CHAPTER 3

ENVIRONMENTAL SETTING, IMPACTS, MITIGATION MEASURES, AND CUMULATIVE IMPACTS

3.0 INTRODUCTION AND SUMMARY OF CONCLUSIONS

This chapter provides the EIR's analyses of the project's impacts on existing environmental resources. The chapter describes the environmental resource areas that are addressed in these analyses; describes the existing setting or "baseline" for evaluating the project for each of these resource areas; discusses the thresholds of significance for determining whether the project could have a significant adverse impact on any of these resources areas; evaluates the potential for the project to have such a significant adverse impact, including a cumulative impact in conjunction with other similar projects; and addresses mitigation measures to mitigate any such significant potential impacts.

The analyses included in this chapter focus on those aspects of the environmental resource areas that were identified in the NOP/IS as having a potential to be significantly impacted by the proposed amendments so as to warrant a detailed review in the EIR. (See Appendix A). The analyses do not focus on those environmental resource areas where it was determined that the proposed amendments will not cause any significant adverse impact. The NOP/IS identified air quality and greenhouse gas emissions as the two resource areas in which there was a potential for a significant adverse impact that needed to be evaluated in the EIR.

The conclusions reached by the EIR's analysis are stated in Section 3.2.6. (Air Quality Impacts Conclusions) and Section 3.3.7 (GHG Impacts Conclusions). In summary, the EIR's analysis has found that the proposed amendments to District Regulation 2 will have overall beneficial environmental impacts on air quality and on greenhouse gas emissions. The proposed amendments will strengthen the Air District's permitting programs and thereby enhance the District's ability to implement its regulatory program and to achieve the Bay Area's clean air goals. The EIR has evaluated the potential for the proposed amendments to have adverse secondary impacts in connection with this strengthening of District regulations, and has concluded based on all available evidence that there will be no such significant adverse impacts. The support for these conclusions and the evidence on which they are based are discussed in detail in this Chapter.

3.1 FORMAT OF ANALYSIS

Each environmental resource section is organized into the following subsections: (1) Environmental Setting; (2) Thresholds of Significance; (3) Environmental Impacts; (4) Mitigation Measures; and (5) Cumulative Impacts. A description of each subsection follows.

3.1.1 ENVIRONMENTAL SETTING

CEQA Guidelines section 15125 requires that an EIR include a description of the physical environmental conditions in the vicinity of the proposed project as they exist at the time the NOP/IS is published, or if no NOP/IS is published, at the time the environmental analysis is commenced, from both a local and regional perspective. This

section describes the existing environment in the Bay Area as it exists at the time the NOP/IS was prepared (July, 2012).

3.1.2 THRESHOLDS OF SIGNIFICANCE

This section identifies the criteria used to determine when physical changes to the environment created as a result of the proposed project approval would be considered significant. The levels of significance for each environmental resource were established by identifying significance criteria for each environmental resource area. The significance determination under each impact analysis is made by comparing the proposed project impacts with the conditions in the existing setting, and then comparing the difference to the significance criteria.

3.1.3 ENVIRONMENTAL IMPACTS

The potential impacts associated with each discipline are either quantitatively analyzed where possible or qualitatively analyzed where data are insufficient to quantify impacts. The impacts are compared to the significance criteria to determine the level of significance.

The impact sections of this chapter focus on those areas that were identified as having a potential for an impact that could be considered potentially significant and thus warranted a detailed review in the EIR per the requirements of CEQA. An impact is considered significant if it leads to a "substantial, or potentially substantial, adverse change in the environment." Impacts from the project fall within one of the following categories:

Beneficial: Impacts will have a positive effect on the resource.

No Impact: There would be no impact to the identified resource as a result of the project.

Less than Significant: Some impacts may result from the project; however, they are judged to be less than significant. Impacts are frequently considered less than significant when the changes are minor relative to the size of the available resource base or would not change an existing resource. A "less than significant impact" applies where the environmental impact does not exceed the significance threshold.

Potentially Significant but Mitigation Measures Can Reduce Impacts to Less Than Significant: Significant adverse impacts may occur; however, with proper mitigation, the impacts can be reduced to less than significant.

Potentially Significant or Significant Impacts: Adverse impacts may occur that would be significant even after mitigation measures have been applied to minimize their severity. A "potentially significant or significant impacts" applies where the environmental impact exceeds the significance threshold, or information was lacking to make a finding of insignificance.

3.1.4 MITIGATION MEASURES

One important purpose of an EIR is to evaluate mitigation measures to minimize or avoid significant environmental impacts that could result from a project. Where a project will have a significant or potentially significant environmental impact, this section of the EIR describes feasible mitigation measures that could minimize such impacts. Such mitigation measures can include avoiding the impact altogether by not taking a certain action or parts of an action; minimizing impacts by limiting the degree or magnitude of the action and its implementation; rectifying the impact by repairing, rehabilitating or restoring the impacted environment; reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and compensating for the impact by replacing or providing substitute resources or environments. (See CEQA Guidelines § 15370.) Mitigation measures are only required to address significant impacts from a project and to reduce them to below a level of significance. Where a project will not have a significant environmental impact, there are by definition no significant impacts to mitigate and no mitigation measures are required. (See CEQA Guidelines § 15126.4(a)(3).)

3.1.5 CUMULATIVE IMPACTS

CEQA Guidelines section 15130(a) requires an EIR to discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable. Cumulative impacts are impacts that are created as the result of the combination of the project being evaluated (the proposed amendments here) and other projects causing related impacts.

3.2 AIR QUALITY

The NOP/IS (see Appendix A) identified air quality as an area with a potential for the proposed amendments to have a significant adverse impact that needs to be evaluated in the EIR. The potential for significant adverse air quality impacts associated with the proposed amendments are evaluated in this Section of this EIR. As stated in the conclusions in Section 3.2.6., the proposed amendments will have a beneficial impact on air quality. There will not be any significant adverse impacts on air quality as a result of the proposed amendments.

3.2.1 ENVIRONMENTAL SETTING

3.2.1.1 Criteria Pollutants

Ambient Air Quality Standards for Criteria Pollutants

It is the responsibility of the BAAQMD to ensure that state and federal ambient air quality standards are achieved and maintained in its geographical jurisdiction. Health-based air quality standards have been established by California and the federal government for the following criteria air pollutants: ozone, carbon monoxide (CO),

nitrogen dioxide (NO_2), PM_{10}, $PM_{2.5}$, sulfur dioxide (SO_2) and lead. These standards were established to protect sensitive receptors with a margin of safety from adverse health impacts due to exposure to air pollution. The California standards are more stringent than the federal standards. California has also established standards for sulfate, visibility, hydrogen sulfide, and vinyl chloride.

The state and national ambient air quality standards for each of these pollutants and their effects on health are summarized in Table 3-1. The BAAQMD monitored levels of various criteria pollutants at 23 monitoring stations in 2010. The 2010 air quality data from the BAAQMD's monitoring stations are presented in Table 3-2.

The 2010 air quality data from the BAAQMD monitoring stations are presented in Table 3-2. All monitoring stations were below the state standard and federal ambient air quality standards for CO, NO_2, and SO_2. The federal 8-hour ozone standard was exceeded on 9 days in the District in 2010, while the state 8-hour standard was exceeded on 11 days. The State 1-hour ozone standard was exceeded on 8 days in 2010 in the District. The ozone standards are most frequently exceeded in the Eastern District (Bethel Island (7 days) and Livermore (6 days)), and the Santa Clara Valley (San Martin (8 days), and Gilroy (7 days)) (see Table 3-2).

Air quality conditions in the San Francisco Bay Area have improved since the District was created in 1955. Ambient concentrations of air pollutants and the number of days on which the region exceeds air quality standards have fallen dramatically (see Table 3-3). The District is in attainment of the State and federal ambient air quality standards for CO, NOx, and SO_2. The District is not considered to be in attainment with the ozone standards and State PM_{10} and $PM_{2.5}$ standards.

TABLE 3-1
Federal and State Ambient Air Quality Standards

POLLUTANT	STATE STANDARD	FEDERAL STANDARD	PRINCIPAL EFFECTS
Ozone	0.09 ppm, 1-hr. avg. 0.070 ppm, 8-hr. avg.	0.075 ppm, 8-hr avg.	(a) Short-term exposures: (1) Pulmonary function decrements and localized lung edema in humans and animals (2) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (b) Long-term exposures: Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (c) Vegetation damage; (d) Property damage
Carbon Monoxide	9.0 ppm, 8-hr avg. 20 ppm, 1-hr avg.	9 ppm, 8-hr avg. 35 ppm, 1-hr avg.	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; (d) Possible increased risk to fetuses
Nitrogen Dioxide	0.03 ppm, annual avg. 0.18 ppm, 1-hr avg.	0.053 ppm, ann. avg. 0.10 ppm, 1-hr avg.	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; (c) Contribution to atmospheric discoloration
Sulfur Dioxide	0.04 ppm, 24-hr avg. 0.25 ppm, 1-hr. avg.	0.14 ppm, 24-hr. avg. 0.075 ppm, 1-hr avg.	(a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma
Suspended Particulate Matter (PM_{10})	20 µg/m^3, annual arithmetic mean 50 µg/m^3, 24-hr average	150 µg/m^3, 24-hr avg.	(a) Excess deaths from short-term exposures and exacerbation of symptoms in sensitive patients with respiratory disease; (b) Excess seasonal declines in pulmonary function, especially in children
Suspended Particulate Matter ($PM_{2.5}$)	12 µg/m^3, annual arithmetic mean	15 µg/m^3, annual arithmetic mean 35 µg/m^3, 24-hour avg.	Decreased lung function from exposures and exacerbation of symptoms in sensitive patients with respiratory disease; elderly; children.
Sulfates	25 µg/m^3, 24-hr avg.		(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; (f) Property damage
Lead	1.5 µg/m^3, 30-day avg.	1.5 µg/m^3, calendar quarter avg. 0.15 µg/m^3, 3-mo. avg.	(a) Increased body burden; (b) Impairment of blood formation and nerve conduction
Visibility-Reducing Particles	Causing extinction coefficient >0.23 inverse kilometers (visual range to less than 10 miles) at relative humidity <70%, 10am - 6pm avg.		Nephelometry and AISI Tape Sampler; instrumental measurement on days when relative humidity is less than 70 percent

Notes: (1) Federal standard listed is the federal primary NAAQS
(2) Concentrations are listed in parts per million (ppm) and in micrograms per cubic meter (µg/m^3)
(3) Standards are based on the averaging time listed (e.g., 1-hour average, 3-month average, etc.)

TABLE 3-2
Bay Area Air Pollution Summary - 2010

MONITORING STATIONS	OZONE						CARBON MONOXIDE			NITROGEN DIOXIDE			SULFUR DIOXIDE			PM_{10}				$PM_{2.5}$				
	Max 1-hr	Cal 1-hr Days	Max 8-hr	Nat 8-Hr Days	Cal Days	3-Yr Avg	Max 1-hr	Max 8-hr	Nat/ Cal Days	Max 1-Hr	Ann Avg	Nat/ Cal Days	Max 1-hr	Max 24-hr	Nat/ Cal Days	Ann Avg	Max 24-hr	Nat Days	Cal Days	Max 24-hr	Nat Days	3-Yr Avg	Ann Avg	3-Yr Avg
North Counties	(ppb)						(ppm)			(ppb)			(ppb)			(μm^3)				(μm^3)				
Napa	106	1	89	2	2	66	2.3	1.4	0	56.0	9	0	--	--	--	17.4	37	0	0	--	--	--	--	--
San Rafael*	83	0	69	0	0	54	1.7	1.1	0	57.0	12	0	--	--	--	16.7	51	0	1	46.5	4	*	10.7	*
Santa Rosa	84	0	68	0	0	54	2.5	1.1	0	42.0	8	0	--	--	--	--	--	--	--	26.6	0	26	7.2	8.1
Vallejo	91	0	80	1	2	63	2.9	1.9	0	55.0	9	0	11.0	2.4	0	--	--	--	--	29.5	0	31	7.7	9.1
Coast/Central Bay																								
Berkeley*	75	0	49	0	0	44	2.5	1.5	0	53.4	13	0	9.0	2.4	0	21.0	43	0	0	--	--	--	--	--
Oakland	97	1	58	0	0	53	3.0	1.6	0	64.1	13	0	11.0	3.7	--	--	--	--	--	25.2	0	23	7.8	8.9
Oakland West	--	--	--	--	--	--	2.7	1.7	0	68.6	16	0	--	--	--	--	--	--	--					
Richmond	--	--	--	--	--	--	--	--	--	--	--	--	26.0	6.5	0	--	--	--	--	--	--	--	--	--
San Francisco	79	0	51	0	0	47	1.8	1.4	0	92.9	13	0	--	--	--	19.9	40	0	0	45.3	3	26	10.5	10.0
San Pablo*	97	1	81	1	1	*	*	*	*	*	*	*	*	*	*	*	*	*	*	--	--	--	--	--
Eastern District																								
Bethel Island	106	3	86	4	7	76	1.4	0.8	0	32.3	6	0	19.0	3.3	0	18.7	70	0	1	--	--	--	--	--
Concord	103	2	87	1	4	74	1.2	1.0	0	42.0	8	0	9.0	2.4	0	13.7	41	0	0	36.4	1	30	7.6	9.0
Crockett	--	--	--	--	--	--	--	--	--	--	--	--	16.3	4.1	0	--	--	--	--	--	--	--	--	--
Fairfield	103	1	81	2	3	69	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Livermore	150	3	97	3	6	80	--	--	0	58.4	11	0	--	--	--	--	--	--	--	34.7	0	30	7.6	9.0
Martinez	--	--	--	--	--	--	--	--	--	--	--	--	37.0	5.5	0	--	--	--	--	--	--	--	--	--
South Central Bay																								
Fremont*	120	1	81	1	1	62	*	*	*	*	*	*	--	--	--	--	--	--	--	*	*	*	*	*
Hayward*	*	*	*	*	*	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redwood City	113	2	77	1	1	57	3.3	1.7	0	52.7	12	0	--	--	--	--	--	--	--	36.5	1	25	8.3	8.7
Santa Clara Valley																								
Gilroy	94	0	81	5	7	74	--	--	--	--	--	--	--	--	--	--	--	--	--	29.9	0	23	8.2	8.6
Los Gatos	109	2	87	2	3	73	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
San Jose Central	126	5	86	3	3	66	2.8	2.2	0	64.0	14	0	4.9	1.8	0	19.5	47	0	0	41.5	3	30	8.8	10.1
San Martin	109	2	87	5	8	75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Days over Standard		**8**		**9**	**11**				**0**			**0**			**0**			**0**	**2**		**6**			

* The Fremont site was closed on October 31, 2010; statistics are not available for all but the summer 2010 ozone season. The Berkeley site was closed on December 31, 2010 at the conclusion of a 3-year monitoring study. The San Pablo site was temporarily closed from March 2009 to May 2010 due to damage from a building fire. 2010 statistics are not available except for the summer peak ozone season. 3-year ozone statistics are not available. The Hayward site was temporarily closed in 2010 due to a major construction project adjacent to the site. Annual and 3-year average ozone statistics are not available. $PM_{2.5}$ monitoring began in San Rafael in October 2009. Three-year average $PM_{2.5}$ statistics are not available. A new site was opened in Cupertino on September 1, 2010 for a one-year monitoring study. Due to the brief period of monitoring in 2010, Cupertino data are not shown in this table.

(ppb) = parts per billion (ppm) = parts per million, ($\mu g/m^3$) = micrograms per cubic meter.

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TABLE 3-3

Bay Area Air Quality Summary
Days over Standards

YEAR	OZONE			CARBON MONOXIDE				NOx	SULFUR DIOXIDE		PM_{10}		$PM_{2.5}$
	1-Hr	8-Hr	8-Hr*	1-Hr		8-Hr		1-Hr	24-Hr		24-Hr*		24-Hr**
	Cal	Cal	Nat	Nat	Cal	Nat	Cal	Cal	Nat	Cal	Nat	Cal	Nat
2001	15	--	7	0	0	0	0	0	0	0	0	10	5
2002	16	--	7	0	0	0	0	0	0	0	0	6	7
2003	19	--	7	0	0	0	0	0	0	0	0	6	0
2004	7	--	0	0	0	0	0	0	0	0	0	7	1
2005	9	9	1	0	0	0	0	0	0	0	0	6	0
2006	18	22	12	0	0	0	0	0	0	0	0	15	10
2007	4	9	1	0	0	0	0	0	0	0	0	4	14
2008	9	20	12	0	0	0	0	0	0	0	0	5	12
2009	11	13	8	0	0	0	0	0	0	0	0	1	11
2010	8	11	9	0	0	0	0	0	0	0	0	2	6

* Ozone exceedance days beginning in 2008 reflect new U.S.EPA standard of 0.075 ppm.
** $PM_{2.5}$ exceedance days beginning in 2006 reflect new U.S.EPA standard of 35 $\mu g/m^3$.

All monitoring stations were in compliance with the federal PM_{10} standards. The California PM_{10} standards were exceeded on two days in 2010, at the San Rafael and Bethel Island monitoring stations. The Air District exceeded the federal $PM_{2.5}$ standard on 6 days, most frequently in San Rafael in 2010 (see Table 3-2).

Health Effects from Criteria Pollutants

Ozone

Ozone (O_3), a colorless gas with a sharp odor, is a highly reactive form of oxygen. High ozone concentrations exist naturally in the stratosphere. Some mixing of stratospheric ozone downward through the troposphere to the earth's surface does occur; however, the extent of such ozone transport is limited. At the earth's surface in sites remote from urban areas, ozone concentrations are normally very low (0.03-0.05 ppm).

While ozone is beneficial in the stratosphere because it filters out skin cancer-causing ultraviolet radiation, it is a highly reactive oxidant. It is this reactivity that accounts for its damaging effects on materials, plants, and human health at the earth's surface.

The BAAQMD began ozone monitoring in a few places in 1959. A large ozone monitoring network was established in 1965. The monitoring data in Table 3-3 illustrates the number of days per year that the Bay Area exceeded the State and federal ozone standards through much of the first decade of the 21st century. Ozone concentrations in the Bay Area still exceed the federal and State 8-hour ozone standards on occasion and the Bay Area is therefore designated as non-attainment for the State 8-hour ozone standard.

