5.3 - Air Quality

5.3.1 - Introduction

This section contains the following components:

- Environmental Setting: Describes the San Joaquin Valley Air Basin, the concentration of air pollutants in the City and surrounding area, the County of Fresno air emissions, and the attainment status of the Air Basin.
- Regulatory Setting: Describes the federal, state, district, and local regulatory setting for air pollutants.
- Project Impacts and Mitigation Measures: Assesses the significance of air pollutants that may be emitted as part of the project and applies mitigation measures if necessary. Project emissions are estimated by FirstCarbon Solutions; spreadsheets are contained in Appendix B-1.

5.3.2 - Environmental Setting

The City of Fresno is located in the County of Fresno in the San Joaquin Valley Air Basin (Air Basin). The Air Basin consists of Kings, Madera, San Joaquin, Merced, Stanislaus, and Fresno counties, as well as a portion of Kern County. The local agency with jurisdiction over air quality in the Basin is the San Joaquin Valley Air Pollution Control District (the District). Regional and local air quality is impacted by topography, dominant airflows, atmospheric inversions, location, and season.

Study Area for Project Impacts

The study area for project impacts regarding air quality is the City of Fresno Planning Area and proximate sensitive receptors potentially impacted by a project within the Planning Area because potential development under the City of Fresno General Plan and Development Code Update is limited to areas within the Planning Area. However, the buildout of the General Plan is the cumulative result of hundreds of separate projects requiring separate approvals that add to emissions generated from existing development. Air quality impacts are inherently cumulative in nature. For example, the largest source of emissions, motor vehicles, occur as individuals travel throughout the Planning Area and beyond to a multitude of destinations each day.

The SJVAB is classified nonattainment for ozone, particulate matter less than ten micrometers in diameter (PM_{10}) and particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$). Therefore, a significant air quality impact currently exists without the project. When the existing condition is a significant impact, it is necessary to identify an amount of project emissions that would be considered a significant cumulative contribution to an existing exceedance. The SJVAPCD had adopted project level thresholds based on a cumulative contribution of ozone precursors reactive organic gases (ROG) and oxides of nitrogen (NOx) of 10 tons per year. Although not adopted in its guidance document, the SJVAPCD recommends thresholds for PM_{10} and $PM_{2.5}$ of 15 tons per year based on their stationary source offset threshold. A conservative interpretation of this threshold

would apply the annual emission thresholds to annual emission generated during General Plan buildout. The combined annual emissions of projects during construction and operation would be compared to the annual threshold.

Study Area for Cumulative Impacts

The study area for the analysis of cumulative regional air quality impacts such as ROG, NOx, PM_{10}, and $PM_{2.5}$ is the San Joaquin Valley Air Basin which includes the Counties of San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare and a portion of Kern. Under the federal Clean Air Act, any monitoring location that exceeds ambient air quality ozone and particulate standards within the air basin results in the entire air basin to be designated nonattainment. Therefore, an exceedance in Fresno or another city would affect the attainment status of the rest of the San Joaquin Valley even if no other location exceeded one of the standards. This means that air quality plans must provide reductions that demonstrate attainment at the location with the highest concentration in the basin and that cleaner locations would attain the standards earlier.

Air pollutants can remain in the atmosphere for long periods and can build to unhealthful levels when stagnant conditions that are common in the San Joaquin Valley occur. Pollutants are transported downwind from urban areas with many emission sources, but also are recirculated to the urban areas by wind eddies and upslope/downslope mountain and valley winds. Therefore, emissions from large urban areas like Fresno have the potential to create regional air quality impacts for ozone and PM in addition to localized impacts for CO, NO_2, and PM.

The analysis of regional emissions is based on a summary of projections approach as provided in Section 15130(b)(1)(B) of the CEQA Guidelines. The applicable projections include those provided within the air quality attainment plans for the San Joaquin Valley Air Basin prepared by the District. The study area for the analysis of cumulative localized impacts is limited to areas with sensitive receptors that are in the immediate vicinity of specific sources.

San Joaquin Valley

The information in this section is primarily from the District's Guide for Assessing and Mitigating Air Quality Impacts and the accompanying Technical Document (San Joaquin Valley Air Pollution Control District 2002).

The Air Basin has an "inland Mediterranean" climate and is characterized by long, hot, dry summers and short, foggy winters. Sunlight can be a catalyst in the formation of some air pollutants (such as ozone); the Air Basin averages over 260 sunny days per year.

Topography

The Air Basin is generally shaped like a bowl. It is open in the north and is surrounded by mountain ranges on all other sides. The Sierra Nevada mountains are along the eastern boundary (8,000 to 14,000 feet in elevation), the Coast Ranges are along the western boundary (3,000 feet in elevation), and the Tehachapi Mountains are along the southern boundary (6,000 to 8,000 feet in elevation). Comparing the San Joaquin Valley to Los Angeles' air basin, the Los Angeles basin can handle 10

times more pollution due to its different location, topography and air flow patterns (proximity to the ocean and ocean winds).

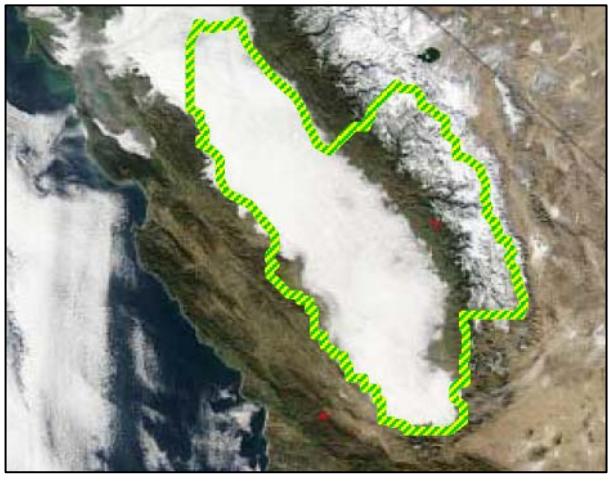
Dominant Airflow

Dominant airflows provide the driving mechanism for transport and dispersion of air pollution. The mountains surrounding the Air Basin form natural horizontal barriers to the dispersion of air contaminants. The wind generally flows south-southeast through the valley, through the Tehachapi Pass and into the Southeast Desert Air Basin portion of Kern County. As the wind moves through the Air Basin, it mixes with the air pollution generated locally, generally transporting air pollutants from the north to the south in the summer and in a reverse flow in the winter.

Inversions

Generally, the temperature of air decreases with height, creating a gradient from warmer air near the ground to cooler air at elevation. This gradient of cooler air over warm air is known as the environmental lapse rate. Inversions occur when warm air sits over cooler air, trapping the cooler air near the ground. These inversions trap pollutants from dispersing vertically, and the mountains surrounding the San Joaquin Valley trap the pollutants from dispersing horizontally. Strong temperature inversions occur throughout the Air Basin in the summer, fall, and winter. Daytime temperature inversions occur at elevations of 2,000 to 2,500 feet above the San Joaquin Valley floor during the summer and at 500 to 1,000 feet during the winter.

Exhibit 5.3-1: San Joaquin Valley Inversion



The result is a relatively high concentration of air pollution in the valley during inversion episodes. Exhibit 5.3-1 to the right displays how pollution is trapped in the Valley in the winter months (source: San Joaquin Valley Air Pollution Control District 2007, 2007 Ozone Plan). These inversions cause haziness, which in addition to moisture may include suspended dust, a variety of chemical aerosols emitted from vehicles, particulates from wood stoves, and other pollutants. In the winter, these conditions can lead to carbon monoxide (CO) "hotspots" along heavily traveled roads and at busy intersections. During summer's longer daylight hours, stagnant air, high temperatures, and plentiful sunshine provide the conditions and energy for the photochemical reaction between reactive organic gases (ROG) and oxides of nitrogen ($NO_{x)}$, which results in the formation of ozone.

Location and Season

Because of the prevailing daytime winds and time-delayed nature of ozone, concentrations are highest in the southern portion of the Air Basin, such as around Bakersfield. Summers are often periods of hazy visibility and occasionally unhealthful air, while winter air quality impacts tend to be

localized and can consist of (but are not exclusive to) odors from agricultural operations; soot or smoke around residential, agricultural, and hazard-reduction wood burning; or dust near mineral resource recovery operations.

Comparing the San Joaquin Valley to the South Coast Air Basin (SCAB) which includes Los Angeles, the SCAB can handle approximately 10 times more pollution due to its coastal location, and air flow patterns (proximity to the ocean and ocean winds. As an example, total NOx emissions for the SCAB were 754 tons per day (tpd) in 2008. During that year, the SCAB recorded 80 days above the 1997 national 8-hour ozone standard. For the same year, the total NOx emissions for the San Joaquin Valley Air Basin SJVAB) were 409 tpd (over a larger area), yet the Valley recorded 82 days above the standard. NOx dispersal is primarily dependent on summertime weather patterns. The SCAB experiences regular coastal winds through much of the summer that not only disperse pollutants from the air basin, but also moderates temperatures. Conversely, the Valley, surrounded by mountain ranges, routinely experiences stagnant weather patterns (less wind) and extended periods of high temperatures, both of which build and concentrate ozone to levels above the standard (SJVAPCD 2012).

Local Air Quality

The local air quality can be evaluated by reviewing relevant air pollution concentrations near the General Plan area. Table 5.3-1 summarizes 2009 through 2012 published monitoring data, which is the most recent 4-year period available. The data is from three monitoring stations in Fresno and one in Clovis. The data shows that during the past few years, the region in and around the City of Fresno has exceeded the standards for some key components of air pollution: ozone, particulate matter (PM) less than 10 micrometers in diameter (PM_{10}), and PM less than 2.5 micrometers in diameter ($PM_{2.5}$) See the pollutant descriptions in Table 5.3-4 for more information regarding the characteristics and health effects of these pollutants.

Table 5.3-1: Air Quality Monitoring Summary

Air Pollutant	Units	Item	Station	2009	2010	2011	2012
Ozone	ppm	Maximum 1 Hour	Clovis	0.119	0.133	0.133	0.124
			Drummond	0.118	0.108	0.129	0.127
			First Street	0.121	0.127	0.119	0.135*
			Skypark	0.119	0.138	0.115	0.130
	days	Days > 1 Hour State Standard (0.09 ppm)	Clovis	33	22	32	37
			Drummond	25	5	27	19
			First Street	36	16	14	23
			Skypark	20	14	20	7
	ppm	Maximum 8 Hour	Clovis	0.105	0.105	0.103	0.109
			Drummond	0.100	0.091	0.104	0.108

Air Pollutant	Units	Item	Station	2009	2010	2011	2012
			First Street	0.104	0.107	0.096	0.116*
			Skypark	0.104	0.114	0.099	0.109
	days	Days > 8 Hour State Standard (0.07 ppm)	Clovis	64	58	72	93
			Drummond	55	24	73	75
			First Street	73	51	54	73*
			Skypark	48	56	70	34
	days	Days > 8 Hour National Standard (0.075 ppm)	Clovis	48	39	49	57
			Drummond	39	13	52	46
			First Street	51	26	33	0
			Skypark	34	35	45	19
Carbon monoxide (CO)	ppm	Maximum 8 Hour	Clovis	1.66	1.43	1.42	ID
			Drummond	1.95	1.45	1.73	ID
			First Street*	2.07	2.03	2.29	2.06
			Skypark	1.40	0.90	1.58	ID
	days	Days > 8 Hour Standard (9.0 ppm)	Clovis	0	0	0	ID
			Drummond	0	0	0	ID
			First Street*	0	0	0	0
			Skypark	0	0	0	ID
Nitrogen dioxide (NO_2)	ppm	Annual Average	Clovis	0.011	0.010	ID	0.010
			Drummond	0.014	ID	ID	0.013
			First Street	0.014	0.013	0.012	ID
			Skypark	0.007	ID	ID	ID
	ppm	Maximum 1 Hour	Clovis	0.061	0.055	0.050	0.055
			Drummond	0.076	0.062	0.069	0.070
			First Street	0.068	0.077	0.062	0.059
			Skypark	0.044	0.034	0.039	0.043
	days	Days > 1 Hour State Standard (0.18 ppm)	Clovis	0	0	0	0
			Drummond	0	0	0	0
			First Street	0	0	0	0
			Skypark	0	0	0	0
Sulfur dioxide (SO_2)	ppm	Annual Average	First Street	0.001	0.000	ID	ID
	ppm	Maximum 24 Hour	First Street	0.005	0.004	ID	ID
Inhalable	$\mu g/m^3$	Annual Average	Clovis	28.5	28.2	30.4	29.2

Air Pollutant	Units	Item	Station	2009	2010	2011	2012
coarse particles (PM_{10})			Drummond	35.3	26.9	32.3	42.9
			First Street*	30.9	25.9	29.6	17.1
	$\mu g/m^3$	24 Hour	Clovis	65.2	62.8	77.0	78.3
			Drummond	84.0	68.1	91.3	114.3
			First Street*	75.3	88.6	99.5	71.0
	days	Estimated Days > 24 Hour State Standard (50 $\mu g/m^3$)	Clovis	32.8	47.9	53.0	55.8
			Drummond	71.8	ID	72.0	ID
			First Street*	50.2	30.6	53.9	ID
	days	Days > 24 Hour National Standard (150 $\mu g/m^3$)	Clovis	0	0	0	0
			Drummond	0	ID	0	0
			First Street*	0	0	0	ID
Fine particulate matter ($PM_{2.5}$)	$\mu g/m^3$	Annual Average	Clovis	18.2	14.6	17.9	15.3
			First Street*	15.1	13.0	15.4	14.4
	$\mu g/m^3$	24 Hour	Clovis	71.0	75.2	76.4	80.8
			First Street*	82.3	62.0	78.5	88.8
	days	Estimated Days > 24 Hour National Standard (35 $\mu g/m^3$)	Clovis	36.0	19.8	38.3	24.1
			First Street*	35.8	21.7	39.0	29.4

Notes and Abbreviations:
> = exceed ppm = parts per million $\mu g/m^3$ = micrograms per cubic meter
ID = insufficient data State Standard = California Ambient Air Quality Standard
National Standard = National Ambient Air Quality Standard
Stations: Clovis = 908 N. Villa Avenue, Clovis
Drummond = 4706 E. Drummond Street, Fresno
First Street = 3425 N. First Street, Fresno
* The First Street monitoring station was closed in 2012 and replaced by the Garland Avenue station; data for pollutants marked with "*" in 2012 for First Street reflects the Garland Avenue station.
Skypark = 4508 Chennault Avenue, Fresno
Source: California Air Resources Board 2012b.

The data in Table 5.3-1 reflects the *concentration* of the pollutants in the air, measured using air monitoring equipment. This differs from *emissions*, which are calculations of a pollutant being emitted over a period of time. Emissions for Fresno County using the most recent data available are shown in Table 5.3-2. Emissions within the City of Fresno are included in these emissions, though it also includes other emissions in the County. As shown in Table 5.3-2, the main source of NOx and CO is from on-road mobile vehicles (cars and trucks on the road). The main source of ROG is from solvent evaporation. The main source of PM_{10} is from road dust. The main source of $PM_{2.5}$ is from managed burning and disposal. See the pollutant descriptions in Table 5.3-4 for more information regarding the characteristics and health effects of these pollutants

Table 5.3-2: Fresno County Emissions

Source	Emissions (tons/day)					
	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
On-road mobile vehicles	11.5	39.1	109.7	0.1	2.4	1.5
Other mobile sources	13.4	25.5	77.3	0.2	1.6	1.5
Stationary fuel combustion	0.8	11.6	8.6	4.5	1.3	1.2
Waste disposal	1.5	<0.1	0.1	<0.1	<0.1	<0.1
Cleaning and surface coatings	6.2	<0.1	<0.1	<0.1	<0.1	<0.1
Petroleum production and marketing	3.0	<0.1	<0.1	<0.1	<0.1	<0.1
Industrial processes	5.2	5.0	0.3	3.4	2.9	1.7
Solvent evaporation	15.1	0.0	0.0	0.0	0.0	0.0
Residential fuel combustion	1.4	1.7	21.1	0.1	2.6	2.5
Farming operations	12.2	-	-	-	15.7	3.6
Construction and demolition	-	-	-	-	3.0	0.3
Road dust	-	-	-	-	24.0	2.9
Fugitive windblown dust	-	-	-	-	15.6	2.7
Fires, managed burning and disposal, cooking	7.7	5.2	89.2	0.5	11.0	9.7
Total	**78.0**	**88.1**	**306.3**	**8.8**	**80.1**	**27.6**

Note: ROG and NOx are precursors to ozone formation that are controlled to reduce ozone concentrations.
Source of mobile emissions: EMFAC2011, Fresno County, 2011, Annual Average, all model years, all speeds
Source of all other emissions: California Air Resources Board 2009. Almanac Emission Projection Data for 2008.

Sensitive Receptors

Those individuals who are sensitive to air pollution include children, the elderly, and persons with pre-existing respiratory or cardiovascular illness. The District considers a sensitive receptor to be a location that houses or attracts children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Examples of sensitive receptors include hospitals, residences, convalescent facilities, and schools. There are many sensitive receptors throughout the City of Fresno.

