**.

²⁶ California Air Resources Board, *Air Quality and Land Use Handbook: A Community Health Perspective*, April 2005.

MM AQ-3: The siting of residential uses on the Hill Town site in proximity to I-80 shall follow one or more of the following approaches to the satisfaction of the City of Hercules Planning Director:

1. Site residential structures on the Hill Town site further than 500 feet from the nearest lane of I-80. This could be accomplished by placing open space, roads and/or parking along the eastern portion of the Hill Town site.
2. Alternatively, air quality sampling studies or air quality modeling could be undertaken to establish an appropriate alternate residential setback from the freeway. The alternate residential setback must provide a reduction in exposure to toxic air contaminants equivalent to the 70 percent reduction upon which the CARB distance recommendation is based.
3. A third alternative measure would be to provide mechanical ventilation to residences with filtration units to remove fine particulate at all residences within 500 feet of I-80. Since the CARB recommendation for a setback is based on a 70 percent reduction in particulate concentration, the air handling system shall have an efficiency of no less than 70 percent in removing particles less than 0.3 microns in diameter. Commercially available systems with this efficiency utilize either special pleated filter mediums or electrostatic filters to clean the air. These systems will increase project costs, increase energy consumption slightly, and will require regular maintenance.

Significance after Mitigation: Less than significant.

Impact AQ-4: **Traffic generated by the development facilitated by the proposed Updated 2009 Redevelopment Plan would add to carbon monoxide concentrations near streets and intersections that provide access to the sites. However, these CO concentrations would not exceed state/federal ambient air quality standards at any of the study intersections. (*Less than Significant*)**

CO is an odorless, colorless poisonous gas whose primary source in the Bay Area is automobiles. Concentrations of this gas are highest near intersections of major roads. On the local scale, buildout of the Added Area would change traffic on the local street network (see **Section 3.12, Transportation and Circulation**), increasing CO levels along roadways used by project traffic. The *BAAQMD CEQA Guidelines* identify situations where modeling of CO concentrations should be conducted to quantify project impacts:²⁷

1. Vehicle emissions of carbon monoxide exceed 550 pounds per day,

²⁷ Bay Area Air Quality Management District, BAAQMD CEQA Guidelines, 1996 (Revised December 1999).

2. Project traffic would impact signal-controlled intersections or roadway links operating at Level of Service D, E or F or would cause LOS to decline to D, E or F, or
3. Project traffic would increase traffic volumes on nearby roadways by 10 percent or more.

Application of the above three thresholds indicates that three intersections require quantitative analysis for buildout of the Added Area. CO concentrations under worst-case meteorological conditions were predicted for the three signalized intersections that would be affected by the project. Peak hour traffic volumes were applied to a screening form of the CALINE4 dispersion model to predict maximum 1- and 8-hour concentrations near these intersections. The appendices to the project's Air Quality Impact Analysis (**Appendix 3.2** of this EIR) provides a description of the model and a discussion of the methodology and assumptions used in the analysis. The model results were used to predict the maximum 1- and 8-hour CO concentrations, corresponding to the 1- and 8-hour averaging times specified in the state and federal ambient air quality standards for CO.

Table 3.2-5, Worst Case Carbon Monoxide Concentrations Near Worst-Case Intersections, in Parts Per Million, shows the results of the CALINE4 analysis for the peak 1-hour and 8-hour traffic periods in parts per million (ppm). The 1-hour values are to be compared to the federal 1-hour standard of 35 ppm and the state standard of 20 ppm. The 8-hour values in **Table 3.2-5** are to be compared to the state and federal standard of 9 ppm.