The propensity of ozone for reacting with organic materials causes it to be damaging to living cells, and ambient ozone concentrations in the Bay Area are occasionally sufficient to cause health effects. Ozone enters the human body primarily through the respiratory tract and causes respiratory irritation and discomfort, makes breathing more difficult during exercise, and reduces the respiratory system's ability to remove inhaled particles and fight infection. People with respiratory diseases, children, the elderly, and people who exercise heavily are more susceptible to the effects of ozone.

Plants are sensitive to ozone at concentrations well below the health-based standards, and ozone is responsible for significant crop damage. Ozone is also responsible for damage to forests and other ecosystems.

Ozone is not normally emitted directly from anthropogenic sources in any significant amounts. Rather, it is formed by a photochemical reaction between oxides of nitrogen (NOx) and volatile organic compounds (VOCs) in the presence of heat and sunlight. As such, it is referred to as a "secondary" pollutant, formed by a reaction between the precursors NOx and VOC.

Particulate Matter (PM)

Of serious concern to public health are the particles small enough to be inhaled into the deepest parts of the lung. Respirable particles can accumulate in the respiratory system and aggravate health problems such as asthma, bronchitis and other lung diseases. Children, the elderly, exercising adults, and those suffering from asthma are especially vulnerable to adverse health effects of PM. Scientific research and regulatory efforts have long focused on particulates with a diameter of less than 10 microns (PM_{10}) as the measure of particulate matter that is of concern. More recently, further research has identified particulates with a diameter of less than 2.5 microns ($PM_{2.5}$) as warranting special attention, as these fine particulates are especially problematic from a public health and environmental perspective.

A consistent correlation between elevated ambient fine particulate matter (PM_{10} and $PM_{2.5}$) levels and an increase in mortality rates, respiratory infections, number and severity of asthma attacks and the number of hospital admissions has been observed in different parts of the United States and various areas around the world. Studies have reported an association between long-term exposure to air pollution dominated by fine particles ($PM_{2.5}$) and increased mortality, reduction in life-span, and an increased mortality from lung cancer.

PM particles are both directly emitted and formed as a secondary pollution from the reaction of precursor emissions, and they come from diverse emission sources. Major sources of directly emitted (primary) PM include re-suspended road dust or soil entrained into the atmosphere by wind or activities such as construction and agriculture. Emissions from these sources tend to be toward the larger end of the PM particle size range. Other major sources include combustion emissions. These emissions tend more toward the

smaller end of the PM particle size range. In addition to these direct PM emissions, PM also forms in the atmosphere (as secondary PM) from precursor emissions. PM precursors can include SO_2, NOx, ammonia, and VOCs.

PM can be emitted either as solid particles or as gaseous components that condense rapidly at ambient temperatures to form solid particulate matter. PM emissions in the solid phase are called "filterable" PM emissions, because they can be measured by passing the emissions through a filter and measuring the amount of PM that is trapped in the filter. PM emissions in the gaseous phase are called "condensable" PM emissions, because they pass through the filter and do not form solid particles until they condense at ambient temperatures.

Carbon Monoxide (CO)

CO is a colorless, odorless, relatively inert gas. It is a trace constituent in the unpolluted troposphere, and is produced by both natural processes and human activities. In remote areas far from human habitation, carbon monoxide occurs in the atmosphere at an average background concentration of 0.04 ppm, primarily as a result of natural processes such as forest fires and the oxidation of methane. Global atmospheric mixing of CO from urban and industrial sources creates higher background concentrations (up to 0.20 ppm) near urban areas. The major source of CO in urban areas is incomplete combustion of carbon-containing fuels, mainly gasoline. In 1997, 97 percent of the CO emitted into the District's atmosphere was from mobile sources. Consequently, CO concentrations are generally highest in the vicinity of major concentrations of vehicular traffic.

CO is a primary pollutant, meaning that it is directly emitted into the air, not formed in the atmosphere by chemical reaction of precursors, as is the case with ozone and other secondary pollutants. Ambient concentrations of CO in the District exhibit large spatial and temporal variations, due to variations in the rate at which CO is emitted, and in the meteorological conditions that govern transport and dilution. Unlike ozone, CO tends to reach high concentrations in the fall and winter months. The highest concentrations frequently occur on weekdays at times consistent with rush hour traffic and late night during the coolest, most stable atmospheric portion of the day.

When CO is inhaled in sufficient concentration, it can displace oxygen and bind with the hemoglobin in the blood, reducing the capacity of the blood to carry oxygen. Individuals most at risk from the effects of CO include heart patients, fetuses (unborn babies), smokers, and people who exercise heavily. Normal healthy individuals are affected at higher concentrations, which may cause impairment of manual dexterity, vision, learning ability, and performance of work. The results of studies concerning the combined effects of CO and other pollutants in animals have shown a synergistic effect after exposure to CO and ozone.

Nitrogen Dioxide (NO_2) and other Oxides of Nitrogen (NOx)

NO_2 is a reddish-brown gas with a bleach-like odor. Nitric oxide (NO) is a colorless gas, formed from the nitrogen (N_2) and oxygen (O_2) in air under conditions of high temperature and pressure which are generally present during combustion of fuels; NO reacts rapidly with the oxygen in air to form NO_2. NO_2 is responsible for the brownish tinge of polluted air. The two gases, NO and NO_2, are referred to collectively as nitrogen oxides or NO_X.

NO_2 is a respiratory irritant and reduces resistance to respiratory infection. Children and people with respiratory disease are most susceptible to its effects.

In addition to being a pollutant in its own right, NOx is also a precursor to the formation of other pollutants. In the presence of sunlight, NO_2 reacts to form nitric oxide and an oxygen atom. The oxygen atom can react further to form ozone, via a complex series of chemical reactions involving hydrocarbons. Nitrogen dioxide may also react to form nitric acid (HNO_3) which reacts further to form nitrates, which are a component of PM.

Sulfur Dioxide (SO_2)

SO_2 is a colorless gas with a sharp odor. At sufficiently high concentrations, SO_2 affects breathing and the lungs' defenses, and can aggravate respiratory and cardiovascular diseases. Asthmatics and people with chronic lung disease or cardiovascular disease are most sensitive to its effects. SO_2 also causes plant damage, damage to materials, and acidification of lakes and streams.

SO_2 is also a precursor to the secondary formation of other pollutants. It reacts in the air to form sulfuric acid (H_2SO_4), which contributes to acid precipitation, and sulfates, which are a component of PM.

Most of the SO_2 emitted into the atmosphere is produced by the burning of sulfur-containing fuels.

Volatile Organic Compounds (VOCs)

Regulatory agencies have not established any health-based standards (i.e., state or national ambient air quality standards) for VOCs, and they are not classified as criteria pollutants. VOCs are regulated, however, because VOC emissions contribute to the formation of ozone. They are also transformed into organic aerosols in the atmosphere, and can contribute to higher PM and lower visibility levels.

In addition, although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations of VOCs because of interference with oxygen uptake. In general, high ambient VOC concentrations in the atmosphere are suspected to cause coughing, sneezing, headaches, weakness, laryngitis, and bronchitis, even at low concentrations. In addition, some hydrocarbon components classified as

VOC emissions are thought or known to be hazardous. Benzene, for example, one hydrocarbon component of VOC emissions, is known to be a human carcinogen.

VOC emissions result primarily from incomplete fuel combustion and the evaporation of paints, solvents and fuels. Mobile sources are the largest contributors to VOC emissions. Stationary sources include processes that use solvents (such as manufacturing, degreasing, and coating operations) and petroleum refining and marketing. Area-wide VOC sources include consumer products, pesticides, aerosol and architectural coatings, asphalt paving and roofing, and other evaporative emissions.

3.2.1.2 Non-Criteria Pollutants (Toxic Air Contaminants)

In addition to criteria pollutants, the BAAQMD also works to reduce public exposure to airborne toxic compounds, or "toxic air contaminants" (TACs). TACs are a defined set of airborne pollutants that may pose a present or potential hazard to human health. TACs can be emitted directly and can also be formed in the atmosphere through reactions among different pollutants. The health effects associated with TACs are quite diverse and generally are assessed locally, rather than regionally. TACs can cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis or genetic damage; or short-term acute affects such as eye watering, respiratory irritation, running nose, throat pain, and headaches. TACs are categorized into carcinogens and non-carcinogenic toxics based on the nature of the pollutant. Carcinogens act to increase cancer risks at any level of exposure; exposure to these TACs is regulated based on whether the increase in risk will be significant or not. Non-carcinogenic substances differ in that there is generally a level of exposure below which no negative health impacts will be observed. Non-carcinogenic TACs are regulated to keep exposure below these no-impact levels.

The Air District implements a comprehensive air toxics regulatory program designed to evaluate and reduce adverse health effects resulting from exposure to TACs. The air toxics program was established as a separate and complementary program to the health-based ambient air quality standards that have been established for criteria pollutants. For criteria pollutants, the District's regulatory program is aimed at keeping ambient air quality below the applicable standards throughout the Bay Area. For TACs, the air toxics program is aimed at ensuring that no one breathing the air in the Bay Area (known as "sensitive receptors") is exposed to unsafe levels of toxic risk. The major elements of the District's air toxics program are outlined below.

- Preconstruction review of new and modified sources for potential health impacts, and the requirement for new/modified sources with TAC emissions that exceed a specified threshold to use Toxics Best Available Control Technology (TBACT).
- The Air Toxics Hot Spots Program, designed to identify industrial and commercial facilities that may result in locally elevated ambient concentrations of TACs, to report significant emissions to the affected public, and to reduce unacceptable health risks.

- Control measures designed to reduce emissions from source categories of TACs, including rules originating from the state Toxic Air Contaminant Act and the federal Clean Air Act.
- The TAC emissions inventory, a database that contains information concerning routine and predictable emissions of TACs from permitted stationary sources.
- Ambient monitoring of TAC concentrations at a number of sites throughout the Bay Area.

Air Toxics Emission Inventory

The BAAQMD maintains a database that contains information concerning emissions of TACs from permitted stationary sources in the Bay Area. This inventory, and a similar inventory for mobile and area sources compiled by CARB, is used to plan strategies to reduce public exposure to TACs. The detailed emissions inventory is reported in the BAAQMD, Toxic Air Contaminant Control Program, 2008 Annual Report (BAAQMD, 2011). The 2008 emissions inventory continues to show decreasing emissions of many TACs in the Bay Area. The most dramatic emission reductions in recent years have been for certain chlorinated compounds that are used as solvents including 1,1,1-trichloroethane, perchloroethylene, and trichloroethylene.

Ambient Monitoring Network

Table 3-4 contains a summary of average ambient concentrations of TACs measured at monitoring stations in the Bay Area by the District in 2008.

TABLE 3-4

Summary of BAAQMD Ambient Air Toxics Monitoring Data[(1)]

Pollutant	Units	Average MDL [(1)]	% less than MDL	Max Sample Value	Min Sample Value	Average Sample Value [(2) (3)]
1,3-Butadiene	ppb	5.00E-02	87%	2.60E-01	0.00E+00	3.51E-02
Acetaldehyde	ppb	1.00E-01	1%	2.66E+00	1.00E-01	6.47E-01
Acetone	ppb	3.00E-01	0%	4.30E+01	4.00E-01	2.53E+00
Acetonitrile	ppb	3.00E-01	29%	1.25E+00	0.00E+00	3.88E-01
Antimony	ng/m^3	3.00E+00	98%	3.10E+00	1.50E+00	1.53E+00
Arsenic	ng/m^3	1.50E+00	98%	9.30E+00	7.50E-01	8.70E-01
Benzene	ppb	5.00E-02	1%	1.11E+00	0.00E+00	2.04E-01
Bromomethane	ppb	3.00E-02	92%	7.00E-02	1.50E-02	1.79E-02
Cadmium	ng/m^3	1.50E+00	96%	2.80E+00	7.50E-01	8.14E-01
Carbon Tetrachloride	ppb	1.00E-02	0%	1.50E-01	1.00E-02	9.81E-02
Chlorine	$\mu g/m^3$	7.18E-03	12%	1.87E+00	0.00E+00	2.54E-01
Chloroform	ppb	2.00E-02	66%	5.90E-01	0.00E+00	1.71E-02
Chromium	ng/m^3	3.00E+00	54%	8.50E+01	1.50E+00	4.76E+00

Pollutant	Units	Average MDL [1]	% less than MDL	Max Sample Value	Min Sample Value	Average Sample Value [2] [3]
Cis-1,3-Dichloropropylene	ppb	1.00E-01	100%	5.00E-02	5.00E-02	5.00E-02
Cobalt	ng/m^3	1.50E+00	98%	4.10E+00	7.50E-01	7.90E-01
Copper	ng/m^3	1.50E+00	0%	4.00E+01	3.00E+00	1.38E+01
Dichloromethane	ppb	1.00E-01	48%	8.67E+00	0.00E+00	1.65E-01
Ethyl Alcohol	ppb	6.60E-01	4%	9.00E+01	0.00E+00	2.48E+01
Ethylbenzene	ppb	2.00E-01	48%	1.01E+00	0.00E+00	9.66E-02
Ethylene Dibromide	ppb	1.00E-02	100%	0.00E+00	0.00E+00	5.00E-03
Ethylene Dichloride	ppb	1.00E-01	100%	0.00E+00	0.00E+00	5.00E-02
Formaldehyde	ppb	1.00E-01	0%	4.60E+00	2.72E-01	1.07E+00
Lead	ng/m^3	1.50E+00	4%	2.50E+01	7.50E-01	5.94E+00
M/P Xylene	ppb	2.00E-01	11%	3.31E+00	0.00E+00	3.55E-01
Magnesium	$\mu g/m^3$	1.33E-02	47%	2.02E-01	0.00E+00	3.30E-02
Manganese	ng/m^3	1.50E+00	8%	1.70E+02	7.50E-01	1.71E+01
Mercury	$\mu g/m^3$	6.08E-03	98%	1.04E-02	0.00E+00	3.12E-03
Methyl Chloroform	ppb	2.00E-02	89%	1.16E+00	0.00E+00	2.60E-02
Methyl Ethyl Ketone	ppb	1.00E-01	31%	1.71E+00	0.00E+00	1.81E-01
Naphthalene	ng/m^3	6.35E-01	0%	2.09E+02	1.74E+01	6.97E+01
Nickel	ng/m^3	9.00E+00	67%	1.00E+02	4.50E+00	1.05E+01
O-Xylene	ppb	1.00E-01	29%	1.14E+00	0.00E+00	1.27E-01
PAHs[4]	ng/m^3					1.79E-01
Selenium	ng/m^3	1.50E+00	84%	5.40E+01	7.50E-01	1.74E+00
Styrene	ppb	1.00E-01	98%	8.40E-01	5.00E-02	6.01E-02
Tetrachloroethylene	ppb	1.00E-02	29%	2.00E+00	0.00E+00	2.26E-02
Toluene	ppb	2.00E-01	2%	3.38E+00	4.00E-02	6.54E-01
Trans-1,3-Dichloropropylene	ppb	1.00E-01	100%	5.00E-02	5.00E-02	5.00E-02
Trichloroethylene	ppb	2.00E-02	87%	7.70E-01	0.00E+00	1.40E-02
Trichlorofluoromethane	ppb	1.00E-02	0%	7.40E-01	1.60E-01	2.58E-01
Vanadium	ng/m^3	1.50E+00	34%	6.10E+01	7.50E-01	3.79E+00
Vinyl Chloride	ppb	1.00E-01	100%	0.00E+00	0.00E+00	5.00E-02
Zinc	ng/m^3	3.00E+00	0%	5.90E+01	8.00E+00	2.45E+01

(1) Source: BAAQMD 2008 Toxic Air Contaminant Monitoring Data. Data are a summary of data from all monitoring stations within the District.

(2) Some samples (especially metals) have individual MDLs for each sample. An average of these MDLs was used to determine 1/2 MDL for the Average Sample Value.

(3) If an individual sample value was less than the MDL (Method Detection Limit), then 1/2 MDL was used to determine the Average Sample Value.

(4) These substances are PAH-derivatives that have OEHHA-developed Potency Equivalency Factors (PEFs). PAHs should be evaluated as benzo(a)pyrene equivalents. This evaluation process consists of multiplying individual PAH-specific emission levels with their corresponding PEFs listed below. The sum of these products is the benzo(a)pyrene-equivalent level.

Ongoing Regulatory Efforts

The Air District and other regulatory agencies are implementing a number of efforts that will help reduce TAC emissions in the Bay Area going forward. These include the District's 2010 Clean Air Plan; CARB regulations to reduce diesel emissions from off-road emissions sources (such as cargo handling equipment, locomotives and transport refrigeration units), on-road emission sources (truck and buses), marine and related equipment (harbor craft, recreational marine engines, ocean-going vessels, and shore power), stationary diesel engines and portable diesel equipment; and transportation control measures in the Metropolitan Transportation Commissions Transportation 2035 Plan.

3.2.1.3 Current Emissions Sources

The two general categories of sources of air pollution emissions in the Bay Area are stationary sources and mobile sources.

Stationary Sources

Stationary sources can be further divided between point and area sources.

Point Sources: Point sources are those that are identified on an individual facility or source basis, such as refineries and manufacturing plants. BAAQMD maintains a computer data bank with detailed information on operations and emissions characteristics for nearly 8,000 facilities, with roughly 20,000 different sources, throughout the Bay Area.

Area Sources: Area sources are stationary sources that are individually very small, but that collectively make a large contribution to the inventory. Many area sources do not require permits from the BAAQMD, such as residential heating, and the wide range of consumer products such as paints, solvents, and cleaners. Some facilities considered to be area sources do require permits from the BAAQMD, such as gas stations and dry cleaners.

Mobile Sources

Mobile sources include on-road motor vehicles such as automobiles, trucks, and buses, as well as non-road sources such as construction equipment, boats, trains, and aircraft. Estimates of on-road motor vehicle emissions are based on consideration of the fleet mix (vehicle type, model year, and accumulated mileage), miles traveled, ambient temperatures, vehicle speeds, and vehicle emission factors, as developed from comprehensive CARB testing programs.