Attainment Status

The United States Environmental Protection Agency (EPA) and the California Air Resources Board (ARB) designate air basins where ambient air quality standards are exceeded as "nonattainment" areas. If standards are met, the area is designated as an "attainment" area. If there is inadequate or inconclusive data to make a definitive attainment designation, they are considered "unclassified."

National nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards. Each standard has a different definition, or "form" of what constitutes attainment, based on specific air quality statistics. For example, the federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring value exceeds the threshold per year. In contrast, the federal annual $PM_{2.5}$ standard is met if the 3-year average of the annual average $PM_{2.5}$ concentration is less than or equal to the standard. The current attainment designations for the basin are shown in Table 5.3-3.

Table 5.3-3: San Joaquin Valley Air Basin Attainment Status

Pollutant	Designation	
	Federal	State
Ozone –1-hour	No Federal Standard	Nonattainment/Severe
Ozone – 8-hour	Nonattainment	Nonattainment
PM_{10}	Attainment	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
Carbon monoxide	Fresno County is in Maintenance	Merced, Madera, and Kings County are unclassified; others in Attainment
Nitrogen dioxide	Attainment/Unclassified	Attainment
Sulfur dioxide	Attainment/Unclassified	Attainment
Lead	Attainment	Attainment
Hydrogen sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility-reducing particles	No Federal Standard	Unclassified
Vinyl chloride	No Federal Standard	Attainment
Source of state status: California Air Resources Board 2012. Source of national status: U.S. Environmental Protection Agency 2013.		

5.3.3 - Regulatory Setting

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

National and State Air Quality Standards

The EPA is responsible for national and interstate air pollution issues and policies. The EPA sets national vehicle and stationary source emission standards, oversees approval of all State Implementation Plans, provides research and guidance for air pollution programs, and sets National

Ambient Air Quality Standards, also known as federal standards. There are federal standards for six common air pollutants, called criteria air pollutants, which were identified from provisions of the Clean Air Act of 1970. The criteria pollutants are:

- Ozone (O_3)
- Nitrogen dioxide (NO_2)
- Lead (Pb)
- Particulate matter (PM_{10} and $PM_{2.5}$)
- Carbon monoxide (CO)
- Sulfur dioxide (SO_2)

The federal standards were set to protect public health, including that of sensitive individuals; thus, the standards continue to change as more medical research is available regarding the health effects of the criteria pollutants. Primary federal standards are the levels of air quality necessary, with an adequate margin of safety, to protect the public health (California Air Resources Board 2012a).

A State Implementation Plan is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain federal standards. The State Implementation Plan for the State of California is administered by the ARB, which has overall responsibility for statewide air quality maintenance and air pollution prevention. California's State Implementation Plan incorporates individual federal attainment plans for regional air districts—air district prepares their federal attainment plan, which sent to ARB to be approved and incorporated into the California State Implementation Plan. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms.

The ARB also administers California Ambient Air Quality Standards (state standards) for the 10 air pollutants designated in the California Clean Air Act. The 10 state air pollutants are the six federal standards listed above as well as visibility-reducing particulates, hydrogen sulfide, sulfates, and vinyl chloride.

The federal and state ambient air quality standards, relevant effects, properties, and sources of the pollutants are summarized in Table 5.3-4.

Table 5.3-4: Description of Air Pollutants

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Ozone (O_3)	1 Hour	0.09 ppm	—	Irritate respiratory system; reduce lung function; breathing pattern changes; reduction of breathing capacity; inflame and damage cells that line the lungs; make lungs more susceptible to infection; aggravate asthma; aggravate other chronic lung diseases; cause permanent lung damage; some immunological changes; increased mortality risk; vegetation and property damage.	Ozone is a photochemical pollutant as it is not emitted directly into the atmosphere, but is formed by a complex series of chemical reactions between volatile organic compounds (VOC), NO_x, and sunlight. Ozone is a regional pollutant that is generated over a large area and is transported and spread by the wind.	Ozone is a secondary pollutant; thus, it is not emitted directly into the lower level of the atmosphere. The primary sources of ozone precursors (VOC and NO_x) are mobile sources (on-road and off-road vehicle exhaust).
	8 Hour	0.070 ppm	0.075 ppm			
Carbon monoxide (CO)	1 Hour	20 ppm	35 ppm	Ranges depending on exposure: slight headaches; nausea; aggravation of angina pectoris (chest pain) and other aspects of coronary heart disease; decreased exercise tolerance in persons with peripheral vascular disease and lung disease; impairment of central nervous system functions; possible increased risk to fetuses; death.	CO is a colorless, odorless, toxic gas. CO is somewhat soluble in water; therefore, rainfall and fog can suppress CO conditions. CO enters the body through the lungs, dissolves in the blood, replaces oxygen as an attachment to hemoglobin, and reduces available oxygen in the blood.	CO is produced by incomplete combustion of carbon-containing fuels (e.g., gasoline, diesel fuel, and biomass). Sources include motor vehicle exhaust, industrial processes (metals processing and chemical manufacturing), residential wood burning, and natural sources.
	8 Hour	9.0 ppm	9 ppm			
Nitrogen dioxide[b] (NO_2)	1 Hour	0.18 ppm	0.100 ppm	Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; contribution to atmospheric discoloration; increased visits to	Nitrogen dioxide (NO_2) is one of a group of highly reactive gasses known as "oxides of nitrogen," or "nitrogen oxides (NOx)." Other nitrogen oxides include nitrous acid and nitric acid. EPA's National Ambient Air Quality Standard uses NO_2 as the indicator for the larger group of nitrogen oxides in addition	NO_2 forms quickly from emissions from cars, trucks and buses, power plants, and off-road equipment. NO_x is produced in motor vehicle internal combustion engines and fossil fuel-fired electric utility and industrial boilers. Nitrogen dioxide (NO_2) forms quickly from NO_x emissions. NO_2 concentrations
	Annual	0.030 ppm	0.053 ppm			

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
				hospital for respiratory illnesses.	to contributing to the formation of ground-level ozone, and fine particle pollution.	near major roads can be 30 to 100 percent higher than those at monitoring stations.
Sulfur dioxide[c] (SO_2)	1 Hour	0.25 ppm	0.075 ppm	Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma. Some population-based studies indicate that the mortality and morbidity effects associated with fine particles (PM_{10} and smaller) show a similar association with ambient sulfur dioxide levels. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor.	Sulfur dioxide is a colorless, pungent gas. At levels greater than 0.5 ppm, the gas has a strong odor, similar to rotten eggs. Sulfur oxides (SO_x) include sulfur dioxide and sulfur trioxide. Sulfuric acid is formed from sulfur dioxide, which can lead to acid deposition and can harm natural resources and materials. Although sulfur dioxide concentrations have been reduced to levels well below state and federal standards, further reductions are desirable because sulfur dioxide is a precursor to sulfate and PM_{10}.	Human caused sources include fossil-fuel combustion, mineral ore processing, and chemical manufacturing. Volcanic emissions are a natural source of sulfur dioxide. The gas can also be produced in the air by dimethyl sulfide and hydrogen sulfide. Sulfur dioxide is removed from the air by dissolution in water, chemical reactions, and transfer to soils and ice caps. The sulfur dioxide levels in the State are well below the maximum standards.
	3 Hour	—	0.5 ppm			
	24 Hour	0.04 ppm	0.14 (for certain areas)			
	Annual	—	0.030 ppm (for certain areas)			
Particulate matter (PM_{10})	24 hour	50 µg/m^3	150 µg/m^3	• Short-term exposure (hours/days): irritation of the eyes, nose, throat; coughing; phlegm; chest tightness; shortness of breath; aggravate existing lung disease, causing asthma attacks and acute bronchitis; those with heart disease can suffer heart attacks and arrhythmias. • Long-term exposure: reduced lung function; chronic bronchitis; changes in lung morphology; death.	Suspended particulate matter is a mixture of small particles that consist of dry solid fragments, droplets of water, or solid cores with liquid coatings. The particles vary in shape, size, and composition. PM_{10} refers to particulate matter that is between 2.5 and 10 microns in diameter, (1 micron is one-millionth of a meter). $PM_{2.5}$ refers to particulate matter that is 2.5 microns or less in diameter, about one-thirtieth the size of the average human hair.	Stationary sources include fuel or wood combustion for electrical utilities, residential space heating, and industrial processes; construction and demolition; metals, minerals, and petrochemicals; wood products processing; mills and elevators used in agriculture; erosion from tilled lands; waste disposal, and recycling. Mobile or transportation related sources are from vehicle exhaust and road dust. Secondary particles form from reactions in the atmosphere.
	Mean	20 µg/m^3	—			
Particulate matter ($PM_{2.5}$)	24 Hour	—	35 µg/m^3			
	Annual	12 µg/m^3	12.0 µg/m^3			
Visibility-reducing particles	8 Hour	See note below[d]				

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Sulfates	24 Hour	25 µg/m^3	—	(a) Decrease in ventilatory function; (b) aggravation of asthmatic symptoms; (c) aggravation of cardio-pulmonary disease; (d) vegetation damage; (e) degradation of visibility; (f) property damage.	The sulfate ion is a polyatomic anion with the empirical formula SO_4^{2-}. Sulfates occur in combination with metal and/or hydrogen ions. Many sulfates are soluble in water.	Sulfates are particulates formed through the photochemical oxidation of sulfur dioxide. In California, the main source of sulfur compounds is combustion of gasoline and diesel fuel.
Lead[e]	30-day	1.5 µg/m^3	—	Lead accumulates in bones, soft tissue, and blood and can affect the kidneys, liver, and nervous system. It can cause impairment of blood formation and nerve conduction, behavior disorders, mental retardation, neurological impairment, learning deficiencies, and low IQs.	Lead is a solid heavy metal that can exist in air pollution as an aerosol particle component. Leaded gasoline was used in motor vehicles until around 1970. Lead concentrations have not exceeded state or federal standards at any monitoring station since 1982.	Lead ore crushing, lead-ore smelting, and battery manufacturing are currently the largest sources of lead in the atmosphere in the United States. Other sources include dust from soils contaminated with lead-based paint, solid waste disposal, and crustal physical weathering.
	Quarter	—	1.5 µg/m^3			
	Rolling 3-month average	—	0.15 µg/m^3			
Vinyl chloride[e]	24 Hour	0.01 ppm	—	Short-term exposure to high levels of vinyl chloride in the air causes central nervous system effects, such as dizziness, drowsiness, and headaches. Epidemiological studies of occupationally exposed workers have linked vinyl chloride exposure to development of a rare cancer, liver angiosarcoma, and have suggested a relationship between exposure and lung and brain cancers.	Vinyl chloride, or chloromethane, is a chlorinated hydrocarbon and a colorless gas with a mild, sweet odor. In 1990, ARB identified vinyl chloride as a toxic air contaminant and estimated a cancer unit risk factor.	Most vinyl chloride is used to make polyvinyl chloride plastic and vinyl products, including pipes, wire and cable coatings, and packaging materials. It can be formed when plastics containing these substances are left to decompose in solid waste landfills. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites.

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Hydrogen sulfide	1 Hour	0.03 ppm	—	High levels of hydrogen sulfide can cause immediate respiratory arrest. It can irritate the eyes and respiratory tract and cause headache, nausea, vomiting, and cough. Long exposure can cause pulmonary edema.	Hydrogen sulfide (H_2S) is a flammable, colorless, poisonous gas that smells like rotten eggs.	Manure, storage tanks, ponds, anaerobic lagoons, and land application sites are the primary sources of hydrogen sulfide. Anthropogenic sources include the combustion of sulfur containing fuels (oil and coal).
Volatile organic compounds (VOC)		There are no State or federal standards for VOCs because they are not classified as criteria pollutants.		Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations because of interference with oxygen uptake. In general, concentrations of VOCs are suspected to cause eye, nose, and throat irritation; headaches; loss of coordination; nausea; and damage to the liver, the kidneys, and the central nervous system. Many VOCs have been classified as toxic air contaminants.	Reactive organic gases (ROGs), or VOCs, are defined as any compound of carbon—excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate—that participates in atmospheric photochemical reactions. Although there are slight differences in the definition of ROGs and VOCs, the two terms are often used interchangeably.	Indoor sources of VOCs include paints, solvents, aerosol sprays, cleansers, tobacco smoke, etc. Outdoor sources of VOCs are from combustion and fuel evaporation. A reduction in VOC emissions reduces certain chemical reactions that contribute to the formulation of ozone. VOCs are transformed into organic aerosols in the atmosphere, which contribute to higher PM_{10} and lower visibility.
Benzene		There are no ambient air quality standards for benzene.		Short-term (acute) exposure of high doses from inhalation of benzene may cause dizziness, drowsiness, headaches, eye irritation, skin irritation, and respiratory tract irritation, and at higher levels, loss of consciousness can occur. Long-term (chronic) occupational exposure of high doses has caused blood disorders, leukemia, and lymphatic cancer.	Benzene is a VOC. It is a clear or colorless light-yellow, volatile, highly flammable liquid with a gasoline-like odor. The EPA has classified benzene as a "Group A" carcinogen.	Benzene is emitted into the air from fuel evaporation, motor vehicle exhaust, tobacco smoke, and from burning oil and coal. Benzene is used as a solvent for paints, inks, oils, waxes, plastic, and rubber. Benzene occurs naturally in gasoline at 1 to 2 percent by volume. The primary route of human exposure is through inhalation.

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Diesel particulate matter (diesel PM)		There are no ambient air quality standards for diesel PM.		Some short-term (acute) effects of diesel PM exposure include eye, nose, throat, and lung irritation, coughs, headaches, light-headedness, and nausea. Studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems. Human studies on the carcinogenicity of diesel PM demonstrate an increased risk of lung cancer, although the increased risk cannot be clearly attributed to diesel exhaust exposure.	Diesel PM is a source of $PM_{2.5}$—diesel particles are typically 2.5 microns and smaller. Diesel exhaust is a complex mixture of thousands of particles and gases that is produced when an engine burns diesel fuel. Organic compounds account for 80 percent of the total particulate matter mass, which consists of compounds such as hydrocarbons and their derivatives, and polycyclic aromatic hydrocarbons and their derivatives. Fifteen polycyclic aromatic hydrocarbons are confirmed carcinogens, a number of which are found in diesel exhaust.	Diesel exhaust is a major source of ambient particulate matter pollution in urban environments. Typically, the main source of diesel PM is from combustion of diesel fuel in diesel-powered engines. Such engines are in on-road vehicles such as diesel trucks, off-road construction vehicles, diesel electrical generators, and various pieces of stationary construction equipment.

Notes:
ppm = parts per million (concentration) $\mu g/m^3$ = micrograms per cubic meter Annual = Annual Arithmetic Mean 30-day = 30-day average Quarter = Calendar quarter

[a] Federal standard refers to the primary national ambient air quality standard, or the levels of air quality necessary, with an adequate margin of safety to protect the public health. All standards listed are primary standards except for 3 Hour SO_2, which is a secondary standard. A secondary standard is the level of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[b] To attain the 1-hour NO_2 national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (0.100 ppm).

[c] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[d] Visibility-reducing particles: In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

[e] The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Source of effects, properties, and sources: South Coast Air Quality Management District 2007; California Environmental Protection Agency 2002; California Air Resources Board 2009; U.S. Environmental Protection Agency 2003, 2009a, 2009b, 2010, 2011a, and 2012a; National Toxicology Program 2011a and 2011b.
Source of standards: California Air Resources Board 2012a.

Asbestos

Asbestos is the name given to a number of naturally occurring fibrous silicate minerals that have been mined for their useful properties such as thermal insulation, chemical and thermal stability, and high tensile strength. The three most common types of asbestos are chrysotile, amosite, and crocidolite. Chrysotile, also known as white asbestos, is the most common type of asbestos found in buildings. Chrysotile makes up approximately 90 to 95 percent of all asbestos contained in buildings in the United States.

Construction sometimes requires the demolition of existing buildings that may include materials containing asbestos. No demolition is associated with this project, however, asbestos is also found in a natural state known as naturally occurring asbestos. Exposure and disturbance of rock and soil that naturally contain asbestos can result in the release of fibers into the air and consequent exposure to the public. Asbestos most commonly occurs in ultramafic rock that has undergone partial or complete alteration to serpentine rock (serpentinite) and often contains chrysotile asbestos. In addition, another form of asbestos, tremolite, can be found associated with ultramafic rock, particularly near faults. Sources of asbestos emissions include unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present.

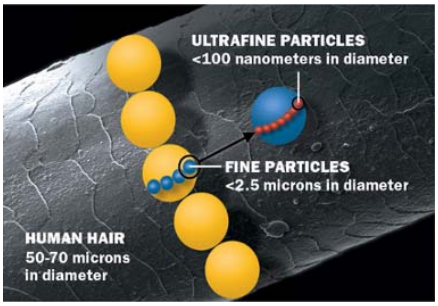
Exposure to asbestos is a health threat; exposure to asbestos fibers may result in health issues such as lung cancer, mesothelioma (a rare cancer of the thin membranes lining the lungs, chest, and abdominal cavity), and asbestosis (a non-cancerous lung disease that causes scarring of the lungs).