**Table 3.2-5
Worst Case Carbon Monoxide Concentrations Near Worst-Case Intersections, in Parts Per Million**

Intersection	Existing		Existing + Background		Existing+ Background+ Project	
	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour
San Pablo Avenue/ John Muir Parkway	6.9	5.2	7.7	5.7	8.3	6.1
San Pablo Avenue/ Sycamore Avenue	7.8	5.8	8.8	6.4	9.4	6.9
San Pablo Avenue/ Willow Avenue	5.1	3.9	5.2	4.0	5.3	4.0
Most Stringent Standard	20.0	9.0	20.0	9.0	20.0	9.0

Table 3.2-5 shows that existing predicted concentrations near the intersections meet the 1-hour and 8-hour standards. CO emissions from background traffic increases would increase concentrations by up to 2.6 ppm. CO emissions from the traffic from buildout of the Updated 2009 Redevelopment Plan would

further increase concentrations by up to 0.1 ppm. However, the resultant concentrations would not exceed the state/federal ambient air quality standards.

Since traffic from the proposed project would not cause any new violations of the 1-hour or 8-hour standards for CO, nor contribute substantially to an existing or projected violation, proposed project impacts on local CO concentrations are considered to be less than significant.

Impact AQ-5: Development facilitated by the proposed Updated 2009 Redevelopment Plan would result in new air pollutant emissions within the air basin. The emissions from the new vehicle trips and area sources would exceed the BAAQMD thresholds of significance for regional pollutants, and would represent a significant impact that cannot be mitigated to a level of insignificance. (Significant; Significant and Unavoidable after Mitigation)

Vehicle trips generated by buildout of the Updated 2009 Redevelopment Plan would result in air pollutant emissions affecting the entire San Francisco Bay Air Basin. Regional emissions associated with project vehicle use were calculated using the URBEMIS2007 emission model. The methodology used to estimate vehicular emissions is described in Attachment 2 of the project's Air Quality Impact Analysis (included as **Appendix 3.2** of this draft EIR). The incremental daily emission increase associated with project land uses is identified in **Table 3.2-6, Project Area Build-Out Regional Emissions in Pounds Per Day**, for ROG, NO_x (two precursors of ozone), and PM₁₀.

**Table 3.2-6
Project Area Build-Out Regional Emissions in Pounds Per Day**

	Reactive Organic Gases	Nitrogen Oxides	PM₁₀
Sycamore Crossing Site	53.0	52.6	71.8
Hill Town Site	38.4	37.2	100.7
Total	91.4	89.9	172.5
<i>BAAQMD Significance Threshold</i>	<i>80.0</i>	<i>80.0</i>	<i>80.0</i>

The BAAQMD's established threshold of significance for ozone precursors and PM₁₀ is 80 pounds per day. The emissions that would result from the implementation of the proposed project shown in **Table 3.2-6** would exceed this threshold of significance for all three pollutants. As such, without mitigation the proposed project would have a significant effect on regional air quality.

The emissions in **Table 3.2-6** reflect mitigating factors in the project's design. The traffic inputs used in the URBEMIS2007 analysis reflect a 10 percent reduction in residential trips due to the use of public transit and internalization of vehicle trips due to the mixed-use nature of the projects components. In addition to project design mitigating factors, **Mitigation Measure AQ-5a** is included to further reduce project-related vehicle, operation, and area source emissions.

Mitigation Measure AQ-5b also has the potential to reduce project-related mobile source emissions by 15 percent. The effectiveness of area source mitigation measures was calculated by eliminating all wood burning emissions and assuming that energy conservation measures would reduce natural gas consumption by 5 percent.

MM AQ-5a: All development shall be required to implement feasible BAAQMD mitigation measures for reducing vehicle and area source emissions from suburban residential projects. Feasible mitigation measures to reduce vehicle and area source emissions for a suburban residential development include:

- Provide bicycle lanes, sidewalks, and/or paths, connecting project residences to adjacent schools, parks, nearest transit stop and nearby commercial areas.
- Construct transit amenities such as bus turnouts/bus bulbs, benches, shelters, etc.
- Provide direct, safe, attractive pedestrian access from project land uses to transit stops and adjacent development.
- Utilize reflective (or high albedo) and emissive roofs and light colored construction materials to increase the reflectivity of roads, driveways, and other paved surfaces, and include shade trees near buildings to directly shield them from the sun's rays and reduce local air temperature and cooling energy demand.
- Eliminate wood burning fireplaces or devices. Install a gas outlet in proposed outdoor recreational fireplaces or pits. Offer as an option on homes to install a gas outlet for use with outdoor cooking appliances, such as a gas barbeque.
- Use efficient heating and other appliances, such as water heaters, cooking equipment, refrigerators, furnaces, and boiler units that meet or exceed Title 24 requirements (Energy Efficiency Standards for Residential and Nonresidential Buildings and Green Building Standards). Use window glazing and insulation, wall insulation, and efficient ventilation methods.
- Encourage the use of battery-powered or electrical landscaping equipment and discourage the use of leaf blowers and other dust-producing equipment by installing electrical outlets on the exterior walls of both the front and back of all residences and requiring home owners associations prohibit the use of leaf blowers.