3.2.1.4 Existing Regulatory Setting

The Air District regulations that are the subject of the proposed amendments are part of a comprehensive system of overlapping federal, state and local regulatory provisions that govern air quality. The changes that will be implemented through the proposed amendments must be evaluated in relation to these existing regulatory provisions. The existing state of the regulations forms the baseline against which the proposed amendments will make changes, and the extent of any environmental impacts that may result from the proposed amendments is measured against the current conditions as they exist under the current regulatory system. (See *Black Property Owners Ass'n v. City of Berkeley* (1994) 22 Cal. App. 4th 974, 985 (holding that existing housing policies in a general plan that are not being amended are part of the existing regulatory background conditions; "the question is the potential impact on the existing environment of *changes* in the plan which are embodied in the amendment." (emphasis in original, citations omitted)).) This section summarizes the existing state of air quality regulation to establish the baseline against which the changes resulting from the proposed amendments are evaluated.

NSR and Title V Permitting Generally

The NSR and Title V permitting programs are regulatory programs that were established by Congress in the Clean Air Act. (See CAA Title I, Pts. C & D; and Title V.) Congress adopted these permitting programs within a framework that has come to be known as "Cooperative Federalism", in which Congress establishes the principal requirements for the programs under federal law, and then the states adopt their own permitting programs under state law to implement these requirements at individual emissions sources within each state. Congress, and EPA implementing the Act under the authority granted to it by Congress, therefore establish the basic regulatory requirements, and then look to the states to implement them. The states can be more stringent if they so decide (and the Air District has done so in a number of areas), but at a minimum they must incorporate the regulatory requirements that Congress and EPA have established under the CAA.

The states are required to adopt these requirements and submit them to EPA for review and approval. If EPA approves them as fully implementing all of the applicable federal requirements, then they become the effective regulations for purposes of complying with the Clean Air Act's NSR and Title V requirements. If for some reason EPA finds that the state has not adopted regulations that fully implement these federal requirements, then EPA steps in and regulates emissions sources in the state directly under federal law (and imposes monetary and other sanctions on the state). (See CAA § 110(c)(1), 74 U.S.C. § 7410(c)(1).)

The Clean Air Act and EPA's implementing regulations therefore establish the basic regulatory requirements for NSR and Title V permitting that will apply to individual emissions sources within the Bay Area. The process of adoption and implementation of

the District's NSR and Title V regulations incorporates them into District regulations so that they will be implemented by the District rather than by EPA directly.

The bulk of the changes to District regulations in the proposed amendments address such federal requirements. There are a number of such requirements that EPA has added to the NSR and Title V programs in recent years. The District now needs to update its permitting programs to add these requirements to its own regulations that implement the federal NSR and Title V programs. Incorporating these requirements into District regulations will shift the implementation of these requirements from the federal government to the state level, and will allow EPA to continue to approve the District's regulations as effective for implementing NSR and Title V consistent with the Clean Air Act's "Cooperative Federalism" approach to air quality regulation.

The existing regulatory setting therefore consists of all of the federal NSR and Title V requirements that EPA has adopted, as well the District's existing regulations, which implement the bulk of the existing NSR and Title V requirements but are not quite up to date. In addition, California law provides its own regulatory requirements for certain aspects of NSR permitting, which also form part of the existing regulatory setting where applicable. The specific requirements applicable to each area addressed by the proposed amendments are outlined below.

Particulate Matter Regulation

Particulate matter emission sources in the Bay Area are currently subject to NSR requirements under state and federal law and under the District's NSR regulations, and have been for many years.

Since the 1980s, the primary focus of the NSR program for particulate matter has been on the PM_{10} fraction of particulate emissions. EPA established PM_{10} NAAQS in 1987, and began implementing them under its NSR permitting program shortly thereafter. (See 52 Fed. Reg. 24,854 (July 1, 1987).) As a result of these measures, particulate matter emissions sources in the Bay Area have long been subject to NSR requirements based on their PM_{10} emissions, both under the federal Clean Air Act requirements generally and more specifically under the District's NSR regulations in Regulation 2, Rule 2. The NSR requirements applicable in the Bay Area include the Non-Attainment NSR requirements described above in Chapter 2, Section 2.4.1.1., including BACT (in District Regulation 2-2-301), offsets (in District Regulation 2-2-303), and associated administrative procedural requirements. (Note that the Bay Area is currently in attainment of the NAAQS for PM_{10}, but the District still applies the full Non-Attainment NSR requirements, for a number of reasons. PSD requirements also apply, since PM_{10} is an attainment pollutant.)

More recently, particulate matter emissions sources have become subject to NSR requirements specifically for the $PM_{2.5}$ fraction of their particulate emissions. These $PM_{2.5}$ requirements came into effect for sources in the Bay Area in 2009. They are the result of further scientific study indicating that there are specific health effects associated with this smaller fraction of PM emissions that need to be addressed. Based on this

further information, EPA adopted NAAQS for $PM_{2.5}$ in 1997 (see 62 Fed. Reg. 38,652) and subsequently began efforts to implement them. These efforts included reviewing air quality around the country to determine whether it complies with the NAAQS. For the San Francisco Bay Area, this review resulted in a designation of the region as Non-Attainment for the 24-hour $PM_{2.5}$ NAAQS, which took effect on December 14, 2009. (See 74 Fed. Reg. 58,688, 58709-11 (Nov. 13, 2009).) The result of this Non-Attainment designation is that particulate matter emission sources in the Bay Area are now subject to Non-Attainment NSR requirements for their $PM_{2.5}$ emissions. The applicable Non-Attainment NSR regulations that apply at this time are in what is known as EPA's "Emission Offset Interpretive Ruling", which is codified in 40 C.F.R. Part 51, Appendix S (referred to herein as "Appendix S"). As with the current PM_{10} requirements described above, these Non-Attainment NSR requirements for $PM_{2.5}$ include BACT, offsets, and other administrative and procedural requirements. (See Appendix S, Section IV.A. ("Conditions for Approval").)

The Clean Air Act's system of "Cooperative Federalism" envisions that the District will take over implementation of these $PM_{2.5}$ requirements in the same way that it has done for other Non-Attainment NSR pollutants. Taking over implementation of this program for $PM_{2.5}$ is one of the principal purposes of the proposed amendments. EPA's NSR requirements give the District three years from the date of the non-attainment designation to develop $PM_{2.5}$ requirements in its NSR program and submit them to EPA for approval. Once EPA reviews them and approves them as consistent with the federal NSR program, the District's regulations will become the effective NSR provisions for sources in the Bay Area under the California State Implementation Plan (SIP). The Appendix S requirements apply to emissions sources in the Bay Area in the interim period while the District is developing its own regulations. If for some reason the District cannot or does not adopt its own regulations, then EPA will be forced to step in and implement the Non-Attainment NSR program under its own federal regulatory authority under what is called a "Federal Implementation Plan". (In such an event, EPA would also impose sanctions on the state and impose more stringent non-attainment NSR requirements that are required if the state does so itself.) The Non-Attainment NSR requirements for $PM_{2.5}$ that are currently in place under Appendix S will therefore continue to apply going forward, either under District regulations assuming that the District adopts the proposed amendments and EPA approves it into the SIP; or as continued federal regulation if for some reason the District does not adopt such regulations or EPA finds that it cannot approve them.

This is the current regulatory setting for particulate matter in which the proposed amendments have been developed. Particulate matter emissions in the Bay Area are currently subject to NSR permitting requirements, both in terms of the PM_{10}, fraction and in terms the $PM_{2.5}$ fraction. For PM_{10}, NSR applies under both the federal NSR program and under the District's NSR regulations; these regulations will not be affected in any significant way. For $PM_{2.5}$, the proposed amendments will shift the primary implementation of the NSR requirements from EPA's regulations into the District regulations under the Clean Air Act's system of Cooperative Federalism. This shift will

have many positive benefits for air quality regulation in the Bay Area, as noted above. The potential for the proposed amendments to result in any adverse impacts on air quality are addressed in this Section in the impacts discussion below.

With respect to how particulate matter emissions are measured, NSR regulation has historically been silent on whether particulate matter should be measured to include just filterable PM emissions or both filterable and condensable emissions. The federal NSR program did not address this issue, and the District's NSR program was also silent on whether condensable emissions should be included. As a result, historically NSR requirements for PM in the Bay Area have sometimes been implemented counting just filterable emissions and sometimes counting both the filterable and condensable portions. EPA responded to this ambiguity in 2008 by establishing that all particulate matter NSR requirements must address both filterable and condensable emissions effective January 1, 2011. (See 73 Fed. Reg. 28,321 (May 16, 2008) (codified in 40 C.F.R. §§ 51.165(a)(1)(xxxvii)(D) & 51.166(b)(49)(vi); 40 C.F.R. Part 51, Appendix S, § II.A.31.(iv); and 50 C.F.R. § 52.21(b)(50(vi)).) Thus, since January 1, 2011, the NSR program has specifically required that permit requirements for PM (for both $PM_{2.5}$ and PM_{10}) must address both the filterable and condensable portion. The District's current NSR regulations have not yet implemented this clarification, and clarifying this issue is another important reason for the proposed amendments. The District's NSR program must be updated to make this element of NSR permitting clear in order for EPA to be able to continue to approve the District's program. If the District does not do so, EPA will be required to step in and implement this rule for PM emissions sources in the Bay Area under federal regulations. This is the existing regulatory setting with respect to the issue of measuring PM emissions.

PSD Permitting

Stationary sources of air pollution in the Bay Area are currently subject to PSD permitting requirements under two overlapping sets of regulatory requirements. First, sources are subject to the District's PSD requirements in Regulation 2, Rule 2. For historical reasons these PSD requirements have never been approved by EPA as effective for federal purposes, but they are still legally binding District requirements applicable under state law. In addition, because the District's PSD requirements have never been approved by EPA, sources in the Bay Area must follow EPA's PSD requirements in 40 C.F.R. Section 52.21 in order to comply with the federal PSD requirements in the Clean Air Act. Facilities in the Bay Area must also comply with these requirements and get a federal permit issued under EPA's authority to satisfy the Clean Air Act's PSD requirements. (Note that for many situations EPA has delegated the authority for the processing and issuance of federal PSD permits to the Air District, however, as a matter of administrative efficiency.) The proposed amendments will move from this two-part system of overlapping state and federal requirements to a single set of PSD requirements, approved by EPA in the California SIP, that will govern PSD permitting in the Bay Area for all purposes. The potential for this shift to a District SIP-approved PSD program to result in any adverse impacts on air quality are addressed in this Section in the impacts discussion below.

NSR And Title V Permitting for Greenhouse Gas Emissions

Greenhouse gases have become the subject of regulatory concern only relatively recently. With respect to NSR and Title V permitting, they are now subject to permitting requirements under these programs as a result of EPA's regulation of GHG emissions from light duty cars and trucks, which made GHGs a pollutant "subject to regulation" under the Clean Air Act. NSR and Title V apply to all air pollutants that are "subject to regulation," which now includes GHGs. The federal requirements for GHGs under these programs are therefore part of the background of existing regulations against which the proposed amendments will be implemented.

With respect to NSR, GHGs are regulated as part of the PSD program. There are no NAAQS for GHGs, and so a region cannot be "non-attainment" for GHGs and Non-Attainment NSR by definition cannot apply. The regulatory background for GHGs in the NSR context is therefore the same as for PSD permitting requirements generally as discussed above. The one important exception is that the District PSD provisions in current Regulation 2, Rule 2 do not address GHGs. Those provisions were adopted before GHGs started being regulated, and therefore do not include that pollutant. The existing regulatory background does include the federal PSD requirements applicable to GHGs in 40 C.F.R. Section 52.21, however. GHG emission sources in the Bay Area are currently subject to EPA's PSD permitting requirements under Section 52.21, and those requirements are part of the regulatory background against which the proposed amendments will be implemented.

With respect to Title V, the District is currently regulating facilities that emit GHGs as subject to Title V permitting under the provisions for "designated facilities". A designated facility is defined in current District Regulation 2-6-204 as a facility in a source category that has been designated as subject to Title V by EPA, which now includes facilities that emit GHGs as explained above. "Designated facilities" are subject to Title V permitting requirements under current District Regulation 2-6-304. The regulatory background of the District's current Title V program therefore includes GHG emissions sources as designated facilities.

Other Federal Regulatory Requirements for NSR and Title V Permitting

Finally, there are certain other current regulatory requirements that are part of the federal NSR program that will be addressed under the proposed amendments that are not fully reflected in the District's current NSR regulations. These include several elements identified by EPA in which the District's current, EPA-approved regulations do not in fact incorporate all of EPA's current regulatory requirements. EPA Region IX staff identified such existing regulatory requirements that need to be implemented through Regulation 2 in a comment letter submitted during the preparation of the proposed amendments. (See comment letter from G. Rios, EPA Region IX, to C. Lee, BAAQMD, July 26, 2012.) The proposed amendments will also incorporate these requirements into District regulations so that the District can implement them and EPA will not have to take

over and implement them federally. These federal NSR requirements are also part of the existing regulatory baseline conditions, as established by EPA's NSR program requirements in the Code of Federal Regulations.

3.2.2 THRESHOLDS OF SIGNIFICANCE

The severity of air pollution impacts is normally measured against health-based standards that have been established by regulatory agencies. For criteria pollutants, these include the California and National ambient air quality standards. If concentrations of an air pollutant in the ambient air exceed these standards, then the air quality is considered to be significantly impacted with respect to that pollutant. For toxic air contaminants (other than carcinogens), these include permissible exposure levels below which there are no observable health effects. These levels are expressed according to a "Hazard Index", with a Hazard Index of less than 1 being a safe level of exposure. Sensitive receptors will not suffer any adverse health effects from exposures to such pollutants as long as the exposure level is kept below a Hazard Index of 1. With respect to carcinogenic air toxics, there is no threshold exposure level below which observable health effects fall to zero. Carcinogens are therefore usually addressed by ensuring that no individual source will result in more than a less-than-significant incremental increase in total carcinogenic exposure.

Air pollution impacts are primarily cumulative concerns, as it is unlikely that any individual project will emit enough air pollution to cause ambient air quality to exceed these standards all by itself. In most cases, there is not a single source of emissions that causes air pollution concentrations to exceed these standards. Rather, high air pollution levels exceeding applicable standards are usually the cumulative effect of many individual sources around the region combining together in the ambient air.

In analyzing air quality impacts, therefore, the analysis normally involves the two-step inquiry applicable to cumulative impacts under CEQA. The first question is whether there is a significant cumulative impact in the form of pollution concentrations that exceed an established standard. This step looks at whether the emissions from the project, along with all the emissions from other past, present and reasonably foreseeable future projects impacting the same air quality resource, will cause air pollution levels to exceed the established standards. (See CEQA Guidelines § 15355.) The second question, if there is a significant cumulative problem in the form of air pollution that exceeds an established standard, is whether the emissions from the project being evaluated will result in a "cumulatively considerable" contribution to that cumulative air quality problem. (See Guidelines §§ 15064(h)(1); 15130(a).) If the project's contribution to the significant cumulative problem is less than "cumulatively considerable", then the project is not considered significant with respect to that impact. (See Guidelines § 15130(a).) (Of course, if the project's emissions will result in an exceedance of an applicable standard all by themselves then the project's impacts are individually significant, but this is not usually the case with most air pollution problems.)

The Bay Area faces significant air quality challenges in a number of respects, as described in Section 3.2. These air quality challenges arise from the multiple, varied sources of air pollution emissions around the region (and in other regions, to the extent that pollutants are transported from one air basin to another), and are thus indisputably cumulative impacts. They include situations where the ambient air currently exceeds an established standard, and also situations where the air quality may currently be within established standards but could exceed such standards based on reasonably foreseeable future projects (e.g., projects resulting from foreseeable economic and population growth). In evaluating impacts in these areas, the question for the CEQA environmental analysis thus becomes whether the project being evaluated result in a "cumulatively considerable" contribution to these cumulative air quality concerns. This is the determinative threshold level at which significance is evaluated in most air quality contexts.

One measure of whether a project's incremental contribution to a significant cumulative air pollution is "cumulatively considerable" is whether it will comply with the requirements in a previously approved plan or mitigation program that provides specific requirements to address that problem, including (but not limited to) an air quality attainment or maintenance plan. (CEQA Guidelines § 15064(h)(3).) Thus, where a regulatory agency has adopted a plan with specific requirements to address cumulative air pollution problems – such as criteria air pollution levels that exceed the NAAQS or high levels of toxic air contaminants – then the requirements of that plan can establish the levels at which a project's incremental contribution to the problem becomes "cumulatively considerable". Similarly, where a project will be required to implement its "fair share" of established measures designed to alleviate the cumulative impact, then the project's contribution to the problem is not "cumulatively considerable". (CEQA Guidelines § 15130(a)(3).) Thus, where a regulatory agency has adopted an approach to addressing a cumulative air quality problem that calls on various categories of emissions sources to take certain steps to reduce their respective contributions to the problem, a project that is doing its "fair share" to implement this approach will not make a "cumulatively considerable" contribution to the problem. These principles direct the CEQA significance analysis to look to established regulatory standards for air pollution to determine what constitutes a "cumulatively considerable" air quality impact.

For criteria pollutants, this analysis normally looks to the established ambient air quality standards for criteria pollutants and the regulatory programs and standards that have been adopted to attain and maintain those standards. The Bay Area has been designated as "non-attainment" of several of those standards based on recent emissions monitoring data (although the data show that air quality is improving and that recorded exceedances of such standards are going down). In addition, for other standards where the Bay Area is currently designated as "attainment", there is still a concern exists that without regulatory scrutiny foreseeable future growth could cause deterioration of air quality resulting in an exceedance of the standards.