The ARB has an Air Toxics Control Measure for construction, grading, quarrying, and surface mining operations requiring the implementation of mitigation measures to minimize emissions of asbestos-laden dust. The measure applies to road construction and maintenance, construction and grading operations, and quarries and surface mines when the activity occurs in an area where naturally occurring asbestos is likely to be found. Areas are subject to the regulation if they are identified on maps published by the Department of Conservation as ultramafic rock units or if the Air Pollution Control Officer or owner/operator has knowledge of the presence of ultramafic rock, serpentine, or naturally occurring asbestos on the site. The measure also applies if ultramafic rock, serpentine, or asbestos is discovered during any operation or activity.

Ultrafine Particles (UFP)

Ultrafine particles are particulate matter (PM) that exists in the ambient air and are less than 0.1 micrometer (µm or microns) in diameter. Ultrafine particles (UFP or PM0.1) are included in the group called $PM_{2.5}$, particulate matter less than 2.5 micrometers in diameter. Exhibit 5.3-2 (source: Levin 2012) displays the relative size of the particles compared with a human hair, with PM_{10} (particulate matter less than 10 micrometers in diameter) indicated as yellow circles, $PM_{2.5}$ shown as blue circles, and ultrafine particles are shown as red circles.

Exhibit 5.3-2: Ultrafine Particles



In its recent revisions to the national ambient air quality standards for particulate matter, the United States Environmental Protection Agency (EPA) states that, "In considering both the currently available health effects evidence and the air quality data, the Policy Assessment concluded that this information was still too limited to provide support for consideration of a distinct PM standard for ultrafine particles" (EPA 2013). Considering the above information, this assessment does not specifically distinguish between ultrafine particles and $PM_{2.5}$ or quantify in particular ultrafine particles. However, $PM_{2.5}$ emissions are estimated and a significance finding is provided for them.

Toxic Air Contaminants(TAC)

A toxic air contaminant (TAC) is defined as an air pollutant that may cause or contribute to an increase in mortality or serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. The California Almanac of Emissions and Air Quality presents the relevant concentration and cancer risk data for the ten TACs that pose the most substantial health risk in California based on available data. The ten TACs are acetaldehyde, benzene, 1.3-butadiene, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter (diesel PM).

Some studies indicate that diesel PM poses the greatest health risk among the TACs listed above. A 10-year research program (California Air Resources Board 1998) demonstrated that diesel PM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to diesel PM poses a chronic health risk. In addition to increasing the risk of lung cancer, exposure to diesel exhaust can have other health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. Diesel exhaust is a major source of fine particulate pollution as well, and studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems.

Diesel PM differs from other TACs in that it is not a single substance but a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled, internal combustion engines, the composition of the emissions varies, depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Unlike the other TACs, however, no ambient monitoring data are available for diesel PM because no routine

measurement method currently exists. The ARB has made preliminary concentration estimates based on a diesel PM exposure method which uses PM10 as a surrogate for estimating the toxic fraction consisting of diesel PM. The diesel PM exposure method uses the ARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM.

Federal Regulations

The federal Clean Air Act provides the EPA with authority to adopt emission standards for non-road engines and vehicles such s marine vessels, construction equipment and farm equipment. The regulation of most of these sources has been delegated to the State of California, but the federal government retains authority to regulate a number of sources. The most important federal sources in California are locomotives, aircraft, and marine vessels.

California Regulations

Legal authority for California to regulate sources of air pollution is found in federal and state law. The ARB is charged with coordinating regional and local efforts to attain and maintain state and nation air quality standards. The ARB has been given authority to regulate many sources that would normally be pre-empted by federal regulations through the issuance of waivers.

Pursuant to these authorities, ARB has adopted the world's most stringent standards for passenger cars, light-duty trucks, and medium-duty vehicles. ARB has also adopted regulations establishing standards for heavy-duty vehicles, offroad vehicles and engines, offroad recreational vehicles, off road diesel engines and equipment, offroad gasoline and LPG engines and equipment, and marine pleasure craft. Descriptions of these regulations are provided below.

Low-Emission Vehicle Program

The ARB first adopted Low-Emission Vehicle (LEV) program standards in 1990. These first LEV standards ran from 1994 through 2003. LEV II regulations, running from 2004 through 2010, represent continuing progress in emission reductions. As the State's passenger vehicle fleet continues to grow and more sport utility vehicles and pickup trucks are used as passenger cars rather than work vehicles, the more stringent LEV II standards were adopted to provide reductions necessary for California to meet federally mandated clean air goals outlined in the 1994 State Implementation Plan (SIP). In 2012, ARB adopted the LEV III amendments to California's Low-Emission Vehicle (LEV) regulations. These amendments include more stringent emission standards for both criteria pollutants and greenhouse gases for new passenger vehicles (ARB 2012a).

On-Road Heavy-Duty Vehicle Program

The ARB has adopted standards for emissions from various types of new on-road heavy-duty vehicles. Section 1956.8, Title 13, California Code of Regulations contains California's emission standards for on-road heavy-duty engines and vehicles, and test procedures. ARB has also adopted programs to reduce emissions from in-use heavy-duty vehicles including the Heavy-Duty Diesel Vehicle Idling Reduction Program, the Heavy-Duty Diesel In-Use Compliance Program, the Public Bus Fleet Rule and Engine Standards, and the School Bus Program and others (ARB 2013c).

ARB Regulation for In-Use Off-Road Diesel Vehicles

On July 26, 2007, the ARB adopted a regulation to reduce diesel particulate matter and NOx emissions from in-use (existing) off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. The regulation limits idling to no more than five consecutive minutes, requires reporting and labeling, and requires disclosure of the regulation upon vehicle sale. The ARB is enforcing that part of the rule with fines up to $10,000 per day for each vehicle in violation. Performance requirements of the rule are based on a fleet's average NOx emissions, which can be met by replacing older vehicles with newer, cleaner vehicles or by applying exhaust retrofits. The regulation was amended in 2010 to delay the original timeline of the performance requirements making the first compliance deadline January 1, 2014 for large fleets (over 5,000 horsepower), 2017 for medium fleets (2,501-5,000 horsepower), and 2019 for small fleets (2,500 horsepower or less).

ARB Airborne Toxic Control Measure for Asbestos

In July 2001, the ARB approved an Air Toxic Control Measure for construction, grading, quarrying and surface mining operations to minimize emissions of naturally occurring asbestos. The regulation requires application of best management practices to control fugitive dust in areas known to have naturally occurring asbestos and requires notification to the local air district prior to commencement of ground-disturbing activities. The measure establishes specific testing, notification and engineering controls prior to grading, quarrying or surface mining in construction zones where naturally occurring asbestos is located on projects of any size. There are additional notification and engineering controls at work sites larger than one acre in size. These projects require the submittal of a "Dust Mitigation Plan" and approval by the air district prior to the start of a project.

Construction sometimes requires the demolition of existing buildings where construction occurs. Buildings often include materials containing asbestos, but no demolition is associated with this project. However, asbestos is also found in a natural state, known as naturally occurring asbestos. Exposure and disturbance of rock and soil that naturally contain asbestos can result in the release of fibers into the air and consequent exposure to the public. Asbestos most commonly occurs in ultramafic rock that has undergone partial or complete alteration to serpentine rock (serpentinite) and often contains chrysotile asbestos. In addition, another form of asbestos, tremolite, can be found associated with ultramafic rock, particularly near faults. Sources of asbestos emissions include unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present.

The ARB has an Air Toxics Control Measure for construction, grading, quarrying, and surface mining operations requiring the implementation of mitigation measures to minimize emissions of asbestos-laden dust. The measure applies to road construction and maintenance, construction and grading operations, and quarries and surface mines when the activity occurs in an area where naturally occurring asbestos is likely to be found. Areas are subject to the regulation if they are identified on maps published by the Department of Conservation as ultramafic rock units or if the Air Pollution Control Officer or owner/operator has knowledge of the presence of ultramafic rock, serpentine, or naturally occurring asbestos on the site. The measure also applies if ultramafic rock, serpentine, or

asbestos is discovered during any operation or activity. The Department of Conservation Maps show the presence of asbestos mines in San Bernardino County.

Diesel Risk Reduction Plan

The ARB's Diesel Risk Reduction Plan has led to the adoption of new state regulatory standards for all new on-road, off-road, and stationary diesel-fueled engines and vehicles to reduce DPM emissions by about 90 percent overall from year 2000 levels as stated on page 1 of the plan. The projected emission benefits associated with the full implementation of this plan, including federal measures, are reductions in DPM emissions and associated cancer risks of 75 percent by 2010 and 85 percent by 2020 (ARB 2000).

ARB Air Quality Land Use Handbook

The Air Quality Land Use Handbook is not regulatory, it merely provides non-binding guidance for local jurisdictions regarding sources of toxic emissions. The following recommendations address the issue of siting "sensitive land uses" near specific sources of air pollution; namely:

- High traffic freeways and roads
- Distribution centers
- Rail yards
- Ports
- Refineries
- Chrome plating facilities
- Dry cleaners
- Large gas dispensing facilities

Recommendations on Siting New Sensitive Land Uses Such As Residences, Schools, Daycare Centers, Playgrounds, or Medical Facilities are provided in Table 5.3-5.

Table 5.3-5: Recommendations on Siting New Sensitive Land Uses Near Toxic Air Contaminant Sources

Source Category	Advisory Recommendation
Freeways and High-Traffic Roads	Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day
Distribution Centers	Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week).
	Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	Avoid siting new sensitive land uses within 1,000 feet of a major

Source Category	Advisory Recommendation
	service and maintenance rail yard. Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Refineries	Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloroethylene	Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district.
	Do not site new sensitive land uses in the same building with Perchloroethylene dry cleaning operations.
Gasoline Dispensing Facilities	Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50-foot separation is recommended for typical gas dispensing facilities.
Notes: These recommendations are advisory. Land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues. Source: ARB 2006	

San Joaquin Valley Air Pollution Control District

The District is responsible for controlling emissions primarily from stationary sources. The District maintains air quality monitoring stations throughout the basin. The District, in coordination with the eight county transportation agencies, is also responsible for developing, updating, and implementing air quality attainment plans for the Air Basin. The District also has roles under CEQA.

Current Air Quality Plans

Ozone Plans

As an extreme nonattainment area for the 1-hour ozone national standard, the District adopted the Extreme Ozone Attainment Demonstration Plan (1-Hour Ozone Plan) in 2004. On March 8, 2010, the EPA approved the 1-Hour Ozone Plan. Although the EPA revoked the 1-hour standard effective June 15, 2005, the control requirements remain in effect to ensure progress toward meeting the new, more stringent, 8-hour ozone standard that replaced the 1-hour standard. Both Ozone Plans contain commitments to reduce a precursor of ozone, NO_x, including NO_x reductions from indirect sources.

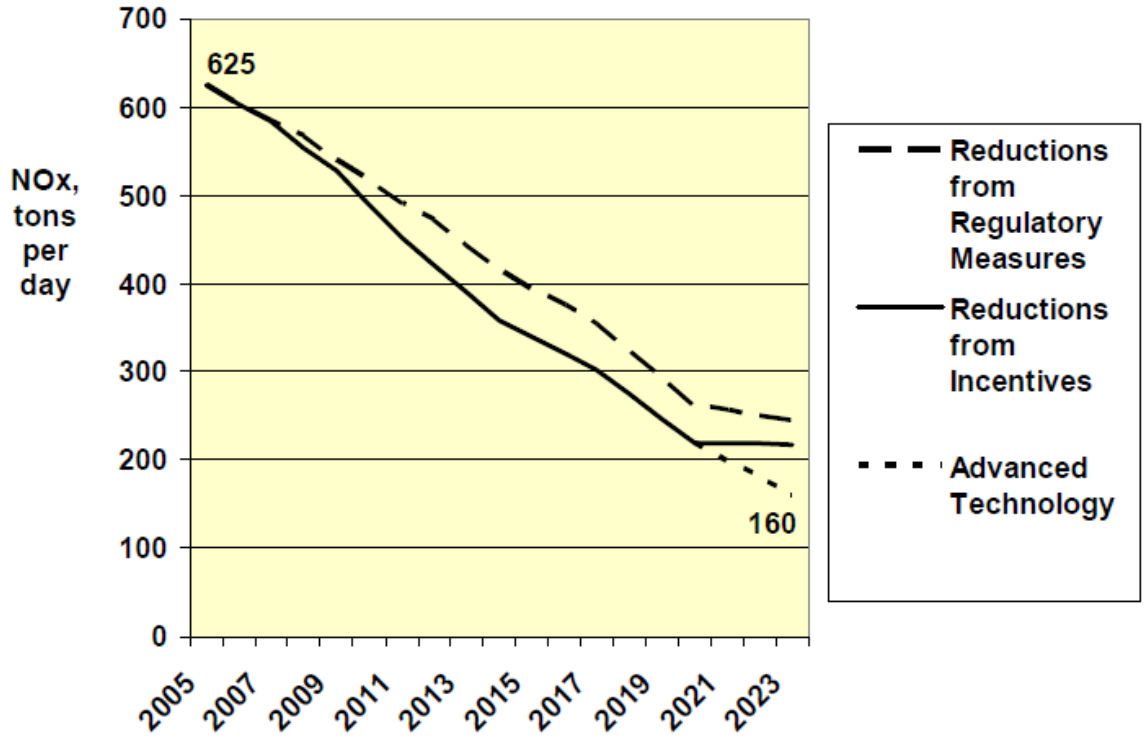
EPA originally classified the San Joaquin Valley Air Basin (SJVAB) as serious nonattainment for the 1997 federal 8-hour ozone standard with an attainment date of 2013. On April 30, 2007, the District's Governing Board adopted the 2007 Ozone Plan, which contained analysis showing a 2013 attainment target to be infeasible. The 2007 Ozone Plan details the plan for achieving attainment on schedule with an "extreme nonattainment" deadline of 2024. At its adoption of the 2007 Ozone

Plan, the District also requested a reclassification to extreme nonattainment. ARB approved the plan in June 2007, and EPA approved the request for reclassification to extreme nonattainment on April 15, 2010.

The 2007 Ozone Plan contains measures to reduce ozone and particulate matter precursor emissions to bring the Basin into attainment with the federal 8-hour ozone standard. The 2007 Ozone Plan calls for a 75-percent reduction of NO_x and a 25-percent reduction of ROG. Exhibit 5.3-3 displays the anticipated NO_x reductions attributed in the 2007 Ozone Plan (Source: 2007 Ozone Plan). The plan, with innovative measures and a "dual path" strategy, assures expeditious attainment of the federal 8-hour ozone standard for all Basin residents. The District Governing Board adopted the 2007 Ozone Plan on April 30, 2007. The ARB approved the plan on June 14, 2007. The 2007 Ozone Plan requires yet to be determined "Advanced Technology" to achieve additional reductions after 2021 to attain the standard at all monitoring stations in the Basin by 2024 as allowed for areas designated extreme nonattainment by the federal Clean Air Act (CAA).

The San Joaquin Valley Air Basin (SJVAB) is designated as an extreme ozone nonattainment area for the U.S. Environmental Protection Agency's (EPA) 2008 8-hour ozone standard of 75 parts per billion (ppb). The plan to address this standard is expected to be due to EPA in 2015/2016.

Exhibit 5.3-3: San Joaquin Valley NO_x Emissions Forecast



Particulate Matter Plans

The District adopted the *2007 PM_{10} Maintenance Plan in* September 2007 to assure the San Joaquin Valley's continued attainment of the EPA's PM_{10} standard. The EPA designated the valley as an attainment/maintenance area for PM_{10}.

The *2008 $PM_{2.5}$ Plan* builds upon the comprehensive strategy adopted in the 2007 Ozone Plan to bring the Basin into attainment of the 1997 national standards for $PM_{2.5}$. The EPA has identified NO_x and sulfur dioxide as precursors that must be addressed in air quality plans for the 1997 $PM_{2.5}$ standards. The 2008 $PM_{2.5}$ Plan is a continuation of the District's strategy to improve the air quality in the Basin.

The District prepared the *2012 $PM_{2.5}$ Plan* to bring the San Joaquin Valley into attainment of the EPA's most recent 24-hour $PM_{2.5}$ standard of 35 $\mu g/m^3$. The California Air Resources Board (ARB) approved the District's 2012 $PM_{2.5}$ Plan at a public hearing on January 24, 2013. The plan, approved by the District Governing Board on December 20, 2012, will bring the Valley into attainment of EPA's 2006 $PM_{2.5}$ standard by the 2019 deadline, with most areas seeing attainment well before then.