- Landscape with drought resistant and low maintenance species of plants, trees, and shrubs to reduce the demand for gas-powered landscape maintenance equipment.
- Provide a 220-volt utility drop or other dedicated outlet that is adaptable for use by electric or rechargeable hybrid vehicles that are generally available to consumers.

MM AQ-5b: All commercial uses shall apply Transportation System Management measures to reduce trips and incorporate design features to reduce area source emissions. Appropriate strategies include:

- Provide physical improvements, such as sidewalk improvements, landscaping, and bicycle parking that would act as incentives for pedestrian and bicycle modes of travel.
- Connect site with regional bikeway/pedestrian trail system.
- Provide transit information kiosks.
- Provide secure and conveniently located bicycle parking and storage for workers and patrons.
- Provide electric vehicle charging facilities.
- Provide preferential parking for Low Emission Vehicles (LEVs).
- Utilize reflective (or high albedo) and emissive roofs and light colored construction materials to increase the reflectivity of roads, driveways, and other paved surfaces, and include shade trees near buildings to directly shield them from the sun's rays and reduce local air temperature and cooling energy demand.
- Use efficient heating and other appliances, such as water heaters, cooking equipment, refrigerators, furnaces, and boiler units that meet or exceed Title 24 requirements (Energy Efficiency Standards for Residential and Nonresidential Buildings and Green Building Standards). Use window glazing and insulation, wall insulation, and efficient ventilation methods.
- Landscape with drought resistant and low maintenance species of plants, trees, and shrubs to reduce the demand for gas-powered landscape maintenance equipment.

With implementation of the above measures, ROG emissions would be reduced from 91.4 pounds per day to 78.9 pounds per day, and NO_x emissions would be reduced from 89.8 pounds per day to 77.3 pounds per day. These levels would be below the BAAQMD significance threshold of 80 pounds per day.

Under the above assumptions, project PM₁₀ emissions would be reduced from 172.5 pound per day to 101.2 pounds per day. These emissions would still exceed the BAAQMD significance threshold of 80

pounds per day by a substantial amount. The proposed project impacts on regional air quality would, therefore, remain significant and unavoidable.

Significance after Mitigation: Significant and unavoidable.

Impact AQ-6: Development facilitated by the proposed Updated 2009 Redevelopment Plan would generate greenhouse gases (GHGs) and would contribute to cumulative impacts of global climate change (*Significant; Less than significant after mitigation*)

Buildout of the proposed Added Area would generate emissions of GHGs. The sources of direct GHG emissions include project-related traffic and area sources, and sources of indirect emissions include electricity that would be used by the proposed project. Total GHG emissions that would be associated with buildout of the Added Area were estimated based on the methodology described below.

Carbon dioxide (CO₂) emissions generated by project traffic and area sources were estimated using the URBEMIS2007 model (Version 9.2.4). Inputs to the URBEMIS2007 program include trip generation rates, vehicle mix, average trip length by trip type, and average speed. Daily trip generation for the project was provided by the project transportation consultant.