For these criteria pollutants, whether a project's emissions are "cumulatively considerable" is normally judged by whether they will exceed applicable thresholds that have been established under the District's "New Source Review" program, which is a permitting program designed to implement the District's efforts to attain and maintain the state and federal ambient air quality standards. The District's NSR program is set forth in Regulation 2, Rule 2, as discussed further in Chapter 2. For "non-attainment" pollutants, NSR requires sources above established threshold levels to offset any new emissions increases with emissions reductions obtained from shutting down existing sources, in order to ensure a "no net increase" in overall regional emissions from such sources. Because the region is "non-attainment" for these pollutants, it is important not to add any net new emissions from such sources so as not to undermine the region's efforts to bring pollution concentrations back into attainment of the standards. For "attainment" pollutants, NSR does not require offsets because there is still some room for regional emissions growth in these pollutants (*i.e.*, a net increase) without exceeding the applicable air quality standards. But NSR still regulates such emissions to carefully manage any growth and ensure that such growth does not lead to a violation of the ambient air quality standards. NSR therefore requires permitting for sources that will exceed established "significance" thresholds for these pollutants. These NSR permitting requirements can be used to establish a measure of significance for emissions increases associated with individual emissions sources. If a project's emissions are below the applicable NSR offsets threshold trigger levels, and below the NSR "significance" thresholds, then they are not considered "cumulatively considerable" under CEQA.

For non-carcinogenic toxic air contaminants, significance is based on whether any toxic exposures will result in a Hazard Index of 1 or more. As noted above, this is the level at which someone exposed to such emissions could potentially suffer adverse health effects. If a source's emissions, either individually or in conjunction with emissions from other sources, will cause any sensitive receptor to be exposed to a Hazard Index of greater than 1, then there is a significant cumulative problem. Background levels of non-carcinogenic air toxics are relatively low in the Bay Area, as noted in Table 3-4, and so for this type of air pollution significant impacts are normally influenced by the individual source's emissions much more than by contributions from other projects. Accordingly, if the source is causing or contributing to an exposure at a Hazard Index of 1 or above, it is unlikely that the source's emissions could be considered less than "cumulatively considerable". If the source is causing or contributing to exposure at a Hazard Index of 1, either all by itself or in conjunction with other sources, then it will most likely be treated as significant in terms of its non-carcinogenic air toxic impacts.

For carcinogenic air toxics, there is a significant cumulative concern in the Bay Area based on background concentrations in the ambient air. Carcinogenic risk from air toxics varies around the region, but even in the cleanest areas the risk is several hundred additional cancers per million population, based on an assumed 70-year exposure. (To put this number in context, the overall carcinogenic risk from all sources is several hundred thousand per million population, orders of magnitude higher. The component of this overall risk that comes from air toxics exposures is clearly significant, however, and reducing this risk is one of the Air District's primary goals.) Regulatory agencies

typically treat individual sources of carcinogenic risk as *de minimis* if their additional contribution to the overall risk is in the range of 1 in 100,000 (10^{-5}) to 1 in 1 million (10^{-6}). The Air District has established these thresholds in its Toxics New Source Review program in District Regulation 2, Rule 5, which requires sources to use Toxics "Best Available Control Technology" to control toxics emissions if the risk will exceed 10^{-6}, and prohibits the source altogether if the risk will exceed 10^{-5}. For purposes of the CEQA environmental analysis, if a project's emissions are below these *de minimis* regulatory thresholds, then they are normally considered less than "cumulatively considerable".

The Air District (and others) have adopted Threshold of Significance to establish policies for when air quality impacts will be treated as significant under CEQA. The most recent policy adopted by the District is entitled "BAAQMD CEQA GUIDELINES, Assessing the Air Quality Impacts from Projects and Plans", which was adopted in December of 1999. (BAAQMD, 1999) The 1999 CEQA Guidelines follow the same general analysis outlined above, with Thresholds of Significance for criteria pollutants based on the applicable NSR significance levels and Thresholds of Significance for air toxics based on the District's Toxic Risk Management Policy, the forerunner of the current Toxics New Source Review program in Regulation 2, Rule 5. (Note that the District's Board of Directors adopted an update to its 1999 Thresholds of Significance in June of 2010. The Alameda County Superior Court subsequently issued an order directing the District to set aside those Thresholds of Significance because the District did not conduct a CEQA environmental analysis in connection with their adoption. The Air District has appealed the Alameda County Superior Court's decision, and the appeal is currently pending, but the Superior Court's order remains in place at this time. Accordingly, this EIR does not rely on, consider, incorporate, endorse, or recommend the June 2010 Thresholds of Significance.)

The 1999 CEQA Guidelines also addresses Thresholds of Significance for planning documents such as general plans, redevelopment plans, specific area plans, annexations of lands and services, and similar planning activities. The 1999 Thresholds establish that if a local plan is consistent with the District's most recent Clean Air Plan than its impacts will not be considered significant under CEQA. This approach is consistent with the CEQA principles expressed in Guidelines sections 15064(h) and 15130(a) regarding consistency with established regulatory programs to address cumulatively significant environmental impacts. Although the proposed amendments are not general plans, specific plans, redevelopment plans, or similar local land use planning documents, District rule development activities such as the updates to the District's NSR and Title V programs are analogous in some respects to these local planning efforts.

Based on all of these considerations, the following thresholds of significance are being used to evaluate whether the proposed amendments will have a significant impact on air quality. The proposed amendments will have a significant air quality impact if any of the following situations will apply:

1. The proposed amendments will have a significant air quality impact if they will result in an increase in emissions from an individual emissions source that (i) exceeds the NSR offsets threshold levels or NSR significance threshold levels for criteria pollutants (whichever is lower); (ii) will result in any exposure with a non-carcinogenic toxic hazard index of greater than 1; or (iii) will result in any exposure to a carcinogenic health risk of greater than 10 in one million (10^{-5}).
2. The proposed amendments will have a significant air quality impact if they will be inconsistent with the District's 2010 Clean Air Plan, federal or state New Source Review program requirements, or any other plan or program with specific requirements adopted to address significant air quality concerns in the San Francisco Bay Area.

As discussed above, air quality impact concerns are primarily cumulative impact concerns. If the proposed amendments will not exceed these thresholds, then they will not result in a "cumulatively considerable" contribution to any significant cumulative air quality impacts. CEQA Guidelines Section 15130(a) provides that where the additional contribution from a project's emissions to a cumulatively significant impact will not be "cumulatively considerable", then the impact is not considered significant for purposes of CEQA and it does not have to be discussed in any further detail in the EIR. The EIR must briefly describe the basis for concluding that the project's contribution is not "cumulatively considerable", however. The following sections describe the basis for this conclusion with respect to air quality impacts.

3.2.3 ENVIRONMENTAL IMPACTS

The principal elements of the proposed amendments are summarized below. The potential for these changes to the existing regulatory setting to result in significant adverse impacts on air quality is addressed in this subsection.

- Adding Non-Attainment NSR permitting requirements for $PM_{2.5}$ to District Regulation 2, Rule 2.
- Adding permitting provisions to Regulation 2 to specifically encompassing GHG emissions.
- Adopting a PSD permitting program for EPA review and SIP approval.
- Revising the NSR applicability test in the District's definition of "modified source" in Section 2-1-234.
- Expanding the NAAQS Compliance Demonstration requirement that currently applies for PSD projects to include all projects at all facilities that will result in a significant increase in emissions of any criteria pollutant.
- Expanding the public notice-and-comment requirements to include all new and modified sources that will result in a significant emissions increase.
- Other miscellaneous more minor revisions to the District's current Regulation 2 provisions.

- Non-substantive reorganizations and revisions to improve clarity and readability.

The potential GHG impacts are evaluated in Chapter 3.3.

3.2.3.1 Overview of Air Quality Benefits from Updating the District's NSR and Title V Permitting Programs in Regulation 2

The proposed amendments are being adopted to help implement the NSR and Title V permitting programs in the San Francisco Bay Area. These are important clean air permitting programs that play a fundamental role in the District's mission of regulating air pollution emissions from stationary sources and in ensuring clean air and public health throughout the region. The proposed amendments will allow the District to continue to obtain EPA's approval to implement the federal aspects of these programs for sources in the Bay Area, as well as strengthen the District's regulations and enhance their effectiveness. It is difficult to identify specific emission reductions at specific sources that will result from the proposed amendments, because many of the revisions simply incorporate aspects of the federal regulatory program that are already applicable as part of EPA's regulations, many of them apply to future new sources and modifications that it is not possible to identify with specificity at this time, and many of them involve procedural enhancements such as incorporating applicable regulatory requirements into permitting documents to improve transparency and enforceability, among other reasons. But these are nevertheless important improvements to the District's permitting programs, which will help the District to implement its regulatory program and to achieve its clean air goals for the Bay Area. These are beneficial impacts that would result from the proposed amendments.

3.2.3.2 Adding Non-Attainment NSR Requirements for $PM_{2.5}$

As summarized above in Section 2.4.1.1, Non-Attainment NSR imposes two substantive requirements, BACT and offsets, as well as certain administrative and procedural requirements. The proposed amendments will incorporate these requirements into Regulation 2, Rule 2, which will help implement the Non-Attainment NSR program for $PM_{2.5}$ in the Bay Area. These amendments are an integral part of the District's efforts to respond to EPA's non-attainment designation for $PM_{2.5}$ and to attain and maintain the PM2.5 NAAQS. Adding these requirements in Regulation 2, Rule 2 for $PM_{2.5}$ will have multiple beneficial impacts on air quality as noted above. The analysis below addresses whether adding these requirements to District regulations could have the potential for any ancillary adverse impacts. This section also discusses the provision in EPA's $PM_{2.5}$ implementation regulations specifying that both the filterable and condensable portions of particulate matter emissions be included in regulatory determinations.

<u>Adding $PM_{2.5}$ to the BACT Requirement in Section 2-2-301</u>

The first requirement of Non-Attainment NSR for $PM_{2.5}$ is that $PM_{2.5}$ emissions sources must use the Best Available Control Technology (BACT) to control their $PM_{2.5}$

emissions. (Note that for purposes of this discussion of Non-Attainment NSR requirements, the term BACT is used as defined under the California Health and Safety Code, which is equivalent in stringency to the level of missions control called "Lowest Achievable Emissions Rate" under the federal Clean Air Act.) The current regulatory baseline conditions (i) require BACT for $PM_{2.5}$ at facilities with emissions of 100 tpy or more under Appendix S (see Condition 1 in Section IV.A.); and (ii) require BACT for PM_{10} at sources with emissions of 10 lb/day or more under current District Regulation 2-2-301. The proposed amendments will require BACT for $PM_{2.5}$ for sources with emissions of 10 lb/day or more by adding $PM_{2.5}$ as a pollutant for which BACT is required under District Regulation 2-2-301.

This amendment will have benefits in helping implement the NSR program through District regulations, as noted above. BACT is one of the principal substantive emission control requirements of the NSR program, and the application of BACT helps attain and maintain the ambient air quality standards. This revision is not expected to result in any significant adverse impacts to air quality because it will not allow any increases in $PM_{2.5}$ emissions, and it will not otherwise result in any significant physical changes at any facility that could result in an increase in any other air pollutant emissions.

The $PM_{2.5}$ BACT requirement in Section 2-2-301 in the proposed amendments will not result in any increase in $PM_{2.5}$ emissions because the requirement will not be any less stringent in any way than the current BACT requirements applicable for $PM_{2.5}$ under Appendix S. In fact, the District BACT requirement in Section 2-2-301 may actually have the potential for slight additional $PM_{2.5}$ emission reductions, as it will apply at a very low threshold of 10 lb/day, compared with the federal $PM_{2.5}$ BACT requirement under Appendix S that is not triggered until a facility's emissions reach 100 tpy. It is not expected that any such additional reductions will be significant, because the District already has a very stringent BACT requirement for PM_{10} at 10 lb/day, and it is likely that whatever control technology a source implements to satisfy this current District BACT requirement for PM_{10} will also be effective to control $PM_{2.5}$ emissions and satisfy BACT. But to the extent that the addition of the $PM_{2.5}$ BACT requirement in District regulations at the 10 lb/day threshold has any impact on $PM_{2.5}$ emission rates, it will be a beneficial impact, not an adverse impact.

The $PM_{2.5}$ BACT requirement in Section 2-2-301 is similarly not expected to result in any significant increase in any secondary pollutants associated with any control devices, techniques or strategies that may be implemented to comply with the requirement. Current regulatory provisions in Appendix S already require BACT for $PM_{2.5}$, and moving this BACT requirement from the federal NSR program regulations into the District's NSR program will not require any substantive change in control devices used to comply with it. As noted above, the District $PM_{2.5}$ BACT requirement will apply at a lower threshold of 10 lb/day instead of the federal threshold of 100 tons/yr, but the District's existing PM_{10} BACT requirement already requires BACT controls for particulate matter emissions down to that level. It is likely that whatever control technology a source implements to satisfy this current District BACT requirement for PM_{10} will also be effective to control $PM_{2.5}$ emissions and satisfy BACT. (Note that

$PM_{2.5}$ is a smaller subset of PM_{10}, and so any source that emits 10 lb/day of PM2.5 will emit at least 10 lb/day of PM_{10} and be subject to BACT under the existing regulations.) Accordingly, implementing the District BACT requirement for $PM_{2.5}$ emissions at 10 lb/day is not likely to require any source to implement any new or different control technology that could result in an increase in secondary air pollutant emissions compared to the regulations that are currently in place.

In addition, the District has evaluated the possibility that there could potentially be a situation where some additional or different kind of control technology may be effective at controlling $PM_{2.5}$ beyond what is already required to address PM_{10}. (See BAAQMD 2012.) This evaluation found that the possibility that BACT for $PM_{2.5}$ could apply any differently than BACT for PM_{10} is highly remote. The types of typical add-on control technologies that are most effective for controlling PM_{10} – baghouses and electrostatic precipitators (ESPs) – are also highly effective at controlling $PM_{2.5}$. (See BAAQMD 2012, Table 2.) To the extent that any add-on control device would be required as BACT for $PM_{2.5}$, it will most likely be the same control device that is already required for PM_{10}.

Moreover, in many cases, the most likely approach for BACT for $PM_{2.5}$ will involve process controls, such as source reduction, combustion of low-sulfur natural gas (which is effective because the sulfur burns to form fine particulate matter), and the use of good combustion practices. These types of control are effective at minimizing PM_{10} emissions as well (from combustion sources at least), and so technically these type of control measures would already be required as PM_{10} BACT. But even if such a control approach was required solely because of the addition of the $PM_{2.5}$ BACT requirement in the proposed amendments, it would not cause any physical change at any source because these types of controls do not involve the installation of any add-on control equipment.

For these reasons, it is highly unlikely that adding the District BACT requirement for $PM_{2.5}$ in Section 2-2-301 at 10 pounds per day will result in any new control devices or equipment being required at any source. If a source is not subject to any BACT requirement to install an add-on control technology because of its PM_{10} emissions, adding the new $PM_{2.5}$ BACT requirement will not require the source to install any new control technology either (because it will be below the BACT threshold for both PM_{10} and $PM_{2.5}$). If a source is already subject to a BACT requirement to install an add-on control technology, such as a baghouse or an ESP, it is unlikely that the BACT control equipment will be any <u>different</u> as a result of the $PM_{2.5}$ requirement. That is, if BACT for PM_{10} requires a certain control device, it is likely that the same control device will also satisfy the BACT requirement for $PM_{2.5}$. Furthermore, even if there is some slight difference that would have to be made (e.g., the number of bags to be included or the size of the pores in the bags of a baghouse, the configuration of the ESP, etc.), it is unlikely that any such change would be significant in terms of the impact that the control technology would have on the environment. That is, if a facility needs to build a baghouse or ESP to control PM_{10}, the impacts from doing so are not likely to be changed in any significant way if the facility has to design a baghouse or ESP to address $PM_{2.5}$ as well. It is not likely that the size or configuration or operation of such a control device

would be changed in any way that would make any significant difference in its potential for environmental impacts.

Furthermore, it is also worth noting that even if some new add-on control technology were required, that would not be expected to have any adverse environmental impacts or result in an increase in air emissions. Unlike some types of add-on control technologies that are used to control other pollutants, typical add-on control technologies for PM, such as bag-houses or ESPs do not involve secondary emissions of other pollutants. (Nor do process controls such as low-sulfur fuel and good combustion practices, for that matter.) Any such add-on control equipment would be expected to result in a decrease in air emissions, not an increase in emissions. These devices may have some minor energy penalty associated with their operation, such as back-pressure on the production process on which a baghouse is installed or electrical power needed to run an ESP, but these are relatively minor compared to the scope of the underlying production process and are not associated with any significant increase in emissions.

Finally, CEQA will also apply to individual projects at the time of permitting, and the potential for any control equipment or other design aspects of a project to have secondary adverse air quality impacts will be evaluated at that time. Should projects be proposed that could potentially generate significant impacts or are unusual in nature, a separate project-specific CEQA analysis will be applied to evaluate and mitigate or avoid any such impacts.

For all of these reasons, no increase in air emissions is expected and no significant adverse air quality impacts would be expected from adopting the proposed BACT requirement for $PM_{2.5}$ in Section 2-2-301.

Adding $PM_{2.5}$ to the Offsets Requirements in Section 2-2-303

The second main requirement of Non-Attainment NSR for $PM_{2.5}$ is the offsets requirement. This element of Non-Attainment NSR requires emissions reductions from existing sources to offset any emissions increases from new or modified sources. The current regulatory baseline conditions (i) require offsets for $PM_{2.5}$ emissions at new major facilities (i.e., facilities with emissions of 100 tpy or more) and at major modifications to existing major facilities (i.e., modifications at such facilities that will increase $PM_{2.5}$ emissions by 10 tpy or more) under Appendix S, Section IV.A., Condition 2; and (ii) require offsets for all PM_{10} emissions increases at facilities with the potential to emit over 100 tpy of PM_{10} under District Regulation 2-2-303 (once the total PM_{10} cumulative increase reaches 1 tpy). The proposed amendments will add $PM_{2.5}$ offsets requirement to District Regulation 2-2-303, so that $PM_{2.5}$ offsets will be required for all increases at facilities with a potential to emit over 100 tpy of $PM_{2.5}$ (once the total cumulative increase reaches 1 tpy).

This amendment will also have benefits in helping implement the NSR program through District regulations. It will not result in any increase in air emissions or any adverse impacts to air quality because it will not be any less stringent than the existing offsets

requirements under currently applicable regulations. The $PM_{2.5}$ offsets requirements in Section 2-2-303 will apply to facilities at the same 100 tpy threshold under the current federal regulations in effect for $PM_{2.5}$ offsets in the Bay Area under Appendix S. The proposed amendments will therefore be no less stringent than what is currently required, and will achieve all of the same emission reduction benefits as the federal requirements under Appendix S.