SJVAPCD Rules and Regulation

The SJVAPCD rules and regulations that may apply to projects that will occur during buildout of the Plan Area include but are not limited to the following:

- Rule 2201 – New and Modified Stationary Source Review (applies to any stationary/industrial equipment that emits regulated pollutants in amounts specified by the rule. Rule 2201 requires stationary source projects that exceed certain thresholds to install best available control technology (BACT) and to obtain emission offsets to ensure that growth in stationary sources on a cumulative basis will not result in an increase in emissions.
- Rule 4002 – National Emissions Standards for Hazardous Air Pollutants. The purpose of the rule is to incorporate the National Emission Standards for Hazardous Air Pollutants from Part 61, Chapter I, Subchapter C, Title 40, Code of Federal Regulations and the National Emission Standards for Hazardous Air Pollutants for Source Categories from Part 63, Chapter I, Subchapter C, Title 40, Code of Federal Regulations to protect the health and safety of the public from hazardous air pollutants, such as asbestos.
- Rule 4102 – Nuisance. The purpose of this rule is to protect the health and safety of the public, and applies to any source operation that emits or may emit air contaminants or other materials.
- Rule 4601 – Architectural Coatings. The purpose of this rule is to limit Volatile Organic Compounds (VOC) emissions from architectural coatings. Emissions are reduced by limits on VOC content and providing requirements on coatings storage, cleanup, and labeling.
- Rule 4641 – Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations. The purpose of this rule is to limit VOC emissions from asphalt paving and maintenance operations. The paving operations for new development and existing paved surfaces will be subject to Rule 4641.

- Rule 4692 – Commercial Charbroiling. The purpose of this rule is to limit VOC and PM-10 emissions from commercial charbroiling. New and existing businesses with charbroiling equipment are subject to this rule.
- Rule 4901 – Wood Burning Fireplaces and Wood Burning Heaters. The purposes of this rule are to limit emissions of carbon monoxide and particulate matter from wood burning fireplaces, wood burning heaters, and outdoor wood burning devices, and to establish a public education program to reduce wood burning emissions. All development that includes wood burning devices are subject to this rule.
- Regulation VIII – Fugitive PM10 Prohibitions. Rules 8011-8081 are designed to reduce PM10 emissions (predominantly dust/dirt) generated by human activity, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and track out, etc. All development projects that involve soil disturbance are subject to at least one provision of the Regulation VIII series of rules.
- Rule 9410 – Employer Based Trip Reduction. The purpose of this rule is reduce vehicle miles traveled (VMT) from private vehicles used by employees to commute to and from their worksites to reduce emissions of NOx, VOC and PM. The rule would require larger employers (those with 100 or more eligible employees) to establish employee trip reduction programs to reduce VMT, reducing emissions associated with work commutes. The rule uses a menu-based Employer Trip Reduction Implementation Plan and periodic reporting requirements to evaluate performance on a phased-in compliance schedule.
- Rule 9510 – Indirect Source Review. This rule reduces the impact of NOx and PM10 emissions from growth. The rule places application and emission reduction requirements on development projects meeting applicability criteria in order to reduce emissions through onsite mitigation, offsite SJVAPCD-administered projects, or a combination of the two. Compliance with SJVAPCD Rule 9510 reduces the emissions impacts through incorporation of onsite measures as well as payment of an offsite fee that funds emission reduction projects in the Air Basin. The emissions analysis for Rule 9510 is detailed and is dependent on the exact project design that is expected to be constructed or installed. Compliance with Rule 9510 is separate from the CEQA process, though the control measures used to comply with Rule 9510 may be used to mitigate significant air quality impacts.

Fresno Council of Governments

Fresno Council of Governments (FCOG) is responsible for regional transportation planning in Fresno County and participates in developing mobile source emission inventories used in air quality attainment plans.

RTP/SCS

Regional Transportation Plans (RTP) address the mobility needed to keep our region moving and our communities connected. Fresno Council of Governments' (FCOG) 2014 RTP charts the long-range vision of regional transportation in Fresno County through the year 2040. The RTP identifies existing

and future transportation related needs, while considering all modes of travel, analyzing alternative solutions, and identifying what can be completed with anticipated available funding for the 1,100 projects and multiple programs included within it. Senate Bill 375 (SB 375), which went into effect in 2009, added statutes to the California Government Code to encourage planning practices that create sustainable communities. It calls for each metropolitan planning organization to prepare a Sustainable Communities Strategy (SCS) as an integrated element of the RTP that is to be updated every four years. The SCS is intended to show how integrated land use and transportation planning can lead to lower greenhouse gas (GHG) emissions from autos and light trucks. Fresno COG has included the SCS for the first time in its 2014 RTP.

Transportation Conformity

FCOG must ensure that transportation plans and projects comply with Federal Transportation Conformity. Transportation conformity is a way to ensure that Federal funding and approval are given to those transportation activities that are consistent with air quality goals. It ensures that these transportation activities do not worsen air quality or interfere with the "purpose" of the State Implementation Plan, which is to meet the National Ambient Air Quality Standards (NAAQS). Meeting the NAAQS often requires emissions reductions from mobile sources.

According to the Clean Air Act, transportation plans, programs, and projects cannot:

- Create new NAAQS violations;
- Increase the frequency or severity of existing NAAQS violations; or
- Delay attainment of the NAAQS.

In practice, air quality plans include criteria pollutant emission budgets required for attainment of air quality standards by mandated deadlines. The budgets must not be exceeded considering projected growth in mobile source activity. Emissions from projected growth must not exceed the budgets in any year.

CEQA

The District has three roles under CEQA:

1. Lead Agency: responsible for preparing environmental analyses for its own projects (adoption of rules, regulations, or plans) or permit projects filed with the District where the District has primary approval authority over the project.
2. Responsible Agency: The discretionary authority of a Responsible Agency is more limited than a Lead Agency; having responsibility for mitigating or avoiding only the environmental effects of those parts of the project which it decides to approve, carry out, or finance. The District defers to the Lead Agency for preparation of environmental documents for land use projects that also have discretionary air quality permits unless no document is prepared by the Lead Agency and potentially significant impacts related to the permit are possible. The District comments on documents prepared by Lead Agencies to ensure that District concerns are addressed.

3. Commenting Agency: the District reviews and comments on air quality analyses prepared by other public agencies (such as the proposed project).

The District also provides guidance and thresholds for CEQA air quality and greenhouse gas analyses. The result of this guidance as well as state regulations to control air pollution is an overall improvement in the Basin. In particular, the District's draft 2012 Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI) states the following:

> The District's Air Quality Attainment Plans include measures to promote air quality elements in county and city general plans as one of the primary indirect source programs. The general plan is the primary long range planning document used by cities and counties to direct development. Since air districts have no authority over land use decisions, it is up to cities and counties to ensure that their general plans help achieve air quality goals. Section 65302.1 of the California Government Code requires cities and counties in the San Joaquin Valley to amend appropriate elements of their general plans to include data, analysis, comprehensive goals, policies, and feasible implementation strategies to improve air quality in their next housing element revisions. This was completed for the City of Fresno with the adoption of the Air Quality Update of the 2025 Fresno General Plan Resources Conservation Element last revised May 7, 2009.
>
> The Air Quality Guidelines for General Plans (AQGGP), adopted by the District in 1994 and amended in 2005, is a guidance document containing goals and policy examples that cities and counties may want to incorporate into their General Plans to satisfy Section 65302.1. When adopted in a general plan and implemented, the suggestions in the AQGGP can reduce vehicle trips and miles traveled and improve air quality. The specific suggestions in the AQGGP are voluntary. The District strongly encourages cities and counties to use their land use and transportation planning authority to help achieve air quality goals by adopting the suggested policies and programs. The 2025 General Plan and the General Plan Update integrate many of the recommended goals and policies of the AQGGP.

City of Fresno

Proposed General Plan Update

The proposed General Plan Update sets forth the following guiding and implementing policies that are relevant to air quality.

Policy UF-1-c: Legible City Structure. Focus integrated and ongoing planning efforts to achieve an identifiable city structure, comprised of a concentration of buildings, people, and pedestrian-oriented activity in Downtown; along a small number of prominent east west and north-south transit-oriented, mixed-use corridors with distinctive and strategically located Activity Centers; and in existing and new neighborhoods augmented with parks and connected by multi-purpose trails and tree lined bike lanes and streets.

Objective UF-12: Locate roughly one-half of future residential development in infill areas - defined as being within the City on December 21, 2012- including the Downtown core area and surrounding

neighborhoods, mixed-use centers and transit-oriented development along major BRT corridors, and other non-corridor infill areas and vacant land.

Policy UF-12-a: BRT Corridors. Design land uses and integrate development site plans along BRT corridors, with transit-oriented development that supports transit ridership and convenient pedestrian access to bus stops and BRT station stops.

Policy UF-12-b: Activity Centers. Mixed-use designated areas along BRT and/or transit corridors are appropriate for more intensive concentrations of urban uses. Typical uses could include commercial areas; employment centers; schools; compact residential development; religious institutions; parks; and other gathering points where residents may interact, work, and obtain goods and services in the same place.

Policy UF-12-d: Appropriate Mixed-Use. Facilitate the development of vertical and horizontal mixed-uses to blend residential, commercial, and public land uses on one site or adjacent sites. Ensure land use compatibility between mixed-use districts in Activity Centers and the surrounding residential neighborhoods.

Policy UF-12-e: Access to Activity Centers. Promote adoptions and implementation of standards supporting pedestrian activities and bicycle linkages from surrounding land uses and neighborhoods into Activity Centers and to transit stops. Provide for priority transit routes and facilities to serve the Activity Centers.

Policy UF-12-f: Mixed-Use in Activity Centers. Update the Development Code to include use regulations and standards to allow for mixed-uses and shared parking facilities, including multi-story and underground parking facilities, within Activity Centers.

Objective UF-14: Create an urban form to facilitate multi-modal connectivity.

Policy UF-14-a: Design Guidelines for Walkability. Develop and use design guidelines and standards for a walkable and pedestrian-scaled environment with a network of streets and connections for pedestrians and bicyclists, as well as transit and autos.

Policy UF-14-b: Local Street Connectivity. Design local roadways to connect throughout neighborhoods and large private developments with adjacent major streets and pathways of existing adjacent development. Create access for pedestrians and bicycles where a local street must dead end or be designed as a cul-de-sac to adjoining uses that provide services, shopping, and connecting pathways for access to the greater community area.

Policy UF-14-c: Block Length. Create development standards that provide desired and maximum block lengths in residential, retail, and mixed-use districts order to enhanced walkability.

Objective LU-2: Plan for infill development that includes a range of housing types, building forms, and land uses to meet the needs of both current and future residences.

Policy LU-2-a: Infill Development and Redevelopment. Promote development of vacant, underdeveloped, and redevelopable land uses within the City Limits where urban services are available considering the establishment and implementation of supportive regulations and programs.

Policy LU-2-b: Infill Development for Affordable Housing. Consider a priority infill incentive program for residential infill development of existing vacant lots and underutilized sites within the City as a strategy to help to meet the affordable housing needs of the community.

Policy LU-3-b: Mixed-Use Urban Corridors that Connect the Downtown Planning Area. Support the development of mixed-use urban corridors that connect the Downtown Planning Area with the greater Fresno-Clovis Metropolitan Area with functional, enduring, and desirable urban qualities along the Blackstone Avenue, Shaw Avenue, California Avenue, and Ventura Avenue/Kings Canyon road corridors, as shown on Figure LU-1: General Plan Land Use Diagram.

Policy LU-3-c: Zoning for High Density on Major BRT Corridors. Consider the adoption of supportive zoning regulations for compact development along BRT corridors leading to the Downtown Core that will not diminish the long-term growth and development potential for Downtown.

Policy LU-5-f: High Density Residential Uses. Promote high-density residential uses to support Activity Centers and BRT Corridors, affordable housing and walkable access to transit stops.

Policy LU-6-b: Commercial Development Guidelines. Consider adopting commercial development guidelines to assure high quality design and site planning for large commercial developments, consistent with the Urban Form policies of this Plan.

Policy LU-6-f: Auto-Oriented Commercial Uses. Direct highway-oriented and auto-serving commercial uses to locations that are compatible with planned Urban Form policies of the General Plan. Ensure adequate buffering measures for adjacent residential uses noise, glare, odors, and dust.

Policy LU-6-g: Lodging Facilities Location. Site lodging facilities and related accommodations near major transportation facilities.

Policy LU-8-b: Access to Public Facilities. Ensure that major public facilities and institutions have adequate mulit-modal access and can be easily reached by public transit.

Objective RC-4: In cooperation with other jurisdictions and agencies in the San Joaquin Valley Air Basin, take necessary actions to achieve and maintain compliance with State and federal air quality standards for criteria pollutants.

Policy RC-4-a: Support Regional Efforts. Support and lead, where appropriate, regional, State and federal programs and actions for the improvement of air quality, especially the SJVAPCD's efforts to monitor and control air pollutants from both stationary and mobile sources and implement Reasonably Available Control Measures in the Ozone Attainment Plan.

Policy RC-4-b: Conditions of Approval. Develop and incorporate air quality maintenance requirements, compatible with Air Quality Attainment and Maintenance Plans, as conditions of approval for General Plan amendments, community plans, Specific Plans, neighborhood plans, Concept Plans, and development proposals.

Policy RC-4-c: Evaluate Impacts with Models. Continue to require the use of computer models used by SJVAPCD to evaluate the air quality impacts of plans and projects that require such environmental review by the City.

Policy RC-4-d: Forward Information. Forward information regarding proposed General Plan amendments, community plans, Specific Plans, neighborhood plans, Concept Plans, and development proposals that require air quality evaluation, and amendments to development regulations to the SJVAPCD for their review of potential air quality and health impacts.

Policy RC-4-e: Support Employer-Based Efforts. Support and promote employer implementation of staggered work hours and employee incentives to use carpools, public transit and other measures to reduce vehicular use and traffic congestion.

Policy RC-4-f: Municipal Operations and Fleet Actions. Continue to control and reduce air pollution emissions from vehicles owned by the City operations and municipal operations and facilities by undertaking the following:

- Expand the use of alternative fuel, electric, and hybrid vehicles in City fleets.
- Create preventive maintenance schedules that will ensure efficient engine operation.
- Include air conditioning recycling and charging stations in the City vehicle maintenance facilities, to reduce freon gases being released into the atmosphere and electrostatic filtering systems in City maintenance shops, when feasible or when required by health regulations.
- Use satellite corporation yards for decentralized storage and vehicle maintenance.
- Convert City-owned emergency backup generators to natural gas fuels whenever possible, and create an advanced energy storage system.

Policy RC-4-g: FAX Actions. Continue efforts to improve Fresno Area Express (FAX) bus transit system technical performance, reduce emission levels, streamline system operations, and implement BRT where supportive land uses are proposed by Figure LU-1: Land Use Diagram.

Policy RC-4-h: Airport Actions. Support Airport efforts to develop and maintain programs and policies to support City, State and Federal efforts to achieve and maintain air quality standards.

Policy RC-4-j: All Departments. Continue to develop and implement in all City departments, operational policies to reduce air pollution.

Policy RC-7-d: Update Standards for New Development. Continue to refine water saving and conservation standards for new development.

Objective RC-8: Reduce the consumption of non-renewable energy resources by requiring and encouraging conservation measures and the use of alternative energy sources.

Policy RC-8-a: Existing Standards and Programs. Continue existing beneficial energy conservation programs, including adhering to the California Energy Code in new construction and major renovations.

Policy RC-8-c: Energy Conservation in New Development. Consider providing an incentive program for new buildings that exceed California Energy Code requirements by fifteen percent.

Policy RC-8-d: Incentives. Establish an incentive program for residential developers who commit to building all of their homes to ENERGY STAR performance guidelines.

Policy RC-8-e: Energy Use Disclosure. Promote compliance with State law mandating disclosure of a building's energy data and rating of the previous year to prospective buyers and lessees of the entire building or lenders financing the entire building.

Policy RC-8-f: City Heating and Cooling. Reduce energy use at City facilities by updating heating and cooling equipment and installing "smart lighting" where feasible and economically viable.

Policy RC-8-g: Revolving Energy Fund. Create a City Energy Fund, which uses first year savings and rebates from completed City-owned energy efficiency projects to provide resources for additional energy projects. Dedicate this revolving fund to the sole use of energy efficiency projects that will pay back into the fund.

Policy RC-8-h: Solar Assistance. Identify and publicize information about financial mechanisms for private solar installations and provide over-the-counter permitting for solar installations meeting specified standards, which may include maximum size (in kV) of units that can be so approved.

Policy RC-8-i: Renewable Target. Adopt and implement a program to increase the use of renewable energy to meet a given percentage of the city's peak electrical load within a given time frame.

Policy RC-8-j: Alternative Fuel Network. Support the development of a network of integrated charging and alternate fuel station for both public and private vehicles, and if feasible, open up municipal stations to the public as part of network development.

Policy HC-3-f: New Drive-Through Facilities. Include in the Development Code design review to reduce vehicle emissions resulting from queued idling vehicles at drive-through facilities in proximity to residential neighborhoods.

Policy HC-3-d: Green Standards for Affordable Housing. Provide appropriate incentives for affordable housing providers, agencies, non-profit and market rate developers to use LEED and CalGreen Tier 1 or Tier 2 standards or third party equivalents.