The URBEMIS model identifies five categories of area source emissions:

- **Natural Gas Combustion:** Natural gas emissions result from the combustion of natural gas for cooking, space heating, and water heating. Estimates are based on the number of residential land uses and the number and size of nonresidential land uses.
- **Hearth Emissions:** Hearth emissions consist of emissions from wood stoves, wood fireplaces, and natural gas fireplaces related to residential uses.
- **Landscaping Emissions:** Emissions from fuel combustion and evaporation of unburned fuel by landscape maintenance equipment. Equipment in this category includes lawn mowers, rotor tillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers used in residential and commercial applications. This category also includes air compressors, generators, and pumps used primarily in commercial applications.
- **Architectural Coating:** Architectural coating emissions result from the evaporation of solvents contained in paints, varnishes, primers and other surface coatings associated with maintenance of residential and nonresidential structures. In URBEMIS2007, this source generates ROG emissions but not CO₂.
- **Consumer Products:** Consumer product emissions are generated by a wide range of product categories, including air fresheners, automotive products, household cleaners, and personal care products. Emissions associated with these products primarily depend on the increased population

associated with residential development. In URBEMIS2007, these sources generate ROG emissions but not CO₂.

The proposed project's URBEMIS2007 results for CO₂ are included in **Appendix 3.2**. The output shows annual emissions of CO₂ from vehicles and area sources. While URBEMIS2007 estimates CO₂ emissions from land use projects, there are other GHGs and indirect sources that should be considered. Emissions of methane (CH₄) and nitrous oxide (N₂O) were estimated separately based on CH₄ and N₂O emission factors from BAAQMD's *Source Inventory of Bay Area Greenhouse Gas Emissions*²⁸ (see **Appendix 3.2**). These emissions were then multiplied by a correction factor to estimate "carbon dioxide equivalents" (CO₂e). CH₄ was assumed to have a Global Warming Potential 25 times that of CO₂, while N₂O was assumed to have a Global Warming Potential 310 times that of CO₂.

Estimates of GHG emissions related to electrical power usage associated with buildout of the Updated 2009 Redevelopment Plan were also developed. The spreadsheet included in **Appendix 3.2** shows both the estimated calculation of CH₄ and N₂O CO₂e and the calculation of emissions from electrical power usage for the Added Area.

Total GHG emissions from buildout of the Sycamore Crossing site are estimated at 9,420.17 tons CO₂e/year. Total GHG emissions from buildout of the Hill Town site are estimated at 8,125.64 tons CO₂e/year. Total GHG emissions from the buildout of the proposed Added Area would be 17,545.77 tons CO₂e/year.

With regard to new projects in California, GHG impacts are nearly always exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective. As with other individual relatively small projects (i.e., projects that are not cement plants, oil refineries, electric generating facilities/providers, co-generation facilities, or hydrogen plants or other stationary combustion sources that emit more than 25,000 million metric tons [MMT] of CO₂e/year), the primary concern would be whether the project would be in conflict with the state goals for reducing GHG emissions.

Three criteria are used to determine whether the proposed project would be in conflict with the state goals for reducing GHG emissions. This analysis includes an evaluation of:

- The project's consistency with the emission reduction strategies in CARB's *Proposed Scoping Plan*, as shown in **Table 3.2-4**;

²⁸ Bay Area Air Quality Management District. November 2006. *Source Inventory of Bay Area Greenhouse Gas Emissions*.

- The project's consistency with the emission reduction strategies and targets in CARB's *Preliminary Draft Staff Proposal: Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under CEQA*; and
- The basic parameters of the project to determine whether its design is inherently energy efficient.

The proposed project contains GHG reduction features that would demonstrate consistency with CARB's *Proposed Scoping Plan*. All future development under the project would be supplied with electricity from the Hercules Municipal Utility, which obtains all of its electrical power supply from renewable sources.

While CARB has not formally adopted a significance threshold under CEQA and has not proposed numerical thresholds for residential and commercial projects, CARB has proposed using the California Energy Commission's Tier II standard as one basis with which to determine the significance of such projects. The proposed project is subject to all Title 24 building standards for energy efficiency. However, because the project as proposed does not include project design features that require approximately 30 percent efficiency beyond Title 24, the project's impact would be significant if CARB were to adopt its *Preliminary Draft Staff Proposal* in its current state.