The proposed amendments may even have the potential achieve addition emission reduction benefits, because they will require offsets for the entire amount of a facility's cumulative increase (once the total cumulative increase reaches 1 tpy). The current offset requirements in Appendix S are not triggered unless a facility undergoes a "major modification", which is a project with a net emissions increase of 10 tpy or more. The current federal requirement therefore allows a facility to have multiple smaller increases over time without having to provide any new offsets. The proposed amendments would require all such increases to be offset, even if they are less than 10 tpy. This could potentially result in an additional beneficial impact on air quality in the Bay Area. The extent of any such benefit attributable to the proposed amendments would be tempered, of course, by the fact that offsets are already required for PM_{10} for all such increases under the District's existing Regulation 2-2-303. Where a source is required to provide PM_{10} offsets, it will likely be able to use the same offsets to satisfy the new $PM_{2.5}$ offset requirements as well. (See discussion in Staff Report, Section IV.B.1.c.ii., for further details.) Where such offsets are required anyway because of the District's existing PM_{10} offsets requirements, any such benefit could not be credited to the proposed amendments since it would have occurred without them. But to the extent that the District's $PM_{2.5}$ offsets requirement in Section 2-2-303 will have any impact compared to the federal CAA requirements, any impact from such additional stringency will be a beneficial impact, not an adverse impact.

In addition, a commenter raised a concern during the rule development process that adopting an offsets requirement for $PM_{2.5}$ could have localized adverse environmental impacts by allowing additional projects to go forward with air emissions that would impact air quality in the vicinity of the project. The commenter stated that such projects would result in increased localized air pollution in the vicinity of the project that may not necessarily be compensated for by the offsets that are provided, because the offsets may be banked credits based on emissions reductions that were achieve through the shutdown of an emissions source at a different location from the new project being built. (See comment letter from A. Bloch & G. Karras, Communities for a Better Environment, to C. Lee, BAAQMD, March 1, 2012.) The District evaluated this issue in connection with the analysis of whether adding the offsets requirement would result in any significant adverse impacts.

Imposing the requirement for $PM_{2.5}$ in Section 2-2-303 will not result in any new increases of air pollutants at all, either locally in the region of a proposed project or anywhere else in the Bay Area. The proposed offsets requirement is a new addition in Section 2-2-303, not a relaxation of any existing requirement, and so it cannot by

definition have the effect of allowing any additional air pollution compared to existing regulatory conditions. (See *Black Property Owners Ass'n v. City of Berkeley* (1994) 22 Cal. App. 4th 974, 985 ("[T]he question is the potential impact on the existing environment of *changes* in the plan which are embodied in the amendment." (emphasis in original, citations omitted)).) To the extent that adding this requirement in Section 2-2-303 will have any impact on air emissions, the impact will be beneficial as described above, not adverse. Moreover, there are a number of other regulatory requirements imposed by District regulations and other legal requirements that will ensure that there are no such significant localized increases from any project in any location, whether subject to offsets requirements or not. These include modeling requirements designed to ensure that no new or modified stationary source will cause or contribute to an exceedance of the NAAQS; air toxics requirements designed to prevent significant toxics impacts; and project-specific CEQA review to identify the potential for any significant air quality impacts and implement mitigation measures to address them. District staff addressed these requirements in considering how to implement the offsets requirement, and they are discussed in more detail in that regard in Section IV.B.1.c.iv. of the Staff Report for the proposed amendments. (See also the discussion of this issue in the alternatives discussion in Chapter 4). These additional regulatory requirements will help ensure that there are no significant adverse localized impacts from any source at any location in the Bay Area.

For all of these reasons, there will not be any adverse impacts to air quality from moving from the current EPA offset requirements for $PM_{2.5}$ under Appendix S to the District offset requirements under Section 2-2-303 under the proposed amendments.

Administrative and Procedural Provisions Applicable to $PM_{2.5}$

Beyond BACT and offsets, the Non-Attainment NSR requirements also require (i) that permit applicants certify that all facilities that they own or control in California are in compliance with all applicable air quality requirements; (ii) that permit applicants demonstrate that the benefits of the proposed project outweigh any environmental and social costs that would result from its location, construction, or modification; and (iii) that the public be notified and provided with an opportunity to comment before any final Non-Attainment NSR permit is issued. The proposed amendments will apply these requirements for major new sources of $PM_{2.5}$ emissions and major modifications to existing sources. These amendments will not result in any physical change in the environment. For one, they are already required under the existing Non-Attainment NSR regulatory requirements for $PM_{2.5}$ under Appendix S. They are also required for PM_{10} emissions sources under current District regulation, and any source with $PM_{2.5}$ emissions high enough to trigger them under the proposed amendments will also trigger them because of its PM_{10} emissions under existing requirements. Accordingly, there will be no change to the current regulatory setting regarding these requirements as a result of the proposed amendments. Moreover, even if these requirements were wholly new requirements, they are administrative and procedural in nature, and will not affect the physical environment in any way with respect to any proposed projects that may be

permitted under them. For all of these reasons, the proposed amendments will not have any adverse impacts on air quality with regard to these changes.

Specifying That Condensable PM Emissions Must Be Included in All NSR Regulatory Determinations

As discussed in Section 3.2.1.5, EPA's NSR implementation regulations for particulate matter now specify that for all NSR permitting purposes, PM_{10} and $PM_{2.5}$ emissions must be measured taking into account both the filterable and condensable portions of particulate matter emissions. The current regulatory baseline conditions are as follows. With respect to Non-Attainment NSR requirements for $PM_{2.5}$, the current regulatory requirements are those in Appendix S, which specify that both filterable and condensable emissions must be included. (See Appendix S, Section II.A.(31)(iv).) With respect to PSD requirements for PM_{10}, the current regulatory requirements are those in EPA's federal PSD regulations, which also specify that both filterable and condensable emissions must be included. (See 40 C.F.R. section 52.21(b)(50)(vi).) And with respect to additional requirements for PM_{10} that apply under the District's regulations, the current regulatory requirements are those in District Regulation 2, which is silent on whether to include both filterable and condensable emissions and has been applied in the past to include filterable emissions only in some cases and both filterable and condensable emissions in other cases. The proposed amendments will incorporate all of these requirements into District Regulation 2, Rule 2, and will specify that both filterable and condensable particulate emissions must be included in all cases (for both PM_{10} and $PM_{2.5}$).

The proposed amendments will not result in any significant air quality impacts as a result of specifying this requirement in Regulation 2, Rule 2. Although the proposed amendments will move the implementation of this requirement into Regulation 2, Rule 2, doing so will not involve a change from existing regulatory situation. The federal NSR requirements – Non-Attainment NSR for $PM_{2.5}$ and PSD for PM_{10} – already clearly specify that both filterable and condensable emissions must be included, and this situation will not change by incorporating the requirement into Regulation 2, Rule 2. And for the additional requirements for PM_{10} in Regulation 2, Rule 2, that apply over and above the federal minimum requirements, the proposed amendments will not make any substantive change to the existing definition of PM_{10} (i.e., particulate matter with an aerodynamic diameter of 10 microns or less). They will simply specify exactly how emissions must be measured under this definition to clear up an existing ambiguity and require the most current, accurate scientific testing methodologies. Requiring that the most current test methods must be used to implement a regulatory requirement is not a change to the regulatory requirement; it is a reflection of the fact that as technology advances over time, existing regulatory requirements will be applied with greater precision and accuracy as better test methods become available to do so.

The effect of applying the particulate matter provisions using current testing methodologies will be that some PM_{10} emissions sources could see a change in how

certain PM_{10} permitting requirements are applied to them in the future, compared to how the District has addressed them in the past. That is, in some cases there may be sources whose PM_{10} emissions were treated as exempt from certain particulate matter permitting requirements based on filterable emissions, but will be subject to them in the future when the condensable PM_{10} emissions are required to be included. This change in treatment will not be the result of a change in the definition of particulate matter, it will arise from the application of current, more advanced testing methodologies that can evaluate both the filterable and condensable portion of the emissions. But even if it could be characterized as a change in the substantive definition of particulate matter, it would not result in any significant adverse impacts to air quality. The effect of having certain additional sources subject to PM_{10} permitting requirements, such as BACT or offsets, would be beneficial to air quality because of the potential for particulate matter emission reductions. There are no adverse air quality impacts associated with implementing these requirements, as addressed in the preceding discussions. Thus to the extent that this clarification will have any impact on air emissions compared to the current regulatory situation, the impact will be beneficial, not adverse.

These same conclusions also apply for NSR's administrative and procedural requirements, such as the compliance certification and alternatives analysis requirements. To the extent that the requirement to include condensable emissions in all cases can be characterized as a change from existing conditions, it would not result in any adverse air quality impacts because these requirements do not implicate a facility's design, operations or emissions in any way. The same is also true for Title V permitting, as Title V is an administrative exercise of incorporating all of a facility's various air quality requirements from disparate regulatory provisions into a single permitting document to improve transparency and enforceability. It does not impose any substantive requirements that would impact the facility's emissions. Thus even if a facility were to find itself subject to Title V requirements because of its condensable PM emissions, that would have no physical effect on the facility or the facility's emissions and no impact on air quality.

And once again, it is important to note that CEQA will also apply to individual projects at the time of permitting, and the potential for any control equipment or other design aspects of a project to have secondary adverse air quality impacts will be evaluated at that time. Should projects be subject to applicable permitting requirements because of the inclusion of their condensable particulate emissions, a separate project-specific CEQA analysis will be conducted at the time of permitting to ensure that any significant adverse impacts are identified and mitigated or avoided.

For all of these reasons, the proposed amendments will not have any adverse impacts on air quality with regard to these changes.

3.2.3.3 Adopting /Amending PSD Requirements to Obtain SIP-Approved PSD Program

The proposed amendments will adopt a District PSD program that EPA will be able to approve as part of California's SIP. The current regulatory baseline conditions for PSD permitting are (i) the federal PSD program in 40 C.F.R. section 52.21 applicable to emissions sources in the Bay Area under federal law; and (ii) the existing PSD provisions in Regulation 2, Rule 2, that have not been approved for federal purposes but are still legally effective and binding under state law. The proposed amendments will adopt and/or revise District PSD provisions that will (i) establish a PSD applicability test using the term "PSD Project" defined in Section 2-2-224; and (ii) set forth the required elements for PSD permitting that will apply to such "PSD Projects" under Sections 2-2-304 through 2-2-308, 2-2-404, and related provisions. These revisions will ensure that the District's PSD provisions will meet all applicable federal NSR requirements so that EPA can approve them into the SIP.

The proposed amendments will not result in any significant adverse impacts on air quality because, for the most part, they will not make any substantive changes to the PSD requirements that are currently applicable for emissions sources in the Bay Area. The proposed amendments will incorporate by reference the substantive requirements for PSD permitting that currently apply under 40 C.F.R. Section 52.21 (i.e., the PSD BACT requirement, the PSD air quality impacts analysis requirement, the additional impacts requirements, and the Class I area visibility protection requirements). With respect to applicability of these requirements, the proposed amendments will use the same applicability test that currently applies for the PSD provisions under Regulation 2, Rule 2. This test requires PSD permitting for new facilities with emissions over the PSD "major" facility threshold of 100 or 250 tpy (depending on source category) and for modifications at such facilities that will result in "significant" net emissions increases over historical emissions levels. The proposed amendments will codify this applicability test in Section 2-2-224, which sets forth a definition of "PSD Project", for which the PSD permitting requirements will apply.

Notably, this applicability test will not incorporate the relaxed applicability standards that EPA adopted in 2002 known as "NSR Reform". EPA adopted NSR Reform to relax the applicability standards for its NSR program (including both Non-Attainment NSR and PSD) so that more projects could go forward without being subject to any NSR regulatory requirements. (EPA's NSR Reform rulemaking can be found at 67 Fed. Reg. 80,186 (Dec. 31, 2002); the relevant provisions are also described in more detail in Section IV.B.3.g.ii. of the Staff Report being published concurrently with this Draft EIR.) EPA's current rules do not require permitting for these projects. California disagreed that relaxing NSR in this way was good for air quality, however. The California legislature therefore adopted the Protect California Air Act of 2003 ("SB 288"), which prohibits California air districts from relaxing any of their NSR rules, including PSD provisions. The District's PSD provisions therefore continue to use the pre-NSR applicability test. The proposed amendments will maintain this existing District applicability test for the

PSD provisions in Regulation 2, Rule 2. (The one exception is the applicability test for greenhouse gases, which is discussed in Section 3.2.3.4. below.)

During the rule developments process, industry commenters asserted that there could be adverse air quality impacts from applying the PSD requirements without using the less-stringent applicability test from EPA's NSR Reform initiative. They argued that the more stringent pre-NSR Reform test creates additional regulatory burdens that discourage them from undertaking modifications at their facilities. They argued that such permitting burdens discourage them from modernizing and upgrading equipment, which can have air quality benefits because newer equipment is often more efficient and generates less pollution per unit of output. They therefore argued that the District's more stringent permitting requirements will actually degrade air quality, and that the District should weaken its PSD applicability standards in order to improve air quality. With respect to the CEQA analysis, industry was concerned that if the proposed amendments do not incorporate EPA's NSR Reform applicability tests, they could be seen as having a significant adverse impact on air quality for these reasons. (See, e.g., comment letter from G. Bjerke, Western States Petroleum Ass'n, to C. Lee, BAAQMD, March 2, 2012, at p. 3.)

Maintaining the current pre-NSR Reform applicability test in the District's PSD provisions would not result in any significant adverse impacts on air quality, however. The primary reason is that the PSD provisions in the District's current Regulation 2, Rule 2 use the pre-NSR Reform test, so the proposed amendments will not result in any change whatsoever compared to the current regulatory setting in this regard. (See *Black Property Owners Ass'n v. City of Berkeley* (1994) 22 Cal. App. 4th 974, 985.) (Again, the treatment of GHGs is an exception, as discussed below.)

Moreover, even if implementing the pre-NSR Reform applicability test were entirely new, using the more stringent current test would not result in significant adverse impacts. Although industry commenters may speculate that the more stringent applicability test will discourage them from implementing beneficial modernization projects, the District has not found any evidence to support this conclusion. To the contrary, the evidence suggests that using the pre-NSR Reform test will not be a significant impediment to any such projects in the Bay Area, for two reasons.

First, the District has a number of other provisions in the District's NSR permitting regulations that will require permitting for facilities in the Bay Area regardless of which applicability test is used for PSD. These requirements will require facility modernization and upgrade projects to go through the NSR permitting process even if the less stringent test were to be used for PSD purposes. Using the NSR Reform applicability test would therefore <u>not</u> exempt these projects from permitting burdens the industry commenters are concerned about. This situation has been documented by EPA in its evaluation of the same issue with respect to the PSD regulations of the Sacramento Metropolitan Air Quality Management District, which use the same pre-NSR Reform applicability test for its PSD provisions as the District's regulations do. EPA found that California air districts have such strong permitting requirements in other aspects of their NSR permitting

programs that equipment modernization and upgrade projects will be subject to permitting requirements (and any associated burdens) regardless of whether PSD is implemented using the NSR Reform test or the pre-NSR Reform test. As EPA concluded, "the federal NSR Reform provisions do not provide any of EPA's intended additional flexibility to proposed projects" that could help such projects go forward without being subject to permitting requirements. (EPA, 2011b, at p. 17. Note that EPA's analysis here based on considerations applicable to California air districts generally, and not limited to the specific regulations of the Sacramento air district.) Maintaining the pre-NSR Reform applicability tests will therefore not create any additional permitting burdens that could substantially discourage facilities from implementing beneficial equipment upgrade projects.

Second, there are many reasons why facilities in the Bay Area will be encouraged and/or legally required to implement such modifications and upgrades, and these factors will continue to apply regardless of whether there may be any additional permitting burdens that may or may not apply for such projects. Some of these are market incentives, such as the cost savings that a facility would realize in upgrading to more efficient equipment, or the additional production flexibility it could obtain by modernizing its plant. It is speculative to suggest that facilities would forego such benefits on a wide scale because of concerns about PSD permitting. Others are regulatory requirements, and in these cases the facility will be required to implement the improvement regardless of any such burdens. For example, the California Clean Air Act contains stringent requirements for sources to implement the "Best Available Retrofit Technology", which requires existing facilities to go back and retrofit their equipment to apply the latest pollution control technology, without waiting for the facility to undertake a voluntary modernization project. (See Health & Safety Code Div. 26, Pt. 3, Ch. 10 (§§ 40910-40930).) Similarly, ARB is implementing a "cap-and-trade" program under the Global Warming Solutions Act of 2006 (AB 32) that will require facilities to upgrade the efficiency of their equipment. These efficiency improvements under AB 32 are primarily aimed at addressing GHG emissions, but improving efficiency will reduce emissions of all air pollutants for a given level of output. These regulatory provisions will mandate that facilities upgrade and modernize their equipment to implement lower-polluting equipment and related emissions control technologies. Such facilities will not be able to forego compliance with these requirements based on concerns about the level of permitting burden involved under the NSR program. Simply put, the decision about whether to install more efficient, lower-polluting equipment does not depend solely on how the District's PSD permitting requirements apply. There is no evidence that retaining the District's pre-NSR Reform applicability test for its PSD requirements will significantly affect such decisions.

Finally, one area warrants additional discussion with respect to these NSR Reform issues. As noted above, SB 288 prohibits air districts from relaxing any regulatory requirements that were in effect as of 2002, and the District had PSD provisions in its NSR rule at that time. Those provisions did not address GHGs, however, because GHGs were not subject to regulation at that time. Accordingly, the District is not legally prohibited from

adopting the NSR Reform applicability standards. The District therefore gave careful consideration regarding whether to adopt such standards specifically for GHGs, and decided to adopt certain elements and not adopt other elements. Specifically, the proposed amendments will allow sources to use the more flexible emissions baseline to evaluate their GHG emissions for purposes of triggering PSD review for GHGs, but will require them to base emissions increases on enforceable permit limits and not on unenforceable emissions projections. (For the third element of NSR Reform, Plantwide Applicability Limits, or "PALs", EPA's regulations for PALs have been in flux recently and the District found that this update process was not the appropriate time to consider them; District staff will continue to consider the issue and whether it may be beneficial to adopt PAL provisions in the future.) These issues are discussed in more detail in the Staff Report, in Section IV.B.3.g.ii. The conclusion that there will be no significant impacts from adopting these PSD provisions with respect to GHGs remains the same as with PSD permitting for other pollutants discussed above. The impacts in this area are addressed in Section 4 of this Chapter, regarding greenhouse gas impacts.