5.3.4 - Thresholds of Significance:

The following air quality significance thresholds are contained in Appendix G of the CEQA Guidelines. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. A significant impact would occur if the project would:

a) Conflict with or obstruct implementation of the applicable air quality plan? (See Air Quality Plan, Impact AIR-1)

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation? (See Air Quality Standards/Violations, Impact AIR-2)

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable national or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? (See Criteria Pollutants, Impact AIR-3)

d) Expose sensitive receptors to substantial pollutant concentrations? (See Sensitive Receptors, Impact AIR-4)

e) Create objectionable odors affecting a substantial number of people? (See Odors, Impact AIR-5)

The SJVAPCD is the applicable air pollution control district for the SJVAB, which includes the City of Fresno. The SJVAPCD has adopted thresholds of significance in its GAMAQI that are used where appropriate in the following analysis. While the final determination of whether a project is significant is within the purview of the Lead Agency pursuant to Section 15064(b) of the CEQA Guidelines, SJVAPCD recommends that its quantitative air pollution thresholds be used to determine the significance of project emissions. If the City as Lead Agency finds that the project has the potential to exceed these air pollution thresholds, the project will be considered to have significant air quality impacts.

Odor Threshold Discussion

Odor impacts on residential areas and other sensitive receptors, such as hospitals, day-care centers, schools, etc., warrant the closest scrutiny, but consideration could also be given to other land uses where people may congregate, such as recreational facilities, worksites, and commercial areas. While offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and the SJVAPCD.

Two situations create a potential for odor impact. The first occurs when a new odor source is located near an existing sensitive receptor. The second occurs when a new sensitive receptor locates near an existing source of odor. The District has determined the common land use types that are known to produce odors in the Basin. These types are shown in Table 5.3-6.

Table 5.3-6: Screening Levels for Potential Odor Sources

Odor Generator	Distance
Wastewater Treatment Facilities	2 miles
Sanitary Landfill	1 mile
Transfer Station	1 mile
Composting Facility	1 mile
Petroleum Refinery	2 miles
Asphalt Batch Plant	1 mile
Chemical Manufacturing	1 mile
Fiberglass Manufacturing	1 mile
Painting/Coating Operations (e.g., auto body shop)	1 mile
Food Processing Facility	1 mile
Feed Lot/Dairy	1 mile
Rendering Plant	1 mile
Source: San Joaquin Valley Air Pollution Control District, 2002.	

According to the District's 2002 Guide, analysis of potential odor impacts should be conducted for the following two situations:

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

Projects proposing to locate facilities listed in Table 5.3-5 would require an odor assessment to determine if the project would impact sensitive receptors. The first step is to determine if the project would result in existing or planned land uses with sensitive receptors being located within the distances listed in Table 5.3-6. If yes, a more detailed analysis including a review of District odor complaint records is warranted. The detailed analysis would involve contacting the District's Compliance Division for information regarding odor complaints for similar facilities and review of the facilities operation statement to identify processes and emissions sources that have the potential to generate odors. Facilities with the potential to generate significant odors would be required to

prepare an odor management plan for approval by the City and by CalRecycle for facilities involved in handling solid waste.

For a project locating near an existing source of odors, the project should be identified as having a potentially significant odor impact if it is proposed for a site that is as close or closer to an existing odor source where there have been:

- More than one *confirmed* complaint per year averaged over a three-year period, or
- Three *unconfirmed* complaints per year averaged over a three-year period.

Projects meeting these criteria should provide an odor assessment to determine if the odor issues from the facilities have been resolved or if mitigation measures are available to reduce odor impacts to future residents. In all cases, this information will be included as part of the project file for public disclosure.

5.3.5 - Impact Analysis, Mitigation Measures, and Level of Significance After Mitigation

Air Quality Plan

Impact AIR-1	**The project would not conflict with or obstruct implementation of the applicable air quality plan.**

Project Specific Impact Analysis

The project was assessed to determine if the impacts from implementing the General Plan would conflict with or obstruct the implementation of the applicable attainment plan. As defined above, the project is the buildout of the Project Area. Buildout is predicted to occur at growth rates consistent with those used by the SJVAPCD to develop plans for all nonattainment pollutants in the SJVAB. The growth rate used for this analysis results in buildout by the year 2056.

The assessment used two tests to determine if the project conflicts or obstructs the applicable air quality plans. First, if development proposed by the General Plan exceeds the growth projections used in the applicable attainment plan, it would produce a potentially significant impact. Second, if the project includes goals, policies, and development standards that are in conflict with the development related control measures in the attainment plans, the project would be potentially significant. Under these tests, the project would not have a significant impact.

The growth projections used for the General Plan assume that growth in population, vehicle use and other source categories will occur at historically robust rates that are consistent with the rates used to develop the SJVAPCD's attainment plans. In other words, the amount of growth predicted for the General Plan Update is accommodated by the SJVAPCD's attainment plan and would allow the air basin to attain the 8-hour ozone standard by the 2023 attainment date. In addition, as shown in the operational emissions analysis in Impact AIR-3, reductions anticipated from existing regulations and adopted control measures will result in emissions continuing to decline even though development and population will increase. Furthermore, the General Plan Update increases the City's

sustainability efforts that reduce motor vehicle use and energy consumption. This is accomplished with more compact development achieved by increasing development density and by providing a land use pattern and transportation infrastructure more supportive of public transportation, walking, and bicycling. Therefore, the General Plan supports the implementation of SJVAPCD's attainment plans and successfully meets this test.

Review of the proposed goals and policies of the General Plan Update found them to be consistent with the applicable control measures of the SJVAPCD attainment plan. The General Plan Update includes numerous policies that would reduce operational air pollutant emissions and increase energy efficiency. The applicable goals and policies are listed in the previous section. The City also participates in regional planning efforts such as the San Joaquin Valley Blueprint Project and works closely with Fresno COG in developing Regional Transportation Plans and capital improvement plans and capital improvement plans (see Policy MT-1-a). These efforts contribute to the attainment strategy for the San Joaquin Valley Air Basin.

The SJVAPCD has adopted rules and regulations specifically designed to reduce the impacts of growth on the applicable air quality plans. For example, Rule 9510-Indirect Source Review was adopted to provide emission reductions needed by the SJVAPCD to demonstrate attainment of the federal PM_{10} standard and contributed reductions that assist in attaining federal ozone standards. Rule 9510 also contributes toward attainment of state standards for these pollutants. The District's Regulation VIII – Fugitive PM_{10} Prohibitions requires controls for sources of particulate matter necessary for attaining the federal PM_{10} standards and achieving progress toward attaining the state PM_{10} standards. Rule 2201 – New and Modified Stationary Source Review requires new and modified stationary/industrial sources provide emission controls and offsets that ensure that stationary sources decline over time and do not impact the applicable air quality plans. Development implementing the General Plan Update will comply with these rules and regulations providing additional support for the conclusion that it will not interfere or obstruct with the application of the attainment plans.

Therefore, the project would be consistent with the air quality attainment plans and would result in a less than significant impact for this criterion.

Cumulative Impact Analysis

Attainment plans must demonstrate that the nonattainment area will achieve air quality standards by deadlines mandated by the Federal Clean Air Act and maintain the standards accounting for the cumulative growth in all source emissions predicted for the air basin. The General Plan identifies the cumulative growth that would occur in the Planning Area and its buildout is based on growth projections that are consistent with the applicable attainment plans. Therefore, under this criterion, the buildout of the General Plan Update would not have a significant cumulative impact on the applicable attainment plans.

Because the SJVAB is designated as an Extreme Nonattainment Area for the 8-hour ozone standard, the Clean Air Act allows the SJVAPCD 2007 Ozone Plan to rely upon future measures to be identified later after adopting all feasible control measures to demonstrate attainment. The 2007 Ozone Plan

strategy is to achieve the remaining reductions with new incentive funding and technological advancements. The future reductions must be in place by 2020 to achieve the ozone standards by the 2023 attainment year. Attainment requires an additional 14 percent NOx reduction beyond the adopted regulatory measures to achieve attainment at all monitoring stations in the air basin. The Clean Air Act (CAA) includes sanctions and penalties for air basins that fail to fulfill plan commitments, providing a strong incentive for the air district to identify and implement the required actions. The CAA requires the SJVAPCD to prepare Rate of Progress Plans every three years to identify any shortfalls early and to identify new control measures if needed. The General Plan Update would not conflict with or obstruct attainment if the Air District fails to identify and implement the required reductions since the General Plan Update efforts to reduce vehicle miles traveled and energy consumption would continue to assist the SJVAPCD in achieving the standards to the extent possible.

The SJVAB has attained federal PM_{10} standards and state standards have no attainment deadlines. Attainment deadlines for $PM_{2.5}$ are earlier than for ozone and require fewer NOx reductions to achieve the federal standards. In addition, the $PM_{2.5}$ Plan identifies sufficient reductions from adopted regulations to achieve the standard on schedule. Therefore, ozone precursor reductions are the controlling pollutants for attainment in the SJVAB.

Mitigation Measures

Project Specific

No mitigation measures are required.

Cumulative

No mitigation measures are required.

Level of Significance After Mitigation

Project Specific

Less than significant impact.

Cumulative

Less than significant impact.

Air Quality Standards / Violations

Impact AIR-2	**The project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation.**

Project Specific Impact Analysis

Violations of air quality standards occur when official air monitoring stations within the air basin exceed air quality standards as defined by EPA criteria and statistical sampling methods. Monitoring stations are located in areas that are representative of air quality in the air basin and are not located in areas impacted by local sources. Although monitoring stations in Fresno currently experience violations of ozone and $PM_{2.5}$ air quality standards, the impacts of the project for these pollutants are better assessed on a cumulative basis because a single project alone would not result in a

violation of the ozone standard (See Impact AIR-3). Ozone is generated by photochemical reactions of the cumulative emissions of ROG and NOx in the air basin. $PM_{2.5}$ is generated by direct emissions and by secondary reactions in the atmosphere, but is primarily considered a cumulative impact. Two other pollutants, carbon monoxide (CO) and sulfur dioxide (SO_2) are directly emitted and could cause a violation or contribute to a violation of the standards for these pollutants if emitted in substantial quantities. The analysis for CO and SO_2) is provided below.

Carbon Monoxide (CO) and Sulfur Dioxide (SO_2)

Fresno County is currently classified as a maintenance area for CO, which means that it achieved the standard. After attainment is reached, the area must demonstrate that pollutant levels will continue to be maintained for a period of 10 years after which the area will meet requirements in the Clean Air Act for redesignation to attainment. The Air Basin is classified attainment for sulfur dioxide. The highest level recorded in the San Joaquin Valley is a factor of 10 below the standard (see Table 5.3-1). The change in emissions of CO and SO_2 with the buildout of the General Plan Update is shown in Table 5.3-7 and Exhibit 5.3-4.

As shown in Table 5.3-7, CO emissions decrease after the year 2010, even with increases in population and vehicle miles traveled. This is because newer vehicles and equipment would have fewer emissions due to technological advances required by state regulations. Therefore, implementation of the General Plan Update would result in less than significant CO emissions impacts.

SO_2 would, however, increase over time primarily because the future year emission forecasts are assumed to increase proportionally with population growth. The largest source of SO_2 is electricity production; however, very little of the power consumed in Fresno is produced locally. PG&E produces and purchases power from numerous sources, many of which are outside the San Joaquin Valley Air Basin and may or may not affect pollution concentrations in the City of Fresno. However, as a conservative worst case assumption, the emissions from electricity consumption are assumed to directly affect air quality in Fresno. Another conservative assumption is that the increase in electricity would be supplied by the same mix of electricity providers in future years as in the year 2010, which does not account for the expected increase in solar and other renewable electricity sources.

The San Joaquin Valley is currently designated attainment for sulfur dioxide, and the monitored concentrations are far below the ambient air quality standards. Any increases in SO2 due to new power plants or from expansions at existing power plants are subject to permitting and emission control requirements of the SJVAPCD that would minimize the emission increases and keep levels well below the ambient air quality standards. A conservative estimate of future SO2 concentrations can be accomplished by assuming that ambient concentration will increase proportionally with emissions from sources in tons per year. SO_2 emissions are estimated to increase from 289 tons per year in 2010 to 441 tons per year at project buildout in 2056 or a 54 percent increase. A 54 percent increase in SO_2 concentration would result in a change from the current level of 0.004 PPM to 0.006 PPM compared to the standard of 0.04 PPM, a factor of 6 below the standard. Therefore, SO_2 emissions impacts are considered less than significant.

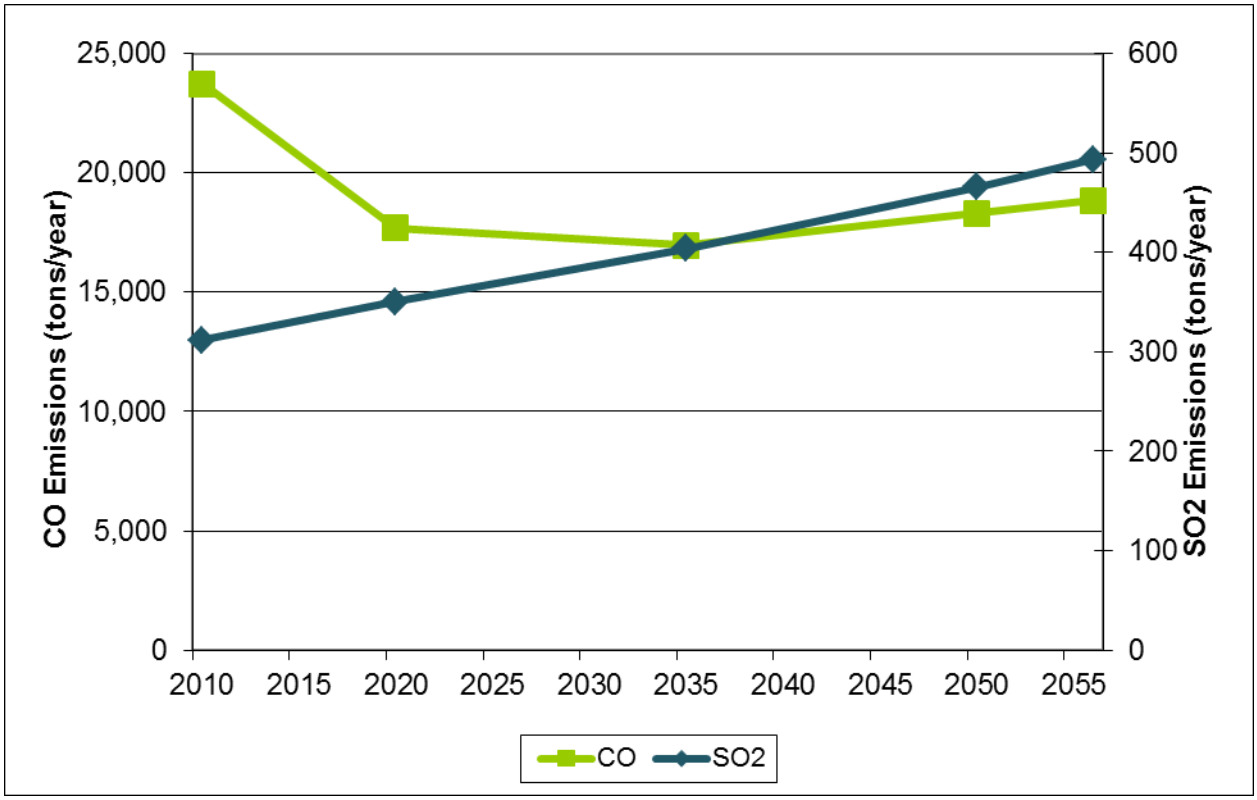
Table 5.3-7: City of Fresno Planning Area Annual Carbon Monoxide and Sulfur Dioxide Emissions

Year	Source	Emissions (tons/year)	
		CO	SOx
2010	On-road motor vehicles	13,091	ND
	Electricity	ND	2118
	Natural gas	495	5
	Stationary/area	203	89
	Off-road vehicles	9,943	7
	Total	**23,731**	**312**
2020	On-road motor vehicles	5,948	ND
	Electricity	ND	246
	Natural gas	574	5
	Stationary/area	203	89
	Off-road vehicles	10,972	10
	Total	**17,697**	**350**
2035	On-road motor vehicles	5,100	ND
	Electricity	ND	299
	Natural gas	681	6
	Stationary/area	203	89
	Off-road vehicles	10,972	10
	Total	**16,955**	**404**
2056	On-road motor vehicles	6,675	ND
	Electricity	ND	386
	Natural gas	915	9
	Stationary/area	203	89
	Off-road vehicles	10,972	10
	Total	**18,855**	**493**
Net change between 2010 and 2020		**-7,826**	85
Net change between 2010 and 2035		**-6,560**	132
Net change between 2010 and 2056		**-6,050**	152

Notes:
ND = no data was available; CO = carbon monoxide; SOx = sulfur oxides. Generation of electricity at power plants is an insignificant source of CO. SOx is not reported by ARB the EMFAC2011 model.
Source of motor vehicle emissions: The emissions include all on-road vehicles, including

Year	Source	Emissions (tons/year)	
		CO	SOx
light duty automobiles, light duty trucks, light heavy-duty trucks, motorcycles, motor homes, buses, and heavy-duty trucks. Emissions were estimated by FirstCarbon Solutions using emission factors from the EMFAC2011 model and vehicle miles traveled data from Fehr and Peers. Source of electricity and natural gas emissions: 2010 emissions are from PG&E; future years emissions are projected using population (for residential electricity) and employment (for commercial electricity). Note that industrial emissions are not available. Source of stationary and area: ARB CEIDARS inventory for the year 2010; since the data is from real facilities, it would be impossible to predict if the emissions would increase or decrease in the future. Therefore, the emissions are assumed to remain the same over time. Source of off-road vehicles: ARB's OFFROAD2007 model; 2056 emissions use 2035 emissions because OFFROAD only goes to the year 2040. There may be some overlap in the stationary/area source emissions and the off-road vehicle emissions. Source of net change between 2010 and 2056: 2056 emissions minus 2010 emissions. Refer to Appendix B-1 for calculation details. Year 2050 emissions are also included in the appendix; however, the emissions are similar to 2056; therefore, they are not shown in the table.			