The conceptual mix of land uses in the proposed Added Area would place residents in close proximity to retail outlets, restaurants, commercial uses, employment centers, transit opportunities, and other destinations. Buildout of the Sycamore Crossing and Hill Town sites would place residents and employees within short distances from amenities, which facilitates short vehicle trips and increased pedestrian and bicycle modes of travel. Therefore, the proposed Updated 2009 Redevelopment Plan would further the City's vision for Sycamore Avenue to function as a "Main Street" adjacent to the Sycamore Crossing site. This "Main Street"-type development would be located amidst higher density residential uses, which supports an overall citywide reduction of vehicle trips. It should be further noted that the Sycamore Crossing and Hill Town sites are surrounded by land uses and transportation facilities that would further reduce vehicle trips and, therefore, GHG emissions from future development. Of specific note, the Hercules Transit Center is within walking distance of the Sycamore Crossing site and would be connected to the Hill Town site via a Western Contra Costa County Transit Authority (WestCAT) bus line.

As such, the Sycamore Crossing and Hill Town sites are expected to generate less GHG than typical residential and commercial developments of similar scale. **Mitigation Measure AQ-5b** also requires the implementation of all feasible transportation reduction measures to reduce emissions associated with vehicle exhaust, including emissions of CO₂.

Based on the proposed project's GHG emissions estimates, it is not anticipated that the project emissions alone will substantially add to the global inventory of GHG emissions. The operational emissions of GHG

emissions from the project (17,545.77 metric tons CO₂e/year), would be 0.004 percent of California's current GHG emissions (478.65 million tons [434.22 million metric tons], according to the 2004 inventory). Nonetheless, the project does not include provisions that meet the CEC's Tier II standard for energy efficiency. Therefore, the project's cumulative climate change impact would be considered significant. **Mitigation Measure AQ-6** is proposed to reduce the cumulative climate change impacts associated with the project to a less than significant level.

MM AQ-6: The project's residential and commercial land uses as a whole shall achieve an energy efficiency standard equivalent to the California Energy Commission's Tier II standard.

Impact AQ-7: **Buildout of the proposed Updated 2009 Redevelopment Plan may generate mild odors from construction activities and typical residential and commercial operation and maintenance activities, such as vehicle/equipment operations, fertilizer, cooking, and household waste. However, the project would not expose a large number of people to objectionable odors. (*Less than Significant*)**

The proposed project would establish the land use framework that would provide redevelopment incentives for future development of the involved properties with a mix of residential and commercial uses. The only odors anticipated to be generated by such uses would be from typical residential and commercial operation and maintenance activities, such as vehicle/equipment operations, fertilizer, cooking, and household waste. Future construction activities on the sites would also generate mild odors, primarily from the use of heavy equipment. However, the odors generated on site would be mild, temporary, and be limited to the immediate area of the sources. The proposed project is not anticipated to result in odors that would affect a substantial number of people. Therefore, the proposed project's odor impacts are less than significant.

3.2.6 CUMULATIVE IMPACTS

Impact AQ-8: **The proposed project could result in a cumulatively considerable net increase of PM₁₀ emissions, a criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard. (*Significant; Significant and Unavoidable*)**

Impacts AQ-4 and AQ-5 consider the project-related air pollutants including a cumulative basin-wide scenario and the cumulative local scenario. As the analysis in **Impact AQ-4** shows, worst-case CO concentrations under 2035 conditions would be 4.2 ppm and 3.2 ppm at 1-hour and 8-hour levels accordingly. Details of cumulative pollutant concentrations under cumulative conditions are included in **Appendix 3.2**. For other pollutant concentrations associated with operational emissions **Impact AQ-5**

identifies that, after mitigation, the proposed project's generation of all air pollutants—except for PM₁₀—would not represent a considerable contribution to either the regional or local air quality conditions. **Impact AQ-5** however, concludes that even after implementation of **MM AQ-5** the project's PM₁₀ emissions would exceed the BAAQMD significance threshold and would, therefore, be considered a cumulatively significant contribution to the region's air pollutant levels. Therefore, **Impact AQ-8** is considered significant and unavoidable.

Significance after Mitigation: Significant and unavoidable.