For all of these reasons, no increase in air emissions or significant adverse impacts on air quality is expected from the District's adoption of the proposed PSD program without using the NSR Reform applicability tests.

3.2.3.4 Ensuring that Regulation 2 Adequately Addresses GHGs

The proposed amendments will adopt provisions to ensure that the District's NSR and Title V permitting regulations adequately address GHGs. GHGs are already subject to NSR and Title V permitting requirements under current regulations, based on EPA's adoption of GHG emission standards for light duty cars and trucks. (See further discussion in Section 3.2.1.5.) The proposed amendments will ensure that the District's permitting programs adequately implement these requirements. Adding provisions to the District's regulations to ensure that they adequately encompass GHG emissions will not result in any change to these requirements as they apply to GHG emissions sources in the Bay Area and will not result in any impacts to air quality.

For NSR, GHGs are regulated under the PSD element of that permitting program because there are no NAAQS for GHGs. GHGs will be addressed in the context of PSD permitting through the adoption of a District PSD program for review and approval by EPA. Adoption of a District PSD permitting program will not have any adverse environmental impacts as discussed above in Section 3.2.3.3.

For Title V, the federal requirements have incorporated GHG emissions since EPA's light duty vehicle emissions standards for GHGs went into effect on January 2, 2012; and the District is currently treating facilities that emit GHGs as subject to Title V permitting as "designated facilities" as discussed in Section 3.2.1.5. Clarifying that GHGs are "Regulated Air Pollutants" for Title V purposes in the definition in Section 2-6-222 will not change any regulatory requirements compared to how they apply now. As such, there is no potential for any physical or operational changes at any facility as a result of the proposed amendments. Moreover, Title V does not impose any substantive requirements

anyway. Thus, even if adding GHGs were a wholly new requirement compared to baseline, it would not cause any physical or operational changes at any facility that could have any impact on the environment.

3.2.3.5 Revising NSR Applicability Test in "Modified Source" Definition

The proposed amendments will revise the District's applicability threshold for NSR permitting to ensure that it will not be any less stringent in any situation than the federal NSR program. This revision will be made by amending the definition of "modified source" in Section 2-1-234. All of the NSR permitting requirements in Regulation 2, Rule 2 apply to new sources and "modified sources", so this definition determines the applicability of NSR for modifications to existing sources. The current regulatory baseline conditions for when modifications are subject to NSR permitting are (i) the federal NSR program requirements, which require applicability to be based on emissions increases over the facility's actual historical emissions; and (ii) the District's current "modified source" definition in Section 2-1-234, which bases applicability on emissions increases over a source's maximum potential emissions. The District believes that its definition in Section 2-1-234 is more stringent than the federal minimum requirements, and EPA has historically approved it as satisfying the federal NSR program, but EPA is now raising an objection that in certain circumstances it could apply in a less stringent manner. To address this concern, the proposed amendments will add a "federal backstop" applicability provision to Section 2-1-234 to address any specific situation where the federal test could apply in a more stringent manner than the District's current test. (See discussion in Section IV.A.1. of the Staff Report for additional details.)

This revision will not have any significant impacts on air quality. It will not involve any relaxation from current NSR applicability standards under existing regulatory standards. It will simply establish that both the federal test and the District's current test are both reflected in Section 2-1-234. There is no situation in which a project that would be a "modification" under either of these two tests would be able to avoid being a "modification" and subject to NSR requirements under the proposed amendments. At the same time, it is not likely in practice to apply any more stringently, either. As noted above, the District's existing test is already very comprehensive and is more stringent than the federal test in most (if not all) circumstances. It is unlikely that there will be many situations in which a project will trigger the federal applicability test where it does not already trigger the District's existing stringent applicability test. And even if there are any such situations where the "federal backstop" test would apply, that test is already part of the current regulatory baseline established by EPA's NSR requirements (as EPA is now applying them). If the District were to fail to adopt the "federal backstop" test, then EPA would step in and apply that test under its own regulatory authority. In this regard, the proposed amendments may be changing the District's regulatory definition but they are not making any change to the larger universe of NSR regulatory requirements applicable to emissions sources in the Bay Area.

3.2.3.6 Expanding NAAQS Compliance Demonstration

The proposed amendments will expand the requirement to demonstrate that new and modified sources will not cause or contribute to an exceedance of any NAAQS. PSD permitting currently requires such a demonstration for projects at major PSD facilities (i.e., facilities with emissions over the 100 tpy/250 tpy PSD "major" threshold) that will result in significant net increases in emissions of PSD pollutants. The proposed amendments will expand this requirement to include any project with a significant emissions increase at any facility, regardless of size; and to include all pollutants, not just PSD pollutants. This expanded NAAQS compliance demonstration analysis will not have any impacts on the environment, because it is an administrative requirement only and will not affect how any project is built or operated. To the extent that there are any projects that could be built under current regulations that would be prohibited (or would have to be modified) because they would result in a NAAQS exceedance, this requirement could have a beneficial impact on air quality by avoiding such exceedances. But any such impacts would be beneficial impacts, not adverse impacts.

3.2.3.7 Expanding Public Notice-and-Comment Requirements

The proposed amendments will also revise the current notice-and-comment requirements for NSR permitting to cover all permits for new and modified sources that will result in a significant increase in emissions. Some have argued that this is part of the existing regulatory setting under EPA's "Minor NSR" regulations under 40 C.F.R. section 51.161(b), but regardless of whether this requirement is part of the existing regulatory baseline or a new requirement being added beyond what is currently required, it will not result in any adverse impacts on air quality. This is an administrative requirement only, and while it will improve the permitting process it will not have any effect on the physical environment.

3.2.3.8 Miscellaneous Minor Revisions

In addition to the major revisions discussed above, the proposed amendments also include a number of relatively minor changes to improve the way the District's permitting programs work and to ensure that they comply with all EPA requirements. None of these more minor revisions will change the way that any control requirements apply to any sources, affect the programs' applicability so as to bring more sources into these programs or to exclude any additional sources from regulation, or otherwise change the way these permitting programs work in any significant way. No significant adverse impacts on air quality are expected from these minor revisions.

This review of additional, more minor revisions also included an evaluation of certain issues raised by interested members of the public in comments during the rule development process (in addition to the specific areas already addressed above). These issues were included because they were raised by members of the public as issues that should be addressed in the EIR. Based on this review, no significant impacts were found. These issues included the following.

Revisions to Definition of "Offsets": A concern was expressed during the rule development process that the District is revising its definition of what constitutes an "offset". The proposed amendments do not make any substantive revisions to the definition of "offsets". The proposed amendments revise the language used in this definition as part of the overall effort to revise Regulation 2, Rule 2 to make it clearer and easier to understand. But these revisions do not change the meaning of this term in any substantive way. All substantive emission control requirements that use this term will apply in the same way as under the current regulations (with the specific substantive changes that are being evaluated in other parts of this document), and there will be no environmental impact from the revisions to the language used in this definition.

Potential for Weakening of Current Rules: A concern was expressed during the rule development process that the proposed amendments would result in a "weakening" of the District's existing rules. No specific regulatory provisions were cited in connection with this concern, and no explanation was given as to how anything in the proposed amendments could result in a weakening of the current rules. A thorough review of the proposed amendments by District staff did not identify any such provisions that would be weakened in any way (and any such weakening would be prohibited in any event under SB 288). Accordingly, no significant adverse impacts are expected because of any "weakening" of the District's current rules.

Potential for Adoption of Additional Exemptions: A concern was expressed during the rule development process that the proposed amendments would adopt additional exemptions that could result in significant adverse environmental impacts. In fact, the proposed amendments do not adopt any new exemptions. The proposed amendments revise some of the language in certain exemptions to specify exactly how they should be applied, and they eliminate the current limited exemption for space heaters, but they do not add any new exemptions.

3.2.3.9 Non-Substantive Clarifications and Amendments to Regulatory Language

The District is also proposing a major reorganization and overhaul of the regulatory language for its NSR and Title V permitting programs. Although this will involve major changes to the language and structure of the regulations, the District is not intending to make any significant substantive changes to the way these programs work. That is, the District is clarifying the language to make the regulations easier to understand and easier to use, but not to make any changes to the substance of the regulatory requirements. Because there will be no substantive change to the regulations and what they require (other than the specific changes discussed above), no air quality impacts are expected from these non-substantive clarifications and amendments.

3.2.4 MITIGATION MEASURES

As discussed in Section 3.2.3, no significant adverse air quality impacts are expected due to implementation of the proposed amendments to the District's rules and regulations. Therefore, there is no need for the District to implement mitigation measures in connection with the proposed amendments in order to avoid any significant impacts or reduce them to a less than significant level. Mitigation measures are required only where there are significant adverse impacts to be mitigated. (See CEQA Guidelines § 15126.4(a)(3).)

3.2.5 CUMULATIVE AIR QUALITY IMPACTS

As discussed in Section 3.2.2., most types of air pollution are primarily cumulative concerns. That is, most air quality problems are not caused by a single source of emissions, they are caused by the cumulative effect of many individual sources around the region combining together to create a cumulative problem. The discussion of air quality impacts in Section 3.2.3. is therefore both a project-specific air quality impact analysis and a cumulative impacts analysis. The analysis demonstrating that the proposed amendments will not have a significant impact on air quality supports both the conclusion that the amendments by themselves will not have a significant impact, and also the conclusion that the proposed amendments will not make a cumulatively considerable contribution to the cumulative air quality challenges that the Bay Area faces. (See Guidelines § 15064(h)(1).)

In addition, a project's contribution to cumulative air quality concerns is not cumulatively considerable where the project will be consistent with a regulatory plan or program to address the cumulative air quality problem. (See Guidelines Section § 15064(h)(3).) Here, the proposed amendments are consistent with – and indeed, are necessary to implement – EPA's NSR and Title V program requirements (as well as related requirements of state law). These important permitting programs are comprehensive regulatory programs designed expressly to address cumulative air quality concerns. With respect to criteria pollutants specifically, the primary purpose of the NSR program is to attain and maintain the NAAQS to ensure that criteria pollutant concentrations are kept at safe and healthful levels. And with respect to regulated air pollutants generally, both the PSD element of NSR permitting and the Title V program address all such pollutants and help ensure that they are regulated effectively. Implementing the requirements of these permitting programs in the Bay Area will help ensure that emissions from regulated sources will not interfere with achieving the region's clean air goals, and thus that their incremental contribution to overall air emissions will not be cumulatively considerable.

Furthermore, the updates to the District's NSR regulations also comply with and implement provisions the District's 2010 Clean Air Plan, the most recent air quality plan approved in the District. Stationary Source Measure SSM-16 in the Clean Air Plan committed the District to updating its NSR regulations to incorporate $PM_{2.5}$ requirements in light of the Bay Area's non-attainment designation. The Clean Air Plan was adopted specifically to address cumulative air quality concerns in the Bay Area. Implementing

these requirements will help ensure that $PM_{2.5}$ emissions from regulated sources will not make a cumulatively considerable contribution to ambient particulate matter concentrations.

Finally, the proposed amendments should also be considered in the context of all of the other regulatory initiatives that are currently being undertaken by the District and other agencies to address cumulative air quality concerns. Many of these efforts are summarized in the 2010 Clean Air Plan, and they are expected to have a cumulative beneficial impact on air quality by lowering criteria pollutant emissions (see Table 3-6). These efforts also include the Transportation 2035 Plan (Metropolitan Transportation Commission (MTC), 2009), which will reduce vehicle miles travels compared to baseline (no-project) conditions, as well as increasingly stringent emission controls CARB has adopted for new vehicle engines and fuels over the past few decades; improvements in emission control devices, the Enhanced Smog Check Program, and fleet turnover wherein older polluting cars are retired and replaced with newer and less polluting vehicles (BAAQMD, 2010). These developments are expected to result in reductions of ROG emissions by 72 percent, NOx emissions by 80 percent, and CO emissions by 78 percent, providing a direct air quality benefit.

TABLE 3-6

Emission Reductions of Proposed Control Measures in the 2010 Clean Air Plan (2020 Estimates)

Control Measure	Description	Estimated Emission Reductions (tons/day) [1]				
		VOC	NOx	PM_{10}	SO_2	GHG[2]
Stationary and Area Source Measures						
SSM 1	Metal-Melting Facilities	--	--	--	--	--
SSM 2	Digital Printing	--	--	--	--	--
SSM 3	Livestock Waste	0.300	--	--	--	65
SSM 4[3]	Natural Gas Processing and Distribution	0.300	--	--	--	120
SSM 5	Vacuum Trucks	6.000	--	--	--	--
SSM 6	General Particulate Matter Weight Rate Limitation	--	--	2.583	--	--
SSM 7	Open Burning	0.040	0.010	--	--	--
SSM 8[3]	Coke Calcining	--	--	--	2.6	--
SSM 9[3]	Cement Kilns	--	4.380	--	--	--
SSM 10[3]	Refinery Boilers and Heaters	--	2.900	--	--	--
SSM 11[4]	Residential Fan Type Furnaces	--	4.200	--	--	--
SSM 12[4]	Space Heating	--	1.200	--	--	--
SSM 13[3]	Dryers, Ovens, Kilns	--	0.20	--	--	--
SSM 14	Glass Furnaces	--	0.38	--	--	--
SSM 15	Greenhouse Gases in Permitting – Energy Efficiency	--	--	--	--	--
SSM 16	Revise Regulation 2, Rule 2: New Source	--	--	--	--	--

Control Measure	Description	Estimated Emission Reductions (tons/day) [1]				
		VOC	NOx	PM_{10}	SO_2	GHG[2]
	Review					
SSM 17	Revise Regulation 2, Rule 5: New Source Review for Air Toxics	--	--	--	--	--
SSM 18	Revise Air Toxics "Hot Spots" Program	--	--	--	--	--
Transportation Control Measures						
TCM A-1	Improve Local and Areawide Bus Service	0.028	0.032	0.005	--	23
TCM A-2[3]	Improve Local and Regional Rail Service	0.139	0.152	0.043	--	516
TCM B-1	Implement Freeway Performance Initiative	0.922	3.315	0.178	--	2,451
TCM B-2	Improve Transit Efficiency and Use	0.004	0.005	0.001	--	6.130
TCM B-3	Bay Area Express Lane Network	0.860	1.362	0.660	--	1,892
TCM B-4[3]	Goods Movement Improvements and Emission Reduction Strategies	0.585	4.818	0.276	--	4,045
TCM C-1	Support Voluntary Employer-Based Trip Reduction Program	0.076	0.094	0.033	--	97
TCM C-2	Implement Safe Routes to Schools and Safe Routes to Transit	0.008	0.008	0.001	--	8.182
TCM C-3	Promote Rideshare Services and Incentives	0.084	0.105	0.013	--	153
TCM C-4	Conduct Public Outreach and Education	0.020	0.020	0.003	--	40.42
TCM C-5	Promote Smart Driving/Speed Moderation	0.074	0.168	0.010	--	180
TCM D-1	Improve Bicycle Access and Facilities	0.004	0.004	<0.001	--	4.44
TCM D-2	Improve Pedestrian Access and Facilities	0.003	0.002	<0.001	--	1.76
TCM D-3	Support Local Land Use Strategies	0.242	0.311	0.580	--	873.63
TCM E-1	Value Pricing Strategies	--	0.011	0.003	<0.001	9.87
TCM E-2	Parking Pricing and Management Strategies	0.180	0.188	0.025	--	294
TCM E-3	Implement Transportation Pricing Reform	0.115	0.120	0.016	--	188
Mobile Source Control Measures						
MSM A-1	Promote Clean, Fuel Efficient Light & Medium-Duty Vehicles	0.050	0.030	0.009	--	<0.001
MSM A-2	Zero Emission Vehicles and Plug-in Hybrids	0.010	0.010	0.009	--	<0.001
MSM A-3	Green Fleets (Light, Medium & Heavy-Duty Vehicles)	0.020	0.020	0.030	--	<0.001
MSM A-4	Replacement or Repair of High-Emitting Vehicles	4.370	2.060	0.030	--	44.14
MSM B-1	HDV Fleet Modernization	0.100	5.000	0.110	--	0.64
MSM B-2	Low NOx Retrofits for In-Use Engines	--	0.990		--	
MSM B-3	Efficient Drive Trains	0.010	0.290	0.009	--	0.23
MSM C-1	Construction and Farming Equipment	0.040	0.720	0.020	--	
MSM C-2	Lawn & Garden Equipment	0.040	0.009	0.010	--	<0.001
MSM C-3	Recreational Vessels	0.060	0.009	--	--	0.42
Land Use and Local Impact Control Measures						
LUM 1	Goods Movement	0.012	1.719	0.015	--	2,561
LUM 2	Indirect Source Review Rule	0.302	0.244	0.467	0.003	340
LUM 3[3]	Enhanced CEQA Program	0.440	0.350	0.670	--	447
LUM 4	Land Use Guidelines	0.077	0.081	0.011	--	139
LUM 5	Reduce Risk in Impacted Communities	--	--	--	--	--
LUM 6	Enhanced Air Quality Monitoring	--	--	--	--	--

Control Measure	Description	Estimated Emission Reductions (tons/day) [1]				
		VOC	NOx	PM_{10}	SO_2	GHG[2]
Energy and Climate Control Measures						
ECM 1[3]	Energy Efficiency	0.05	0.052	0.032	0.44	543
ECM 2[3]	Renewable Energy	<0.001	<0.001	<0.001	<0.001	0.56
ECM 3	Urban Heat Island Mitigation	0.002	0.025	0.015	0.021	30
ECM 4	Tree-Planting	0.005	0.072	0.044	0.062	76
TOTAL EMISSION REDUCTIONS:		15.57	33.13	6.20	3.13	15,150

Source: 2010 CAP EIR (BAAQMD, 2010)

Notes:

1. Emission reductions are for 2012, except as noted.
2. Greenhouse gas (GHG) emissions are reported as CO_2 equivalent emissions in short tons (2,000 lbs) per day.
3. Emission reduction estimate is for 2020.
4. Estimated reductions for this measure represent reductions that will be achieved upon full implementation of the measure. Full implementation is not anticipated until post-2020.