Exhibit 5.3-4: Carbon Monoxide and Sulfur Dioxide Emissions in Fresno Planning Area



Cumulative Impact Analysis

The project analysis is based on the cumulative development envisioned for the General Plan Update. The effects of existing development are accounted for in the ambient concentrations measured at Fresno air monitoring stations, which shows that levels are well below ambient air quality standards. The analysis of CO including development at buildout results in a net decrease in CO emissions and would result in continued declines in CO concentrations. CO impacts are localized and are not impacted by regional sources. The analysis of SO_2 impacts shows a small increase in emissions at buildout; however, as described in the project level analysis, the increase in ambient SO_2 concentrations would not be substantial nor be a violation of air quality standards. Therefore, impacts are less than significant.

Mitigation Measures

Project Specific

No mitigation measures are required.

Cumulative

No mitigation measures are required.

Level of Significance After Mitigation

Project Specific

Less than significant impact.

Cumulative

Less than significant impact.

Criteria Pollutants

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

Project Specific Impact Analysis

The SJVAPCD has adopted project level quantitative thresholds for ozone precursors reactive organic gases ROG and oxides of nitrogen (NO_x) of 10 tons per year, and recommends quantitative thresholds for PM_{10} and $PM_{2.5}$ of 15 tons per year pending an update to the GAMAQI that is currently in draft form. Although these thresholds are intended for use on individual development projects, no other quantitative plan level threshold has been adopted. The General Plan Update provides for the development of numerous individual development projects that will be subject to the project level thresholds at the time they are proposed. Large individual projects are likely to exceed the thresholds during project construction and operation.

The General Plan Update reflects the cumulative projects anticipated for the City from the present until buildout, which is predicted for 2056. A more appropriate metric for cumulative contribution at the plan level is whether the cumulative impact of development predicted by the General Plan

Update would conflict with plans adopted to achieve the applicable standards. A conflict would result when emission levels exceed the amounts required for attainment by the years mandated by state and federal regulations. After the attainment year, the emissions inventory must stay below the attainment inventory even with continued growth in order to maintain the standard. Once standards are achieved, no significant impact to health would occur as long as standards are maintained.

The project area is designated nonattainment for ozone, PM_{10}, and $PM_{2.5}$. Ozone is not directly emitted but is formed in the atmosphere by ozone precursors (ROG and NO_2). In addition, PM_{10} and $PM_{2.5}$ are emitted directly and also form in the atmosphere as a secondary pollutant from emissions of NO_2 and ammonia. Ammonia is not a criteria pollutant and the SJVAPCD PM control strategy is based primarily on NO_2 controls and reductions of directly emitted PM_{10} and $PM_{2.5}$. Therefore, this section addresses the cumulative emissions of the pollutants ROG, NOx, PM_{10}, and $PM_{2.5}$.

Development of the General Plan Update would result in air pollutant emissions from short-term construction activities and long-term project operation described below.

Construction

Construction activity from implementing the General Plan Update would cause temporary, short-term emissions of various air pollutants within the Planning Area. ROG and NOx (ozone precursors), PM_{10}, and $PM_{2.5}$ would be emitted by construction equipment during various activities, which may include but are not limited to grading, excavation, building construction, or demolition. Soil disturbance during construction activities emit fugitive dust a fraction of which is comprised of PM_{10} and $PM_{2.5}$.

SJVAPCD and state regulations reduce potential construction emissions. The ARB has adopted regulations for New Off-Road Diesel Engines and Equipment that result in cleaner equipment being placed in service as older, higher emitting equipment is retired. The ARB also adopted the In-Use Off-Road Diesel Vehicle Regulation requiring NOx and PM_{10} emission reductions from equipment and vehicles currently in operation. SJVAPCD Regulation VIII includes requirements to control fugitive dust emissions during construction activities and requires commercial projects over 5 acres and residential projects over 10 acres to file a Dust Control Plan. The SJVAPCD 2002 GAMAQI states that compliance with Regulation VIII will normally reduce impacts from fugitive dust to less than significant. Rule 9510 – Indirect Source Review requires projects to reduce exhaust related construction emissions by 20 percent for NOx and by 50 percent for PM_{10}; however, significance for these emissions is based on whether projects exceed the SJVAPCD annual quantitative thresholds.

The District indicates that the control measures in Regulation VIII are required by regulation for all construction sites to reduce fugitive dust emissions. The District's 2002 GAMAQI lists additional measures that may be required because of sheer project size or proximity of the project to sensitive receptors. The additional measures are referred to as "enhanced control measures" in the GAMAQI. These enhanced control measures have been added as amendments to Regulation VIII, so they are no longer considered mitigation measures that could be imposed on very large or sensitive projects, but standard control measures required for rule compliance. As stated above, each commercial

project over 5 acres in size and residential project over 10 acres in size is required to submit a Dust Control Plan to the SJVAPCD for approval and requires control measures adequate to prevent significant fugitive dust impacts. If measures included in the Dust Control Plan prove inadequate to control fugitive dust, construction contractors must implement additional controls or cease dust generating construction activities. In addition, projects smaller than the Dust Control Plan size thresholds must still comply with most other Regulation VIII requirements. Therefore, fugitive dust impacts from construction activities are considered less than significant.

The buildout of the General Plan Update will result in hundreds of individual development projects. Information regarding specific development projects, soil conditions, and the location of sensitive receptors in relation to the various projects would be needed in order to determine localized impacts associated with construction activity. However, overall estimates based on annual rates of construction activity required to reach buildout provides a reasonable method for determining an annual contribution rate for construction emissions. The emission inventory for the City of Fresno's share of the San Joaquin Valley construction activity source categories is provided in Table 5.3-8 below. The annual emissions would substantially exceed the SJVAPCD project level thresholds for all pollutants. The inventory represents a worst case emission estimate for construction activity. Emissions from construction activities are expected to decline over time as new cleaner equipment replaces older higher emitting equipment. However, on a cumulative basis, construction emissions would continue to exceed SJVAPCD annual thresholds even with the regulatory reductions.

Table 5.3-8: City of Fresno Planning Area Construction Emissions

Year	Source	Emissions (tons/year)			
		ROG	NO_x	PM_{10}	$PM_{2.5}$
2008	Architectural Coatings	532.2	0	0	0
	Asphalt Paving and Roofing	96.4	0	0	0
	Construction and Demolition	0	0	650.4	65.7
	Off-road Equipment	184.0	1,419.1	74.5	67.9
	Total	**812.6**	**1,419.1**	**724.5**	**133.6**
SJVAPCD Annual Thresholds		**10**	**10**	**15**	**15**

Source: ARB Almanac 2009 Fresno County Emissions. City of Fresno Planning Area share based on 60 percent share of County population.

Emissions related to projected construction activities are included in emission forecasts used to demonstrate attainment of the applicable air quality standards and would therefore, not interfere or obstruct with SJVAPCD attainment plans. However, the combined impact of all construction projects to reach buildout is a cumulative impact that makes it more difficult to attain the air quality standards compared to a scenario where no growth takes place. Although individual projects may exceed SJVAPCD project level thresholds, using a project threshold to address the impact of

hundreds of projects that would be constructed to reach General Plan buildout is a highly conservative measure of project level significance for an impact that is cumulative in nature.

Rule 9510 – Indirect Source Review requires reductions of construction emissions in order to mitigate the impacts of growth. The rule requires NOx reductions of 20 percent and PM_{10} reductions of 45 percent compared to the statewide average by using clean construction equipment at the project site or paying mitigation fees to the SJVAPCD to obtain off-site reductions. Rule 9510 serves to mitigate both project level and cumulative effects of construction on ozone and particulate matter emissions. Individual projects that exceed project level significance thresholds after accounting for Rule 9510 reductions would be required to implement additional mitigation measures to reduce significant emissions or the City would be required to prepare an EIR and adopt a statement of overriding considerations.

ARB off-road equipment regulations would result in reductions in NOx and PM emissions as new equipment meeting current and future standards replaces older higher emitting equipment. The regulations provide substantial reductions near term and midterm. ARB also requires retrofits of existing equipment to reduce particulate emissions that will help reduce emissions from older equipment. Regulations are normally implemented over a 5 to 10 year period at which time a new round of regulations are proposed if still needed to attain the air quality standards. The ARB has a long history of tightening regulations as technology advances increase the feasibility of additional controls. Large individual projects that exceed the SJVAPCD project thresholds will be required to include feasible mitigation measures that reduce the significant impact. The measures could include additional onsite controls or off-site mitigation fees that reduce emissions to less than significant levels.

Based on the continued emission reductions anticipated from adopted ARB and SJVAPCD regulations, attainment of ozone and particulate standards, accounting for projected growth, are on track. In the event that the SJVAB fails to reach Rate of Progress requirements, or to reach attainment of the air quality standards on schedule, or falls out of attainment in the future, the SJVAPCD will be required to implement contingency measures to address the shortfall or be subject to Clean Air Act sanctions. The SJVAPCD could obtain additional reductions from any source within its regulatory authority, which includes the construction emissions regulated under Rule 9510. No action by the SJVAPCD or the City of Fresno is required until such time the planned reductions prove insufficient.

When project construction emissions are viewed in relation to the applicable air quality plans adopted by the SJVAPCD, the emissions would not result in a significant cumulative contribution since the emissions would not interfere with attainment of air quality standards. However, estimated annual project construction emissions exceed project level thresholds by a substantial margin for all pollutants. Therefore, construction emissions are considered potentially significant.

Operation

The main sources of operational criteria air pollutants in the City of Fresno are on-road motor vehicles, off-road motor vehicles, natural gas combustion, and stationary/area sources.

City of Fresno air pollutant emissions for the years 2010 (existing), 2020, 2035, and 2056 (buildout) are shown in Table 5.3-9 and displayed graphically in Exhibit 5.3-5 and Exhibit 5.3-6. As shown in the Table 5.3-9, the greatest sources of emissions are from on-road and off-road vehicles. Off-road vehicle emissions are generated by sources such as recreational equipment, lawn and garden equipment, and construction/mining equipment. The City of Fresno has no large electrical power generation facilities within the Planning Area. PG&E's largest plants exceed 1,000 MW. The Kings River Conservation District (KRCD) operates a 98 MW peaker plant in Malaga, but that plant only operates during periods of peak demand. The California Energy Commission has licensing authority for all thermal power plants with a capacity of 50 megawatts (MW) or more that are proposed for construction within the state, providing a logical cutoff point for consideration as a large facility. The emissions reported in Table 5.3-9 for electricity are based on electricity consumption in the Planning Area at PG&E emission rates for its energy production portfolio. PG&E's portfolio includes electricity produced at power plants powered by many different fuels and from renewable sources like hydroelectric, wind, and solar. Only a fraction of fossil-fueled power plants where PG&E obtains power are located within the San Joaquin Valley Air Basin and even fewer are located within Fresno County. Although the City of Fresno's electricity consumption is responsible for the emissions generated by the power plants, the emissions may or may not have an effect on ozone and particulate concentrations in its Air Basin.

As shown in the Table 5.3-9, total emissions of ROG, NOx, PM_{10}, and $PM_{2.5}$ exceed the District's project level significance thresholds; however, as discussed earlier, the project threshold are a highly conservative measure of significance for a long-range plan. Analysis of emission projections accounting for the effects of adopted regulations shows that there would be a net decrease in emissions with buildout of the General Plan Update even though the vehicle miles traveled and population would increase substantially. This is because the emission rates for the most important sources of these pollutants substantially decrease from 2010 levels due to SJVAPCD and state regulations. The reductions predicted are adequate to demonstrate attainment of air quality standards for all criteria pollutants with the exception of the 8-hour ozone standard. Achieving the 8-hour ozone standard depends on future measures that would utilize advanced technology and increased incentive funding. However, as discussed in Impact AIR-1, the CAA includes provisions that address emission shortfalls and failures to meet plan commitments.

Table 5.3-9: City of Fresno Planning Area Annual Air Pollutant Emissions

Year	Source	Emissions (tons/year)			
		ROG	NO_x	PM_{10}	$PM_{2.5}$
2010	On-road motor vehicles	721	5,541	157	144
	Electricity	0	300	0	0
	Natural gas	86	760	59	59
	Stationary/area	554	507	238	*
	Off-road vehicles	1,743	3,881	278	278
	Total	**3,105**	**10,989**	**732**	**482**

Year	Source	Emissions (tons/year)			
		ROG	NO_x	PM_{10}	$PM_{2.5}$
2020	On-road motor vehicles	311	2,407	46	42
	Electricity	0	350	0	0
	Natural gas	100	887	69	69
	Stationary/area	554	507	238	*
	Off-road vehicles	1488	2,268	182	182
	Total	**2,453**	**6,418**	**536**	**294**
2035	On-road motor vehicles	306	1,719	54	49
	Electricity	0	425	0	0
	Natural gas	117	1,032	81	81
	Stationary/area	554	507	238	*
	Off-road vehicles	1,488	2,268	182	182
	Total	**2,465**	**5,952**	**555**	**312**
2056	On-road motor vehicles	406	2281	71	66
	Electricity	0	549	0	0
	Natural gas	158	1,394	109	109
	Stationary/area	554	507	238	*
	Off-road vehicles	1,488	2,268	182	182
	Total	**2,606**	**6,998**	**600**	**357**
Net change between 2010 and 2020		**-640**	**-5,037**	**-178**	**-169**
Net change between 2010 and 2035		**-538**	**-4,287**	**-144**	**-137**
Net change between 2010 and 2056		**-499**	**-3,991**	**-132**	**-125**
SJVAPCD project significance thresholds		**10**	**10**	**15**	**15**

Source of motor vehicle emissions: The emissions include all on-road vehicles, including light duty automobiles, light duty trucks, light heavy-duty trucks, motorcycles, motor homes, buses, and heavy-duty trucks. Emissions were estimated by FirstCarbon Solutions using emission factors from the EMFAC2011 model and vehicle miles traveled data from Fehr and Peers.
Source of electricity and natural gas emissions: 2010 emissions are from PG&E; future years emissions are projected using population (for residential electricity) and employment (for commercial electricity). Note that industrial emissions are not available.
Source of stationary and area: ARB CEIDARS inventory for the year 2010; since the data is from real facilities, it would be impossible to predict if the emissions would increase or decrease in the future. Therefore, the emissions are assumed to remain the same over time.
* $PM_{2.5}$ emissions for stationary/area are not available.
Source of off-road vehicles: ARB's OFFROAD2007 model; 2056 emissions use 2035 emissions because OFFROAD only provides emission data to the year 2040. There may be some overlap in the stationary/area source emissions and the off-road vehicle emissions.
Source of net change between 2010 and 2056: 2056 emissions minus 2010 emissions.
Refer to Appendix B-1 for calculation details.

The decline in emissions shown in Table 5.3-9 is the result of adopted regulations the benefits of which are incorporated in the air quality models used to estimate emissions. The rate of decline is rapid through 2020 reflecting the benefits of currently adopted regulations. Mobile source regulations are dependent on technological advancements in pollution controls and fuels. The state cannot require manufacturers to produce new equipment and vehicles that are not technologically or economically feasible. ARB updates regulations as technologies come to fruition or provides adequate lead times for compliance with technology forcing regulations. The latest on-road standards adopted by the ARB in 2013 are not yet reflected in the emission model (EMFAC 2011) used to estimate emissions. Those standards would provide reductions well beyond 2020 that are not reflected in Table 5.3-9.

The State of California and the SJVAPCD are very likely to adopt additional regulations on most sources of emissions to be implemented during the General Plan buildout period and result in much greater reductions than is predicted with the adopted regulations included in the air quality models as of 2014 or with off-model quantification methods available pending the next model update. Expanded use of renewable fuels, zero emission vehicles, and replacing combustion sources with electrically powered alternatives for greenhouse gas reductions will also result in reductions in criteria pollutant emissions. In addition, the General Plan includes policies and development patterns that will result in lower vehicle miles traveled and energy use compared to development projects constructed in the recent past that provide the basis for future emission projections.

The development within the Planning Area will result in increases in annual emissions that exceed SJVAPCD significance thresholds for all nonattainment pollutants. Although the growth in emissions is accounted for in SJVAPCD attainment plans and total emissions will decline even accounting for growth, this analysis identifies the impact as significant under the ton per year quantitative threshold criterion as listed in Table 5.3-9.