With respect to toxic air contaminants specifically, these efforts will also reduce particulate matter from diesel-fuel engines, which is the largest contributor to air toxic risk in the Bay Area. Recent CARB regulations to reduce diesel particulate matter emissions include measures to reduce emissions from off-road emissions sources (cargo handling equipment, locomotives and transport refrigeration units), on-road emission sources (truck and buses), marine and related equipment (harbor craft, recreational marine engines, ocean-going vessels, and shore power), stationary diesel engines, and portable diesel equipment, and regulations to minimize diesel particulate emissions from diesel fuel combustion. The TCMs included in the Transportation 2035 Plan and as part of the 2010 CAP to reduce mobile source emissions and vehicle miles traveled will also help address toxic risk from diesel particulate emissions. The Transportation 2035 Plan is expected to result in a 77 percent decrease in diesel particulate matter, a 78 percent decrease in 1,3-butadiene, and a 76 percent decrease in benzene by 2035 compared to existing conditions, and additional TAC emission reductions are expected from the 2010 CAP (BAAQMD, 2010).

For all of these reasons, the proposed amendments will not result in any cumulatively considerable contribution to any significant cumulative impacts. To the contrary, they are part of a comprehensive regulatory effort by the District and other regulatory agencies to achieve net reductions in air pollution emissions, to reduce significant cumulative air quality concerns, and to ensure safe and healthy air quality for the San Francisco Bay Area.

3.2.6 AIR QUALITY IMPACTS CONCLUSIONS

As discussed in detail in the foregoing sections, the EIR's analysis has found that the proposed amendments to District Regulation 2 will have overall beneficial environmental impacts on air quality. The proposed amendments will strengthen the Air District's permitting programs and thereby enhance the District's ability to implement its

regulatory program and to achieve the Bay Area's clean air goals. The EIR has evaluated the potential for the proposed amendments to have adverse secondary impacts in connection with this strengthening of District regulations, and has concluded based on all available evidence that there will be no such significant adverse impacts. The support for this conclusion and the evidence on which it is based were addressed in Section 3.2 of this EIR.

3.3 GREENHOUSE GAS EMISSIONS

The NOP/IS (see Appendix A) identified greenhouse gas emissions as an area with a potential for the proposed amendments to have a significant adverse impact that needs to be evaluated in the EIR. The potential for significant adverse greenhouse gas impacts associated with the proposed amendments is evaluated in this Section of this EIR. As stated in the conclusions in Section 3.2.7., the proposed amendments will have a beneficial effect in helping the Air District effectively regulate greenhouse gas emissions from stationary sources in the Bay Area. There will not be any significant adverse impacts on air quality as a result of the proposed amendments.

3.3.1 GHG ENVIRONMENTAL SETTING

Global climate change refers to changes in average climatic conditions on the earth as a whole, including temperature, wind patterns, precipitation, and storms. Global warming, a related concept, is the observed increase in the average temperature of the earth's surface and atmosphere. One identified cause of global warming is an increase of GHGs in the atmosphere. The six major GHGs identified by the Kyoto Protocol are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs). The GHGs absorb longwave radiant energy reflected by the earth, which warms the atmosphere. GHGs also radiate longwave radiation both upward to space and back down toward the surface of the earth. The downward part of this longwave radiation absorbed by the atmosphere is known as the "greenhouse effect." Some studies indicate that the potential effects of global climate change may include rising surface temperatures, loss in snow pack, sea level rise, more extreme heat days per year, and more drought years.

Events and activities, such as the industrial revolution and the increased combustion of fossil fuels (e.g., gasoline, diesel, coal, etc.), have heavily contributed to the increase in atmospheric levels of GHG. As reported by the California Energy Commission (CEC), California contributes 1.4 percent of the global and 6.2 percent of the national GHG emissions. An emissions inventory is a detailed estimate of the amount of air pollutants discharged into the atmosphere of a given area by various emission sources during a specific time period. The GHG inventory for California is presented in Table 3-7 (CARB, 2007 and CARB, 2009). More than 80 percent of GHG emissions in California are from fossil fuel combustion.

The emission inventory in Table 3-8 focuses on GHG emissions due to human activities only, and compiles estimated emissions from industrial, commercial, transportation, domestic, forestry, and agriculture activities in the San Francisco Bay Area region of California. The GHG emission inventory in Table 3-8 reports direct emissions generated from sources within the Bay Area.

TABLE 3-7

California GHG Emissions and Sinks Summary
(Million Metric Tons CO_2-Equivalent)

Categories Included in the Inventory	1990 (1)	2006 (2)
ENERGY	**386.41**	**419.32**
Fuel Combustion Activities	**381.16**	**414.03**
Energy Industries	157.33	160.82
Manufacturing Industries & Construction	24.24	19.03
Transport	150.02	184.78
Other Sectors	48.19	49.41
Non-Specified	1.38	2.16
Fugitive Emissions from Fuels	**5.25**	**5.28**
Oil and Natural Gas	2.94	3.25
Other Emissions from Energy Production	2.31	2.03
INDUSTRIAL PROCESSES & PRODUCT USE	**18.34**	**30.22**
Mineral Industry	4.85	5.92
Chemical Industry	2.34	0.37
Non-Energy Products from Fuels & Solvent Use	2.29	1.85
Electronics Industry	0.59	0.77
Product Uses as Substitutes for Ozone Depleting Substances	0.04	13.38
Other Product Manufacture & Use Other	3.18	1.67
Other	5.05	6.25
AGRICULTURE, FORESTRY, & OTHER LAND USE	**19.11**	**25.10**
Livestock	11.67	15.68
Land	0.19	0.19
Aggregate Sources & Non-CO_2 Emissions Sources on Land	7.26	9.24
WASTE	**9.42**	**9.23**
Solid Waste Disposal	6.26	6.31
Wastewater Treatment & Discharge	3.17	2.92
EMISSION SUMMARY		
Gross California Emissions	**433.29**	**483.87**
Sinks and Sequestrations	**-6.69**	**-4.07**
Net California Emissions	**426.60**	**479.80**

Source: (1) CARB, 2007.
(2) CARB, 2009.

TABLE 3-8

Bay Area Greenhouse Gas Emission Inventory Projections

(Million Metric Tons CO_2-Equivalent)

SOURCE CATEGORY	Year	2005	2009	2012	2015	2020
INDUSTRIAL/COMMERCIAL						
Oil Refineries						
Refining Processes		3.4	3.5	3.6	3.7	3.9
Refinery Make Gas Combustion		4.7	4.9	5.0	5.2	5.4
Natural Gas and Other Gases Combustion		4.8	5.0	5.1	5.3	5.5
Liquid Fuel Combustion		0.1	0.1	0.1	0.1	0.1
Solid Fuel Combustion		1.0	1.0	1.1	1.1	1.1
Waste Management						
Landfill Combustion Sources		0.0	0.0	0.0	0.0	0.0
Landfill Fugitive Sources		1.2	1.2	1.2	1.2	1.2
Composting/POTWs		0.4	0.4	0.4	0.4	0.4
Other Industrial/ Commercial						
Cement Plants		0.9	0.9	0.9	0.9	1.0
Commercial Cooking		0.1	0.1	0.1	0.1	0.2
ODS Substitutes/Nat. Gas Distrib./Other		3.6	5.2	6.3	7.5	9.4
Reciprocating Engines		0.6	0.6	0.6	0.7	0.7
Turbines		0.4	0.4	0.4	0.4	0.4
Natural Gas- Major Combustion Sources		1.6	2.5	2.6	2.7	2.8
Natural Gas- Minor Combustion Sources		8.8	9.2	9.5	9.9	10.4
Coke Coal		1.0	1.0	1.1	1.1	1.2
Other Fuels Combustion		0.3	0.4	0.4	0.4	0.4
Subtotal		32.8	36.3	38.4	40.6	44.2
RESIDENTIAL FUEL USAGE						
Natural Gas		6.4	6.6	6.8	6.9	7.2
LPgas/Liquid Fuel		0.2	0.2	0.2	0.2	0.2
Solid Fuel		0.1	0.2	0.2	0.2	0.2
Subtotal		6.7	6.9	7.1	7.2	7.5
ELECTRICITY/ CO-GENERATION						
Co-Generation		5.5	5.5	5.7	6.0	6.4
Electricity Generation		2.8	3.1	3.2	3.3	3.5
Electricity Imports		6.8	7.3	7.6	7.9	8.3
Subtotal		15.1	15.8	16.5	17.2	18.3
OFF-ROAD EQUIPMENT						
Lawn and Garden Equipment		0.1	0.1	0.1	0.1	0.1
Construction Equipment		1.7	1.9	1.9	2.0	2.2
Industrial Equipment		0.7	0.8	0.8	0.9	1.0
Light Commercial Equipment		0.2	0.2	0.3	0.3	0.3
Subtotal		2.8	3.0	3.2	3.3	3.6
TRANSPORTATION						
Off-Road						
Locomotives		0.1	0.1	0.1	0.1	0.1
Ships		0.7	0.8	0.8	0.9	1.0
Boats		0.6	0.6	0.5	0.5	0.6

TABLE 3-8 (continued)

Bay Area Greenhouse Gas Emission Inventory Projections
(Million Metric Tons CO_2-Equivalent)

SOURCE CATEGORY Year	2005	2009	2012	2015	2020
Commercial Aircraft	1.8	2.0	2.1	2.3	2.6
General Aviation	0.2	0.2	0.2	0.3	0.3
Military Aircraft	0.5	0.5	0.5	0.5	0.5
On-Road					
Passenger Cars/Trucks up to 10,000 lbs	26.6	27.1	27.9	29.0	30.9
Medium/Heavy Duty Trucks > 10,000 lbs	3.3	3.3	3.4	3.5	3.7
Urban, School and Other Buses	0.8	0.8	0.8	0.8	0.9
Motor-Homes and Motorcycles	0.2	0.2	0.2	0.2	0.2
Subtotal	34.8	35.6	36.7	38.1	40.7
AGRICULTURE/FARMING					
Agricultural Equipment	0.2	0.2	0.2	0.2	0.2
Animal Waste	0.6	0.6	0.6	0.6	0.6
Soil Management	0.3	0.3	0.3	0.3	0.3
Biomass Burning	0.0	0.0	0.0	0.0	0.0
Subtotal	1.1	1.1	1.1	1.1	1.1
GRAND TOTAL EMISSIONS	**93.4**	**98.7**	**103.0**	**107.5**	**115.4**

Source: BAAQMD, 2009

3.3.2 EXISTING GHG REGULATORY SETTING

In response to growing scientific and political concern regarding global climate change, California has recently adopted a number of legislative and regulatory measures to address greenhouse gas emissions within the state. These include California's Global Warming Solutions Act of 2006 (AB32), which requires the state to reduce its total greenhouse gas emissions to 1990 levels by 2020. The California Air Resources Board (ARB) was given primary responsibility for implementing AB 32. With respect to stationary sources, ARB is in the process of implementing a "cap-and-trade" regulation for greenhouse gas emissions. The regulation sets a statewide limit on the emissions from sources responsible for 80 percent of California's greenhouse gas emissions. The regulation will cover 360 businesses representing 600 facilities and is divided into two broad phases: an initial phase beginning in 2012 that will include all major industrial sources along with utilities; and a second phase that starts in 2015 and brings in distributors of transportation fuels, natural gas and other fuels.

Companies are not given a specific limit on their greenhouse gas emissions but must supply a sufficient number of allowances (each covering the equivalent of one ton of carbon dioxide) to cover their annual emissions. Each year, the total number of allowances issued in the state drops, requiring companies to find the most cost-effective and efficient approaches to reducing their emissions. By the end of the program in 2020 there will be a 15 percent reduction in greenhouse gas emissions compared to today,

reaching the same level of emissions as the state experienced in 1990, as required under AB 32.

The federal government has also taken steps to address greenhouse gas emissions. EPA has adopted GHG emission limits for new light-duty cars and trucks, which took effect beginning with the 2012 model year. This regulation of GHG emissions from mobile sources rendered GHGs a pollutant "subject to regulation" under the Clean Air Act, which in turn triggered NSR and Title V permitting requirements. Both NSR and Title V apply to all pollutants that are "subject to regulation", which now includes GHGs. The regulatory requirements under the NSR and Title V permitting programs are discussed in Chapter 2, Section 2.4. The impact of the inclusion of GHGs as a pollutant that is "subject to regulation" is addressed in Section 2.4.3.2. A primary purpose of the proposed amendments is to incorporate these NSR and Title V requirements for GHGs into the District's permitting programs in Regulation 2.

In addition to the regulation of GHGs under the NSR and Title V programs, the federal government has undertaken a number of other regulatory initiatives as well. These include a GHG reporting program that requires facilities with emissions of 25,000 metric tons per year or more to report their emissions to EPA, and proposed New Source Performance Standards that establish a CO_2 emission limit of 1,000 lb CO_2 per MW-hr for new power plants.

3.3.3 THRESHOLDS OF SIGNIFICANCE

As is the situation with general air quality impacts discussed above in Section 3.2., greenhouse gas emissions are primarily a cumulative concern. Indeed, GHG impacts are a paradigm example of a cumulative impact. GHG emissions from a single project are highly unlikely to result in any detectable change in the global climate all by themselves. Currently available analytic tools are normally unable to detect any impact from a single project's GHG emissions. Rather, it is the increased accumulation in GHG concentrations from many millions of individual sources around the globe that causes adverse global climate change impacts. The resultant consequences of that climate change are adverse environmental effects such as flooding of coastal areas, increased fire hazards, etc. In virtually every project subject to CEQA review, a project's GHG emissions will be relatively small compared to global or even statewide GHG emissions, and, as such, will almost certainly have no detectable impact on global climate change.

Nevertheless, global climate change is indisputably a significant environmental impact, and any project that will result in an increase in GHG emissions will contribute incrementally to that significant cumulative problem. The CEQA analysis therefore considers whether the project's additional contribution is "cumulatively considerable". If the project's contribution is "cumulatively considerable", then the project's impact is treated as significant. If the project's contribution is not "cumulatively considerable", then the project's impact is not treated as significant and it does not need to be addressed further in the EIR. (See CEQA Guidelines §§ 15064(h), 15130(a).) (These principles are also discussed in further detail in Section 3.2.3.)

In addition, the CEQA Guidelines have recently added provisions specifically addressing how the significance of a project's GHG emissions should be assessed. (See CEQA Guidelines § 15064.4.) This new Guidelines section provides that the lead agency should describe the increase in GHG emissions that would result from the project, either quantitatively or qualitatively. It then enumerates three factors that (among others) may be taken into account in considering the significance of the impacts from the project's GHG emissions. The first listed factor is the extent to which the project will result in an increase or decrease in GHG emissions, compared to the existing baseline conditions. The second listed factor is whether, if the project will result in an increase in GHG emissions, the increase will exceed a threshold of significance that is applicable to the situation being evaluated. The third listed factor is extent to which the project complies with the requirements of a statewide, regional, or local plan that has been adopted by a government agency to reduce GHG emissions. One such regulatory program that has been adopted to reduce GHG emissions that has been relied on by a number of lead agencies, and has been endorsed by the California Court of Appeal as appropriate to consider in this context under CEQA, is the Global Warming Solutions Act of 2006 (AB 32). (See *Citizens for Responsible Equitable Environmental Development v. City of Chula Vista* (2011) 197 Cal. App. 4th 327, 336.) These principles are already inherent in CEQA's general requirements for addressing impacts in the cumulative context, but Guidelines Section 15064.4 outlines specifically how they apply in the GHG context.

The potential for GHG impacts from the proposed amendments will be evaluated according to these considerations. The proposed amendments will result in significant environmental impacts if they will result in a regional net increase in GHG emissions, and if they are inconsistent with implementation of AB 32.

3.3.4 ENVIRONMENTAL IMPACTS

As noted above, due to the complex physical, chemical, and atmospheric mechanisms involved in global climate change, it is difficult using current tools and methodologies to identify any impact on global climate change from one project's incremental increase in GHG emissions. Global climate change is the paradigm example of a cumulative environmental problem. Please see the cumulative impact analysis discussion in Section 3.3.5 for the analysis of whether the proposed amendments could result in any significant adverse environmental impacts.

3.3.5 CUMULATIVE GHG IMPACTS

The following discussion evaluates the potential for the proposed amendments to result in a cumulatively considerable contribution to global climate change, per the analysis described in Section 3.3.3.

3.3.5.1 GHG Emission Reduction Benefits from Proposed Amendments

The proposed amendments will allow the District to implement the federal NSR and Title V regulatory initiatives that EPA has put into effect through its federal programs. The federal NSR and Title V programs now address GHGs, in the wake of EPA's Light Duty Vehicle Rule, Tailoring Rule, and related actions. (See Section 2.4.3.2. for further discussion.) These federal requirements implement important regulatory measures to address GHG emissions, including requiring BACT for GHG emissions and providing for a permitting review for sources subject to those programs. Although the proposed amendments will not achieve substantial additional GHG emissions reductions, as these requirements are already in effect under the federal programs, the proposed amendments will help implement them effectively in the Bay Area by establishing the requirements in the District's permitting programs. The proposed amendments will have an overall benefit in the context of GHG emissions impacts by enhancing the implementation and enforcement of these permitting programs. The proposed impacts will therefore have a beneficial impact on greenhouse gas emissions impacts.

With respect to potential impacts from each individual element of the proposed amendments, this analysis generally incorporates by reference the analysis in the air quality impacts discussion above in Section 3.2.3. The same reasons discussed there why the proposed amendments will not result in any increase in air emissions generally also support the conclusion that the proposed amendments will not result in any increases in GHGs specifically. In addition, the elements of the proposed amendments that apply specifically to GHGs are discussed in the following paragraphs.

3.3.5.2 PSD Requirement Impacts on GHG Emissions

The proposed amendments will establish GHG permitting requirements as part of the PSD provisions the District is adopting to obtain EPA approval for implementing the federal PSD program. (See Section 3.2.1.5. for further discussion of PSD permitting generally.) GHG emissions are currently regulated under EPA's PSD program in 40 C.F.R. Section 52.21. The proposed amendments will adopt District PSD provisions to transfer responsibility for PSD permitting from the federal program under Section 52.21 to the District's NSR program under Regulation 2, Rule 2.