Exhibit 5.3-5: City of Fresno Planning Area Particulate Matter Emissions

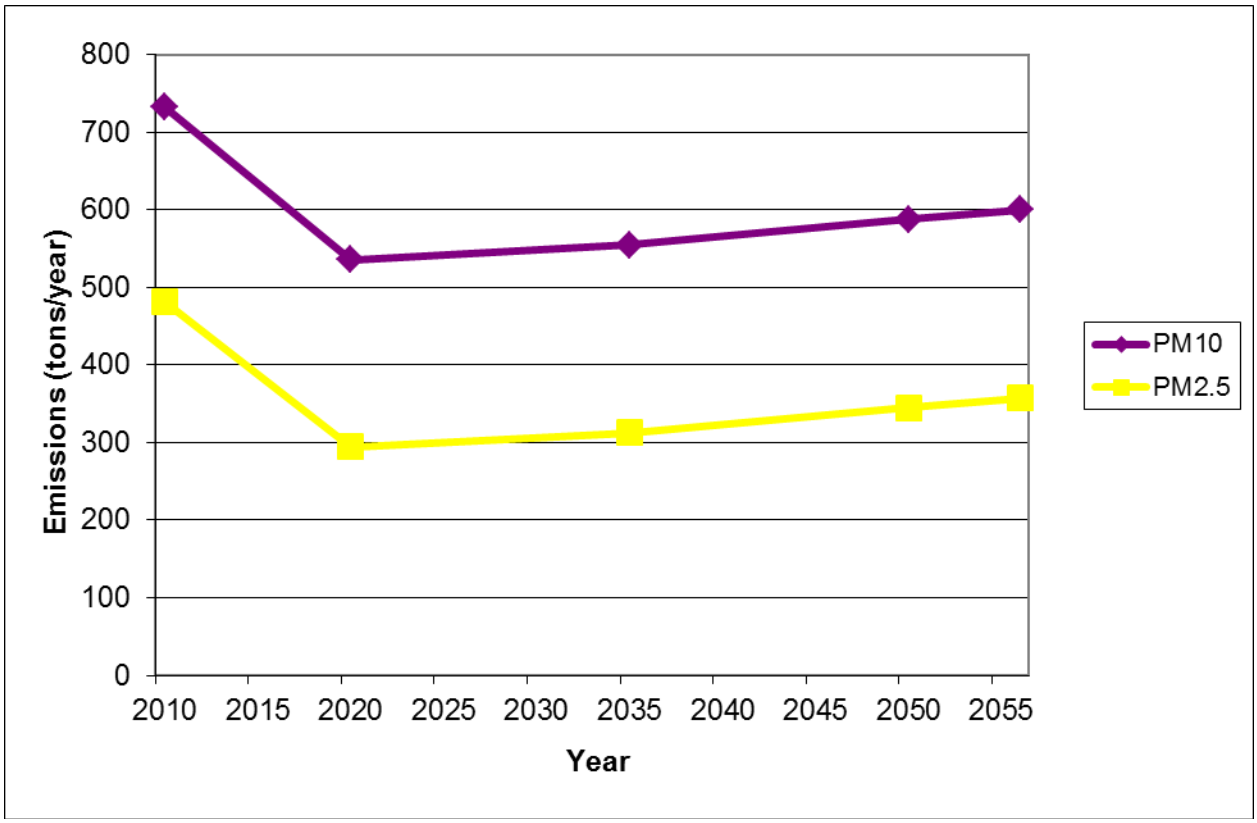
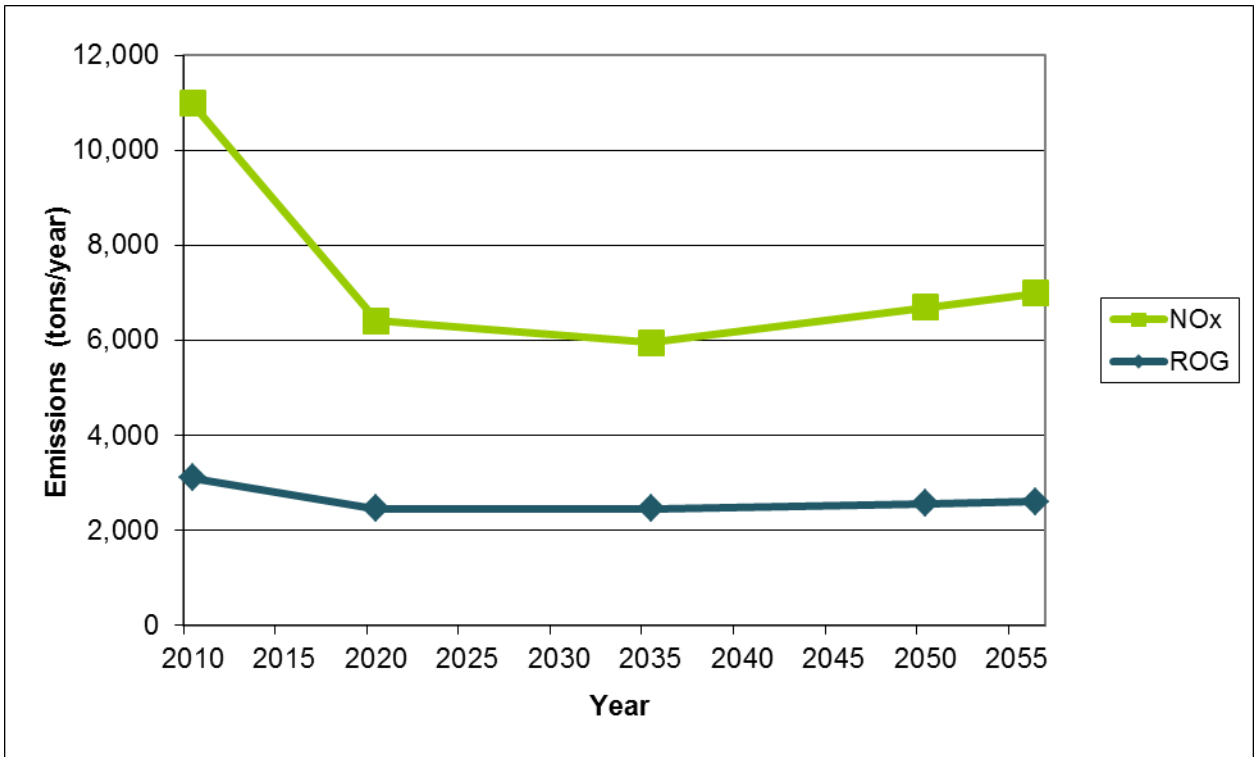


Exhibit 5.3-6: City of Fresno Planning Area Ozone Precursor Emissions



Stationary Sources

A variety of industrial and commercial processes (e.g., food processing plants, glass manufacturers, gas stations, dry cleaning, etc.) allowed under the project would also be expected to emit criteria pollutant emissions. These are referred to as stationary and stationary/area sources in this assessment.

Emissions from stationary sources are regulated at the local and regional level through SJVAPCD permitting and prohibitory rules. Under Rule 2201– New and Modified Stationary Source Review, sources emitting more than two pounds per day of any regulated pollutant are required to obtain an Authority to Construct (ATC) and Permit to Operate (PTO) from the SJVAPCD, and to implement best available control technology (BACT). Emission offsets are required for stationary sources that exceed offset thresholds contained in Rule 2201. The SJVAPCD has also adopted prohibitory rules that set emission limits and/or identify control technologies that apply to new and existing sources and further reduce emissions. The net effect of this regulatory system is continued reductions in stationary source emissions including proposed buildout of the General Plan. Therefore, stationary source emissions from the project are considered less than significant.

The ARB's database of stationary sources for Fresno was reviewed to identify the location of the largest sources. The top three stationary/area source emitters for ROG, NOx, and PM_{10} in the Planning Area in 2010 are shown in Table 5.3-10. The percent of the total emissions for each

pollutant are also shown in the Table 5.3-10. As an example, the top emitter of ROG in the Planning Area is E&J Gallo Winery, which contributed 25 percent of the ROG emissions in the year 2010.

Table 5.3-10: Top Three Stationary/Area Source Emitters in City of Fresno Planning Area (2010)

Pollutant	Facility (Type of Facility)	Percent of Emissions (%)
ROG	E&J Gallo Winery	25
	Golden State Vintners (wine)	11
	SFPP, L.P. (petroleum transportation)	11
NOx	PPG Industries (glass manufacturing)	57
	Rio Bravo Fresno (biomass energy)	18
	Fresno/Clovis Regional Wastewater Treatment Plant	5
PM_{10}	Rio Bravo Fresno (biomass energy)	19
	PPG Industries (glass manufacturing)	17
	MB Technology (roofing systems)	7
Source of emissions data: California Air Resources Board, CEIDARS 2.5, data is from the year 2010. Percentages calculated by FirstCarbon Solutions.		

Policies, Ordinances, and Regulations that Mitigate Project Impacts

The City of Fresno has previously adopted comprehensive policies and strategies aimed at improving the environment for the people of Fresno. The General Plan Update expands on the previous efforts to create a more sustainable Fresno. Previous initiatives include the following:

Fresno Green: The City of Fresno's Strategy for Achieving Sustainability. The City adopted the Handbook for Fresno Green Residential and Non-Residential Checklist in October 2009. The program provides incentives for projects that achieve a minimum of 20 points spread over five major sustainability categories including those with air quality benefits. The incentives include:

- 25 percent reduction on Planning entitlement fees
- 20 percent minor deviation from development standards (i.e., parking, setbacks, etc.)
- Expedited processing
- Recognition

Air Quality Update to the 2025 General Plan. The City approved amendments to the 2025 General Plan to add the Air Quality Update of the 2025 Fresno General Plan Resource Conservation Element that met the requirements of Assembly Bill 170 on May 7, 2009. The update includes many policies designed to assist the SJVAPCD attain air quality standards. Those policies are proposed within the General Plan Update where applicable.

Fresno Bus Rapid Transit Master Plan. The City of Fresno prepared the Bus Rapid Transit (BRT) Master Plan in 2008. The overall vision of the BRT Master Plan is to demonstrate how improved efficiency, speed, and service can attract new transit ridership, improve customer satisfaction, and benefit the broader community by providing a quality of service similar to light rail systems through the use of bus technology. The City has received a grant from the federal government to implement BRT in Fresno.

General Plan Update Policies. The General Plan includes policies designed specifically to address a variety of air quality impacts through measures that reduce vehicle and other operational-related air quality emissions. A partial list of policies that would reduce air pollutant emissions is provided below. For a full list of policies with air quality benefits see section 5.3.3 Regulatory Setting.

- Policies to reduce motor vehicle emissions by encouraging compact communities, smart growth, mixed use, infill development, pedestrian and bicycle accessibility, transit use, alternative fuel, and jobs/housing balance:
  - UF-1-c, UF-12-a, UF-12-b, UF-12-d, UF-12-e, UF-12-f, UF-14-a, UF-14-b, UF-14-c, LU-2-a, LU-2-b, LU-3-b, LU-3-c, LU-5-f, LU-5-e, LU-6-b, LU-6-f, LU-6-g, LU-8-b, RC-4-d, RC-4-e, RC-4-f, RC-4-g,RC-8-b, HC-3-b, and policies under the objectives MT-1, MT-4, MT-5, MT-6, MT-8, and MT-9.
- Policies to reduce the City government operational emissions:
  - RC-4-j, RC-8-f, RC-8-g.
- Policies encouraging the environmental review of projects to reduce air pollutant emissions:
  - RC-4c, RC-4d, RC-8c.

SJVAPCD Land Use Related Regulations. Individual projects to be developed under the proposed project would be subject to District Rules and Regulations, including Rule 9510 (Indirect Source Review) and Regulation VIII (Fugitive Dust Prohibitions), Existing businesses and new projects that are large employers (over 100 employees) will be subject to Rule 9410 (Employer Based Trip Reduction). Rule 9510 was adopted with the purpose of mitigating the impacts of growth on air quality throughout the San Joaquin Valley. Rule 9510 is by far the most stringent development related air regulation in California and the nation. Reductions from Rule 9510 are surplus meaning they are not required to demonstrate attainment of air quality standards. Rule 9410's purpose is to reduce emissions related to employee commute trips. These two rules provide substantial emission reductions from the General Plan buildout and provide assurance that the project would not result in significant air quality impacts.

SJVAPCD Voluntary Emission Reduction Agreements (VERA). The SJVAPCD offers VERAs as a method for development projects that exceed SJVAPCD thresholds after accounting for Rule 9510 reductions to mitigate significant criteria pollutant impacts. VERAs require emission reductions in addition to those required by Rule 9510. The developers of individual projects enter into contracts with the SJVAPCD to purchase emission reductions obtained through projects funded under SJVAPCD grant and incentive programs. The SJVAPCD will also verify emission reductions from projects identified by the developer and manage the implementation and long term monitoring of the

projects. The use of a VERA may not be feasible for all projects but should be considered for large projects with significant impacts.

Summary

Although the existing policies, ordinances, and regulations and the objectives and policies proposed in the General Plan Update will reduce criteria pollutant emissions, the project exceeds the SJVAPCD project level thresholds of significance for ROG, NOx, PM_{10}, and $PM_{2.5}$. Therefore, the project impact is potentially significant.

Cumulative Impact Analysis

The study area for the analysis of cumulative regional air quality impacts such as ROG, NOx, PM_{10}, and $PM_{2.5}$ is the San Joaquin Valley Air Basin which includes the counties of San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare and a portion of Kern. This analysis will be based on a summary of projections approach as provided in Section 15130(b)(1)(B) of the CEQA Guidelines. Section 15130(b) of the CEQA Guidelines states:

> The following elements are necessary to an adequate discussion of significant cumulative impacts: 1) Either: (A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or (B) A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact.

The District's 2012 Draft GAMAQI states the following regarding cumulative criteria air pollutants:

> As discussed in section 8.4 (Thresholds of Significance – Criteria Pollutant Emissions) the District's thresholds of significance for criteria pollutants are based on District Rule 2201 (New Source Review) offset requirements. Furthermore, New Source Review (NSR) is a major component of the District's attainment strategy. The District's attainment plans demonstrate that project specific emissions below New Source Review (NSR) offset requirements will not prevent the District from achieving attainment. Consequently, if project specific criteria pollutant emissions are below their respective thresholds of significance, the project would be consistent with the overall District attainment plan and would be determined to have a less than cumulatively significant impact on air quality.

Under the amended CEQA Guidelines, cumulative impacts may be analyzed using other plans that evaluate relevant cumulative effects. The air quality attainment plans describe and evaluate the future projected emissions sources in the Basin and set forth a strategy to meet both state and federal Clean Air Act planning requirements and federal ambient air quality standards. The applicable plans are listed in Section 5.3.6. Therefore, the attainment plans are relevant plans for a CEQA cumulative impacts analysis. As discussed in Impact AIR-1, the project is consistent with the air quality attainment plans. Therefore, this is a less than significant impact under this criterion.

However, since the project exceeds the SJVAPCD quantitative thresholds for ROG, NOx, PM_{10}, $PM_{2.5}$, cumulative air emissions impacts are considered potentially significant.

Mitigation Measures

Project Specific

No mitigation measures beyond General Plan policies, ordinances, and regulations are available to further reduce this impact.

Cumulative

No mitigation measures beyond General Plan policies, ordinances, and regulations are available to further reduce this impact.

Level of Significance After Mitigation

Project Specific

Significant impact.

Cumulative

Significant impact.

Sensitive Receptors

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

Project Specific Impact Analysis

Criteria Air Pollutants

Certain criteria pollutants can produce localized impacts often referred to as hotspots due to their potential to expose sensitive receptors to substantial pollutant concentrations. These include NO_2, CO, SO_2, PM_{10}, and $PM_{2.5}$. Elevated concentrations of these pollutants can occur where a large number of sources are located in a concentrated area or when particularly large sources are located near sensitive receptors. In this case, substantial concentrations are defined as causing a localized exceedance of an air quality standard or contributing substantially to an existing exceedance of the standard at a specific receptor location.

Determination of localized pollutant concentrations requires project specific information that is not available at the General Plan level. Therefore, criteria are needed to allow the City to identify future projects with the potential for producing substantial pollutant concentrations. The criteria vary by pollutant and will also vary with time as emissions from sources of these pollutants continue to decline through implementation of regulations. Screening criteria for each pollutant of concern are provided below.

Carbon Monoxide (CO). Localized exceedances of the CO standards have become increasingly unlikely. The SJVAB is in attainment of the State and Federal CO standards and background levels of CO as measured at SJVAB monitoring stations continues to decline. The maximum one-hour concentration in Fresno was 2.29 ppm compared to the State standard of 9.0 ppm. The intersection

with the maximum traffic volume in Fresno at General Plan buildout (Palm and Herndon) is expected to accommodate approximately 12,000 trips during the peak hour. A sensitivity analysis using the CALINE4 CO Hotspot model was run to determine the volume of trips that would be required to exceed the most stringent standard. At triple the predicted peak for General Plan buildout of 36,000 peak hour trips, the hourly concentration was 7.5 ppm and an 8-hour concentration of 6.0 ppm. Based on this analysis is it extremely unlikely that a CO hotspot will occur in the Plan Area. CO emissions are predicted to continue to decline as old vehicles are retired and cleaner new motor vehicles take their place. Therefore, no CO hotspot modeling should be required for new projects during General Plan Buildout unless intersection volumes exceed 36,000 peak hour trips.