The only substantive requirement that applies for GHG emissions sources under PSD permitting is the requirement to use the "Best Available Control Technology," or BACT. This requirement is currently applicable to GHG emission sources in the Bay Area under 40 C.F.R. Section 52.21(j). The proposed amendments will make this same PSD BACT requirement applicable for GHG emission sources under District Regulation 2, Rule 2, Section 304. Section 2-2-304 will apply this BACT requirement in exactly the same way as it applies under Section 52.21(j).

Adding this PSD BACT requirement in Regulation 2, Rule, will not result in any significant GHG emissions impacts because it will not make any change to the existing regulatory baseline conditions. Sources that are currently subject to PSD BACT under

Section 52.21(j) will be subject to PSD BACT in exactly the same way under Section 2-2-304. Moreover, even if the District were to be applying the program more broadly so that additional GHG sources were to become subject to this BACT requirement, doing so would not result in increased GHG emissions. There are currently no other emission control requirements that apply for GHGs at the individual source level, and so subjecting these emissions to a BACT requirement and imposing permit limits would result in a reduction in emissions, not any increase in emissions. In addition, there would not be any ancillary or secondary impacts from requiring new or additional add-on control equipment, because there currently are no feasible, effective add-on control technologies to address GHGs. EPA has issued guidance addressing what constitutes BACT for GHGs, and although it identifies certain technologies such as carbon capture and storage that look promising for future development, EPA does not currently expect any such add-on control technologies to be required as BACT given technical feasibility, cost, and related issues. (See EPA 2011a, Sections III.C. and III.E.) Instead, BACT for GHGs will be implemented as energy-efficiency measures requiring the most efficient equipment available for a given application (taking into account cost-effectiveness, ancillary environmental impacts, and related considerations). This approach to controlling GHG emissions will reduce the amount of fuel or other energy input necessary for a given level of output and thereby reduce GHGs associated with the activity. Reducing GHG emissions in this way will not result in any increase in any other air pollutants, and in fact will most likely reduce such emissions because burning less fuel (or using less electricity) leads to reduced emissions of all pollutants, not just GHGs.

In addition, the District has evaluated the issue regarding EPA's "NSR Reform" initiative specifically in the context of GHG emissions. As discussed above in Section 3.2.3.3., NSR Reform was a relaxation of the applicability standards for the federal NSR program that EPA adopted in 2002. Industry commenters asserted during the rule development process that the District should use this less stringent applicability test because it would actually result in reduced emissions from their facilities. They argued that the more stringent pre-NSR Reform test creates additional regulatory burdens (in the form of permitting requirements) that discourage them from modernizing and upgrading of equipment, which can have air quality benefits because newer equipment is often more efficient and generates less pollution per unit of output. They asserted that using the more stringent pre-NSR Reform applicability test in applying PSD permitting requirements for GHGs could therefore result in significant GHG emission impacts. With respect to GHGs in particular, they argued that adopting PSD permitting requirements using the pre-NSR Reform test would increase emissions compared to current regulations, because currently GHGs are regulated only under EPA's federal PSD program and EPA's federal program uses the less stringent NSR Reform applicability methodology.

The District evaluated this issue and did not find any evidence to suggest that there would be any such adverse impacts from the proposed amendments' treatment of GHGs under the PSD permitting provisions. With respect to regulating GHGs, the proposed amendments will incorporate one principal aspect of NSR Reform, the more flexible

baseline period. This provision allows a facility to base its emissions increases on the highest historical emissions over a 10-year period when determining whether a project will have a "significant" increase that requires PSD permitting. Allowing a facility to use its highest baseline emissions in the past 10 years allows it to avoid a situation where it has recently been operating at artificially depressed levels, for example because of reduced demand during a recession. The proposed amendments do not incorporate the other main aspect of NSR Reform, which is measuring increases based on unenforceable projections of how much emissions will increase, instead of based on enforceable permit limits. Using unenforceable projections is not appropriate for determining whether a facility will have a "significant" increase that requires permitting, because it allows for actual "significant" increases in the future without compliance with PSD requirements. If a facility is going to implement an improvement project that will reduce emissions (or increase emissions by a less-than-significant amount), it needs to demonstrate that the project will not in fact result in a significant emissions increase through an enforceable limit on emissions. This is the principal difference between how the proposed amendments will implement the PSD requirements for GHGs and how EPA's PSD regulations in 40 C.F.R. Section 52.21 apply currently for facilities in the Bay Area. (NSR Reform has a third element, known as "Plantwide Applicability Limits", or PALs. The District is not considering adopting PALs at this time for a number of reasons, including the fact that EPA's rules for PALs for GHGs have been in flux and were not finalized in time for the District to consider them in depth during development of the proposed amendments. District staff will continue to evaluate the PAL issue and will address PALs in a future rulemaking as appropriate.) The proposed amendments' approach to NSR Reform for GHGs is discussed in more detail in Section IV.B.3.g.ii. of the Staff Report.

The analysis of this issue did not find any evidence to support the commenters' speculation that implementing PSD permitting requirements based on enforceable permit limits, rather than on the facility's unenforceable projections of what its future emissions might be, could result in significant GHG emissions impacts. To the extent that these commenters are concerned about permitting burdens discouraging their projects from going forward, the stringency of existing permitting requirements means that the proposed amendments will make little difference in whether projects trigger NSR permitting, regardless of whether PSD is implemented using the NSR Reform or pre-NSR Reform test. This is the conclusion that EPA reached when it evaluated this issue and determined that "the federal NSR Reform provisions do not provide any of EPA's intended additional flexibility to proposed projects" given the stringency of all the other permitting requirements that apply in California. (EPA, 2011b, at p. 17; see also additional discussion in Section 3.2.3.3. above.) Although EPA intended the relaxed applicability provisions of NSR Reform to provide additional flexibility for regulated entities to avoid permitting requirements, these provisions are not likely to make a determinative difference in the permitting burdens facing facility improvement projects in the Bay Area because of the stringency of California's existing regulatory programs.

Moreover, basing PSD applicability on enforceable limits rather than unenforceable projections is not likely to play a determinative role in a facility's decision-making

process at the time the decision is made on whether or not to implement a project. If a facility is contemplating a project that truly will reduce emissions (or at least not result in a significant increase), then it will be able to avoid PSD permitting requirements by committing that there will not be any significant increase through enforceable permit conditions. Conversely, if the facility contemplates the possibility that the project could potentially result in a significant increase such that it does not feel comfortable agreeing to such a limit, then it will have to comply with the PSD requirements. But this is exactly the same situation (at least at the project decision-making stage) as would apply if PSD permitting was based on unenforceable emissions projections – a project that is projected to result in less-than-significant emissions increases avoids PSD while a project that is projected to potentially exceed the significance levels is subject to PSD. The only difference applies after the fact, when the project is built and operating. Going forward, there will be an enforceable limit to keep emissions below the significance level under the District's approach, but there will be no enforceable limits to prevent significant increases under the full NSR Reform approach. Concerns about enforceability once the project has been built are very important from the perspective of the overall effectiveness of the PSD program, and they were one of the main reasons why the District did not adopt this element of NSR Reform. But they will not make a determinative difference in the facility's decision-making calculus at the time it has to choose whether or not to implement a particular project.

In addition, even if a facility in such a situation does not feel comfortable with an enforceable permit limit to keep emissions below the "significant" increase level, the only additional PSD requirement for GHGs is to use the Best Available Control Technology (BACT) to control GHG emissions. As noted above, under EPA guidance PSD BACT is currently being implemented by requiring the facility to use the most efficient equipment that is currently available for the specific type of operation at the facility, based on cost-effectiveness and related considerations. Having to use the most efficient equipment for a particular application that can be justified based on its cost is unlikely to materially dissuade a facility from undertaking a beneficial facility improvement project. Indeed, it is difficult to speculate that a facility would <u>not</u> want to implement the most energy-efficient equipment that it can justify on cost-effectiveness grounds, given the cost savings involved from reduced fuel usage or electricity consumption. The fact that a facility will be <u>required</u> to use such equipment to comply with BACT is not likely to make a determinative difference in whether the facility decides to implement the project or not.

Furthermore, there are many incentives that will encourage and/or require regulated facilities in the Bay Area to implement beneficial improvement projects. These are discussed in Section 3.2.3.3. above in the context of air quality generally, and they are equally true in the specific context of GHGs. There are strong incentives for facilities in the Bay Area to upgrade their equipment – voluntarily for business purposes and/or in order to comply with regulatory requirements – and there is no evidence to suggest that basing the District's PSD requirements on enforceable emissions limits rather than on unenforceable projections will materially change this situation.

And finally, the benefits from having an enforceable PSD requirement to ensure that significant GHG emissions increases do not escape permitting review because actual emissions turn out to exceed the facility's projections need to be kept in mind as well. Although some commenters may speculate about the potential for permitting burdens to discourage beneficial GHG reduction projects, any such speculative negative consequences must be evaluated against the very real benefits in terms of enforceability and effectiveness that result from basing permitting decisions on actual permit limits instead of on unenforceable projections. These considerations further support the conclusion that overall, the proposed amendments will have a beneficial net impact on GHG emissions from sources in the Bay Area, and will not have any significant adverse impacts.

For all of these reasons, no increase in GHG emissions or significant adverse impacts on climate change is expected from the proposed PSD provisions applicable to GHG emissions.

3.3.5.3 Title V Program Impacts on GHG Emissions

The proposed amendments will make the District's Title V program explicitly cover GHG emissions sources by adding GHGs to the definition of "Regulated Air Pollutant" in Section 2-2-222, as well as making related updates to aid in the implementation of Title V requirements for this pollutant. These revisions will ensure that the District's Title V program adequately addresses GHG permitting requirements in order to implement EPA's federal program requirements.

Adding GHGs to the category of "Regulated Air Pollutants" regulated under the District's Title V program will not have any potential to result in an increase in GHG emissions, for two reasons. First, GHGs are subject to Title V permitting anyway under baseline conditions, and so including GHG emissions more explicitly under the District's Title V program will not change any regulatory requirements compared to how they apply now. The District is currently subjecting GHG emissions sources to Title V permitting as "designated facilities" (see discussion in Section 3.2.1.5. for further details), and so making Title V regulation of GHGs explicit by specifying that GHGs are regulated air pollutants will not have any substantive effect on permitting requirements for these source Moreover, even if the District were to refuse to regulate GHGs under Title V, EPA's program would still address this pollutant and EPA would be required to step in and regulate GHG emission sources under 40 C.F.R. Part 71. As such, regulated entities will not see any substantive changes in their applicable Title V requirements – or what they must do at their facilities to comply with such requirements – as a result of making GHGs a "regulated air pollutant" under Title V.

Second, Title V does not impose any substantive requirements on GHG emission sources anyway. So even if adding GHGs were a wholly new requirement compared to existing baseline regulatory conditions, it would not cause any physical or operational changes at any facility that could have any impact on the environment.

3.3.5.4 Impact from Other GHG Regulatory Initiatives

The proposed amendments are not expected to result in any significant adverse GHG impacts, as discussed above. In addition, the proposed amendments along with the Air District's other related regulatory initiatives in the 2010 CAP are expected to promote a significant net decrease in GHG emissions. The 2010 CAP control measure strategy promotes fuel efficiency and pollution prevention, which also reduces greenhouse gas emissions. Measures that reduce fuel use and/or increase use of alternative fuels will also be beneficial. In general, strategies that conserve energy and promote clean technologies usually also reduce greenhouse gas emissions. As shown in Table 3-7, the fuel combustion and the generation of electricity are responsible for a large portion of greenhouse gases produced in California.

The 2010 CAP proposed a total of 55 control measures in five categories, including:

- 18 control measures to reduce emissions from stationary and area sources
- 10 mobile source control measures
- 17 transportation control measures
- 6 land use and local impact control measures
- 4 energy and climate control measures.

The control measures that are expected to result in GHG emissions reductions are included in Table 3-6. The overall GHG emissions associated with the 2010 CAP, including the TCMs developed as part of MTC's Regional Transportation Plan, Transportation 2035, is expected to be about 15,150 tons per year (see Table 3-6), providing a large reduction in GHG emissions. Overall, the proposed amendments, 2010 CAP and related TCMs will reduce GHG emissions on a regional level, so that significant cumulative beneficial impacts are expected.

3.3.6 MITIGATION MEASURES

No significant adverse GHG quality impacts are expected due to implementation of the proposed amendments to the District's rules and regulations. Therefore, there is no need for the District to implement mitigation measures in connection with the proposed amendments in order to avoid any significant impacts or reduce them to a less than significant level. Mitigation measures are required only where there are significant adverse impacts to be mitigated. (See CEQA Guidelines § 15126.4(a)(3).)

3.3.7 GHG IMPACTS CONCLUSIONS

As discussed in detail in the foregoing sections, the EIR's analysis has found that the proposed amendments to District Regulation 2 will not result in a significant adverse impact on GHG emissions. The proposed amendments will strengthen the Air District's permitting programs and thereby enhance the District's ability to implement its regulatory program and to achieve the Bay Area's clean air goals. The EIR has evaluated

the potential for the proposed amendments to have adverse GHG impacts in connection with this strengthening of District regulations, and has concluded based on all available evidence that there will be no such significant adverse impacts. The support for this conclusion and the evidence on which it is based were addressed in Section 3.3 of this EIR.

3.4 GROWTH INDUCING IMPACTS

3.4.1 INTRODUCTION

CEQA defines growth-inducing impacts as those impacts of a proposed project that "could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects, which would remove obstacles to population growth" (CEQA Guidelines §15126.2(d)).

To address this issue, potential growth-inducing effects are examined through the following considerations:

- Facilitation of economic effects that could result in other activities that could significantly affect the environment;
- Expansion requirements for one or more public services to maintain desired levels of service as a result of the proposed Project modifications;
- Removal of obstacles to growth, e.g., through the construction or extension of major infrastructure facilities that do not presently exist in the project area or through changes in existing regulations pertaining to land development;
- Adding development or encroachment into open space; and/or
- Setting a precedent that could encourage and facilitate other activities that could significantly affect the environment.

3.4.2 ECONOMIC AND POPULATION GROWTH, AND RELATED PUBLIC SERVICES

The proposed amendments would not directly foster economic or population growth or the construction of new housing in the Bay Area. The proposed amendments are not expected to involve any significant construction activities or new development. Therefore, they would not stimulate significant population growth, remove obstacles to population growth, or necessitate the construction of new community facilities that would lead to additional growth.

A project would directly induce growth if it would directly foster economic or population growth or the construction of new housing in the surrounding environment (e.g., if it

would remove an obstacle to growth by expanding existing infrastructure). The proposed amendments would not remove barriers to population growth, as they involve no changes to General Plan, zoning ordinance, or related land use policy. The proposed amendments do not include the development of new housing or population-generating uses or infrastructure that would directly encourage such uses. Therefore, the proposed amendments would not directly trigger new residential development in the Bay Area.
Further, the proposed amendments would not be expected to result in an increase in local population, housing, or associated public services (e.g. fire, police, schools, recreation, and library facilities) since the proposed amendments would not result in an increase in workers or residents. Likewise, the proposed amendments would not create new demand for secondary services, including regional or specialty retail, restaurant or food delivery, recreation, or entertainment uses. As discussed in the NOP/IS (see Appendix A), implementation of the proposed amendments would not increase the demand for water, wastewater, electricity, solid waste disposal capacity, or natural gas. As such, the proposed amendments would not foster economic or population growth in the surrounding area in a manner that would be growth-inducing.

3.4.3 REMOVAL OF OBSTACLES TO GROWTH

The proposed amendments would not employ activities or uses that would result in growth inducement, such as the development of new infrastructure (i.e., new roadway access or utilities) that would directly or indirectly cause the growth of new populations, communities, or currently undeveloped areas. Likewise, the proposed amendments would not result in an expansion of existing public service facilities (e.g., police, fire, libraries, and schools) or the development of public service facilities that do not already exist.

3.4.4 DEVELOPMENT OR ENCROACHMENTS INTO OPEN SPACE

Development can be considered growth-inducing when it is not contiguous to existing urban development and introduces development into open space areas. The proposed amendments are not expected to require any new development. Therefore, the proposed amendments would not result in development within or encroachment into an open space area.

3.4.5 PRECEDENT SETTING ACTION

The proposed rule amendment will largely implement existing federal air permitting requirements, allowing the District to implement and issue certain approvals and permits (i.e., NSR and Title V permits), as opposed to the EPA. As these permit programs are already established under federal regulations, the proposed amendments would not result in precedent-setting actions that might cause significant environmental impacts.

3.4.6 CONCLUSION

The proposed amendments would not be considered growth-inducing, because they would not result in an increase in production of resources or cause a progression of growth that could significantly affect the environment either individually or cumulatively.

3.5 SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED AND SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Section 15126.2(b) of the CEQA Guidelines requires that an EIR describe significant environmental impacts that cannot be avoided, including those effects that can be mitigated but not reduced to a less than significant level. As evaluated in the preceding portions of Chapter 3 of this EIR, the proposed amendments are not expected to result in any significant or unavoidable impacts.

3.6 ENVIRONMENTAL EFFECTS NOT FOUND TO BE SIGNIFICANT

The environmental effects of the proposed amendments are identified and discussed in detail in the preceding portions of Chapter 3 of this EIR and in the Initial Study (see Appendix A) per the requirements of the CEQA Guidelines (§15128). The following topics of analysis in this EIR were found to have no potentially significant adverse effects, after mitigation:

Air Quality
Greenhouse Gases

The following topics of analysis were found to have no potentially significant adverse effects in the Initial Study (see Appendix A):

Aesthetics
Agriculture and Forestry Resources
Biological Resources
Cultural Resources
Geology/Soils
Hazards and Hazardous Materials
Hydrology/Water Quality
Land Use/Planning
Mineral Resources
Noise
Population/Housing
Public Services
Recreation

Transportation/Traffic
Utilities and Service Systems

No potentially significant adverse impacts were identified for the implementation of the proposed amendments.