Nitrogen Dioxide (**$NO_{2)}$**). Localized nitrogen dioxide impacts can occur at sites with large numbers of diesel engines such as warehouse distribution centers and large retail centers with multiple daily truck deliveries. Proximity to the nearest sensitive receptor is the second criteria. Only projects with nearby sensitive sources have the potential to exceed the one-hour NO_2 standard. The distance considered nearby will vary with the magnitude of the source. Generally, projects with large numbers of heavy-duty truck trips and receptors within 100 meters of the project should conduct screening analysis or dispersion modeling to assess localized NO_2 impacts. NO_2 emissions are decreasing rapidly as cleaner vehicles replace higher emitting old vehicles. The decrease in vehicle emissions is expected to reduce the potential impact for NO_2 hotspots as the General Plan is built out. Generally, projects with five or more heavy-duty truck deliveries per day and sensitive receptors with 100 meters of loading areas should conducted a screening analysis. NOx emissions will decrease from trucks with time due to the implementation of State motor vehicle regulations so the screening criteria should be revisited during the course of General Plan buildout.

Particulate Matter (PM). Localized particulate matter emissions (PM_{10} and $PM_{2.5}$) impacts result from combustion sources in close proximity to receptors. Wood burning in residences was a substantial source of particulate matter emissions in the past; however, prohibitions on installing wood burning devices and wood burning restrictions on no burn days required by SJVAPCD Rule 4901 – Wood Burning Fireplaces and Wood Burning Heaters has successfully reduced this impact. Substantial concentrations of particulate matter (PM) can also occur where large numbers of diesel-powered vehicles congregate such as large construction sites, distribution centers, and rail yards. Freeways and major roadways can be sources of particulate matter that impact projects containing sensitive receptors. Projects locating sensitive receptors near freeways and major roadways with average daily trips exceeding 100,000 should perform screening analysis or dispersion modeling to determine if significant impacts would occur and mitigation measures to reduce exposure should be required.

Criteria Pollutant Assessments. Projects that expose sensitive receptors to concentrations exceeding ambient air quality standards or that make a cumulatively considerable contribution to pollutant that already exceed air quality standards would be considered significant. Dispersion modeling to determine criteria pollutant concentrations is recommended for projects with large numbers of diesel powered engines or vehicles near to sensitive receptors. Screening tools may be developed by the SJVAPCD or others that use conservative assumptions to allow assessments without dispersion modeling. Generally, projects with 10 or more diesel trucks accessing a project

site per day and with sensitive receptors located within 100 meters should undergo screening for NO_2 and PM impacts. Stationary sources that emit NO_2 and PM are subject to the SJVAPCD permitting process that includes an assessment of localized criteria pollutant impacts. NO_2 and PM localized impacts will decrease over time as the ARB regulations on diesel vehicles and equipment are fully implemented and fleet turnover takes place. Thresholds for requiring analysis should be reviewed periodically during General Plan buildout to take declining emissions into account.

Toxic Air Contaminants

Besides the criteria air pollutants, there is another group of substances found in ambient air referred to as Hazardous Air Pollutants (HAPs) under the Federal Clean Air Act and Toxic Air Contaminants (TACs) under the California Clean Air Act. Impacts from these contaminants tend to be highest near the sources of emissions and are found in relatively low concentrations in ambient air. However, they can result in adverse chronic health effects if exposure to low concentrations occurs for long periods. HAPs and TACs are regulated at the air district, state, and federal level. HAPs are the air contaminants identified by the EPA as known or suspected to increase the risk of cancer, serious illness, birth defects, or death. Many of these contaminants originate from human activities, such as fuel combustion and solvent use.

EPA identifies 188 different compounds as HAPs. There are 21 compounds identified as Mobile Source Toxics (MSATs) that are a subset of the 188 HAPs. Of the 21 MSATs, EPA identifies six priority HAPs that include diesel exhaust, benzene, formaldehyde, acetaldehyde, acrolein, and 1, 3-butadiene. The ARB, based on available data, identified the ten TACs that pose the greatest known ambient risk in California: acetaldehyde, benzene, 1, 3-butadiene, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter (diesel PM) (ARB 2009).

Project Level TAC Analysis. The regulatory agencies responsible for TAC emissions, the SJVAPCD and ARB, emphasize the localized nature of TAC emission sources in assessing project level impacts and impacts of existing sources on projects containing sensitive receptors. Project locations with large TAC sources in close proximity to sensitive receptors can exceed the SJVAPCD TAC threshold of a 10 in a million increase in cancer risk to the maximally impacted receptor.

The ARB Air Quality and Land Use Handbook (ARB 2005) identified the following sources that warrant special consideration:

- Freeways and High Traffic Roadways
- Distribution Centers (100 trucks per day/40 trucks with TRUs per day)
- Rail Yards
- Refineries
- Chrome Plating Facilities
- Dry Cleaners
- Large Gasoline Dispensing Facilities (3.6 million gallon/year throughput)

Other sources that warrant consideration when receptors are located near the project include projects with diesel engines.

- Large Commercial Projects with Loading Docks (3 or more deliveries per day)
- Recycling Centers using Diesel Equipment for Loading and Crushing Operations
- Hospitals with multiple Emergency Diesel Engines
- Other Facilities with Multiple Idling Trucks

In accordance with General Plan Policy RC-4-c, the City requires screening analyses or health risk assessments for these projects and as recommended by the SJVAPCD during CEQA consultation.

All stationary source projects subject to air permitting are assessed for TAC impacts by the SJVAPCD as part of the permitting process. Air permits for projects exceeding the 10 in a million threshold are not approved per SJVAPCD policy.

Stationary Source TAC Emission Sources

The SJVAPCD provided a list of the 25 highest emitting toxic air contaminant stationary sources in the City of Fresno Planning Area, which are summarized in Table 5.3-11. The SJVAPCD reviewed sources of TACs to comply with AB 2588, which requires prioritization of sources. In September 1987, the California Legislature established the AB 2588 air toxics "Hot Spots" program. It requires facilities to report their air toxics emissions, ascertain health risks, and to notify nearby residents of significant risks. None of these sources result in impacts that exceed the SJVAPCD threshold of 10 in a million increase in cancer risk that would require notification (SJVAPCD 2012).

Table 5.3-11: City of Fresno Planning Area
Highest Emitting Toxic Air Contaminant Stationary Sources

No.	Facility Name	Address in Fresno, CA	Facility Type, Pollutant Sources
1	SFPP, L.P.	4149 S. Maple Ave.	Petroleum Transportation; Sources include diesel emergency generators, fuel storage tanks, fuel loading stations and racks
2	California Army National Guard	5168 E. Dakota Ave. (Fresno Yosemite International Airport)	Base, munitions storage area, 144th Fighter Wing
3	PPG Industries	3333 S. Peach Ave.	Glass manufacturing; sources include train shed and silo unloading, float glass furnace, glass packing and cullet system
4	Armature Service Company	4321 S. Chestnut Ave.	Unknown
5	TG Schmeiser Co. Inc	3160 E. California Ave.	Farm equipment manufacturing
6	The Papé Group	2896 E. Jensen Ave.	Machinery and equipment
7	Valley Iron Inc.	3158 S. Cherry Ave.	Shearing and saw cutting, plate processing
8	California Crematory	1553 N. Backer St.	Crematory

No.	Facility Name	Address in Fresno, CA	Facility Type, Pollutant Sources
9	West Coast Cooperage/Barrels	4333 S. Fowler	Wood container and pallet manufacturing
10	Praxair Distribution Inc.	2771 Maple Ave.	Industrial gas manufacturing
11	Excelsior Metals, Inc.	2597 N. Fordham Ave.	Laser cutting and metal fabrication services including assembly, engineering, fabrication, rolling and welding
12	Betts Spring Company	2843 S. Maple Ave.	Coil springs, leaf springs, and wire form manufacturing
13	VA Medical Center	2615 E. Clinton Ave.	Diesel exhaust*
14	Foods Co. #339	3055 E. Shields Ave.	Grocery store
15	Club Cleaners	9525 N. Sommerville	Dry cleaner; perchloroethylene
16	Fresno Unified School District	2540 E. Hedges	Diesel exhaust*
17	Harris Manufacturing, Inc.	4775 E. Vine Ave.	Unknown
18	Chapel of the Light	1620 W. Belmont	Crematory
19	Kroeker, Inc.	4627 S. Chestnut	Diesel exhaust*
20	Gleim-Crown Pump, Inc.	3087 S. Elm Ave.	Diesel exhaust*
21	City of Fresno – Water Division	9503 N. Fine Ave.	Diesel exhaust*
22	Fresno Community Hospital	2823 Fresno St.	Natural gas boilers, emergency diesel generator
23	Community Living Center	3003 N. Mariposa	Diesel exhaust*
24	Allied Electric Motor Service	2635 S. Sierra Vista	Service center
25	Golden State Crematory Inc.	1103 E. St.	Crematory

Sources:
- Facility name and address: San Joaquin Valley Air Pollution Control District, 2013, public information request
- Pollutant sources:
Facility 1: San Joaquin Valley Air Pollution Control District 2011, Title V Permit Renewal, Facility C-1077, http://www.valleyair.org/notices/Docs/2011/12-29-11%20(C-1074143)/Public%20Notice%20Package.pdf
Facility 3: San Joaquin Valley Air Pollution Control District 2011, Title V Permit Renewal, Facility C-948, http://www.valleyair.org/notices/Docs/2011/05-27-11%20(C-1062650)/Public%20Notice%20Package.pdf
* Diesel exhaust was the only pollutant listed for these facilities

New sensitive receptors located near existing toxic air contaminant sources may be exposed to substantial pollutant concentrations. This potential impact is considered in CEQA documents for individual projects. General Plan Policy RC-4-c states, "Require use of computer models recommended by the SJVAPCD to evaluate the air quality impacts of projects that require

environmental review by the City." The District's significance threshold for new projects is conservative and requires that carcinogen related impacts are less than 10 in a million and non-carcinogen impacts with a hazard index less than 1.0 for sensitive receptors. New projects that include toxic air contaminant sources would need to undergo review to determine if they have the potential to create a significant impact from TAC emissions. It should be noted that projects with stationary sources regulated by the SJVAPCD will not be approved if the emissions result in an increased risk exceeding the threshold. Projects located near facilities with large numbers of diesel trucks such as distribution centers or loading docks in close to proximity to receptors should undergo additional analysis using screening tools or dispersion modeling to determine if significant impacts may occur. Projects with potentially significant impacts after screening, should prepare a health risk assessment (HRA) to more accurately characterize the potential impact and the benefits of mitigation measures available to reduce project impacts.

Motor Vehicle Emissions Impacts to Sensitive Receptors

Impacts from motor vehicles are generally greatest within close proximity to locations with large numbers of diesel-powered vehicles. Therefore, sensitive receptors placed near high volume freeways or roads could be exposed to substantial pollutant concentrations. The ARB's Land Use Handbook (2005) recommends avoiding new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day. General Plan Policy HC-3a states, "Restrict new residential development, schools, and parks within 500 feet of a limited access freeway, in order to reduce exposure to concentrations of toxic air pollutants and noise, unless impacts can be mitigated as if these uses were 500 feet or further away." The project traffic analysis determined that the highest traffic volumes on any urban road will be 93,000 vehicles per day on a 6-lane arterial analyzed under the cumulative plus project scenario. No rural roads are planned for the Planning Area. Therefore, only freeways have the potential to exceed the ARB screening criteria with the buildout of the General Plan Update.

Cumulative Impact Analysis

Cumulative development allowed with the proposed General Plan Update would result in significant cumulative impact. The Proposed Project's contribution to the significant cumulative impact is considerable because the project analysis identifies an existing significant impact. To reduce the project contribution to less than significant, mitigation measure MM-AQ-1 is required.

Areas of the community with multiple sources of TAC emissions can expose nearby sensitive receptors to elevated risk. Sources such as freeways and high volume roadways can have large concentrations of diesel vehicles that represent the cumulative emissions from truck travel generated by projects throughout the region. Industrial areas with large stationary sources or distribution centers may also result in elevated existing TAC emissions and risk. Projects constructed near large existing sources should undergo analysis to determine if there is an existing cumulative TAC impact without the project.

The SJVAPCD has not adopted a TAC threshold that defines conditions that would result in an existing significant TAC impact without the project. As described earlier, the SJVAPCD considers projects that exceed the 10 in a million increase in cancer risk threshold to provide a significant cumulative

contribution. Under this concept, the existing TAC impacts throughout the air basin are considered significant regardless of differences in local concentrations.

The District's Draft 2012 GAMAQI states the following regarding cumulative toxic air contaminants:

> Impacts from hazardous air pollutants are largely localized impacts. As presented above in section 8.3 (Thresholds of Significance - Toxic Air Contaminant Emissions), the District has established thresholds of significance for toxic air contaminants (TAC) that are extremely conservative; protective of health impacts on sensitive receptors. Consequently, the District's application of thresholds of significance for TACs is relevant to the determination of whether individual project emissions of TAC would have a cumulatively significant health impact. Because the established TAC significance thresholds are highly conservative, if project specific TAC emissions would have a less than significant health impact, the project would not be expected to result in a cumulatively considerable net increase in TAC. Thus, the project would be determined to have a less than cumulatively significant impact on air quality.

Another air district has used a different approach to cumulative assessment that accounts for elevated risk from nearby sources. The Bay Area Air Quality Management District (BAAQMD) has adopted a cumulative threshold based on the aggregate total risk of all past, present, and foreseeable future sources within a 1,000-foot radius from the fence line of a source, or from the location of a receptor, plus the contribution from the project. Projects with an excess cancer risk levels of more than 100 in one million or a chronic non-cancer hazard index (from all local sources) greater than 10.0 are considered cumulatively significant. This approach allows the identification of areas with TAC emissions that are likely to have higher cancer risk than the regional average risk in a community due to location of multiple sources of TAC emissions in close proximity to a project.

Although TAC impacts are most important in a localized context, the emissions can remain in the atmosphere long enough to mix throughout a wider area to create a background risk. The amount of background risk at locations away from individual sources is not well documented. Non-diesel PM TAC emissions were monitored at only three locations in the San Joaquin Valley. There is no method available to directly monitor diesel PM which ARB concludes is responsible for over 70 percent of air borne cancer risk in the San Joaquin Valley. Concentrations at actual locations vary widely due to importance of localized sources and dispersion. The ARB provides average risk data for the SJVAB and other air basins; however, the ARB states that "the regional cancer risks published by the ARB should be viewed as a gauge of relative risk, rather than as an absolute risk determination. These regional risks are useful for determining the geographic locations where current science indicates that the greatest amount of risk from toxic air contaminants exists. However, the absolute risk numbers should NOT [emphasis added by the ARB] be used as the basis for determining personal risk".

ARB's 2009 Air Quality Almanac provides the most recent available TAC risk estimates for California. The Almanac provides estimates of the annual average concentrations and health risks for each air basin, including the San Joaquin Valley Air Basin. The estimate of the average regional risk for TAC

emissions from pollutants other than diesel PM also referred to as non-diesel PM TAC for 2007 (the most recent year of data available) is 90 in a million. However, the record for 2007 is missing data for two TACs, carbon tetrachloride, and para-dichlorobenzene. Using 2003 data for carbon tetrachloride as a substitute for the missing data and assuming no decrease since 2003 would add a risk of 26 in a million. Using 2006 data for para-dichlorobenzene would add 10 in a million. Adding these to a risk of 90 in a million for the other non-diesel TACs results in an average risk of 126 in a million.

The last analysis year that included an estimate of diesel PM risk was 2000, with an estimated risk of 390 in a million from diesel alone and 196 in a million from the other sources analyzed, for a total risk of 586 in a million. The report stated that more current estimates for diesel impacts were under review. Note that the Almanac reports average cancer risk in the entire San Joaquin Valley and does not identify locations with higher or lower than average exposure to TACs. Combining the 2000 diesel PM risk of 390 in a million with the non-diesel PM risk of 126 in a million results in an estimated average cancer risk of 516 in a million.

Local data for Fresno TAC risk is limited. Non-diesel PM TAC data for Fresno was only collected at the ARB monitoring station located on North First Street in Fresno until 2011 when the site was closed. Additional TAC data will be available at a monitoring station located nearby on East Garland Avenue. The Fresno monitoring site is situated in the center of the city, near a variety of commercial, residential, and high-volume roadways and a freeway (State Route 41 [SR-41] is 0.6 mile west of the site). Air emissions samples were collected every 12 days to measure TAC levels. ARB averaged the data it collected over a year to provide annual average emissions. Daily and annual TAC monitoring data are available from the ARB for the years 1980 through 2009 (ARB 2012a). The ARB site did not monitor diesel PM (particulate matter), since there is no direct method available for monitoring diesel PM. However, other methods are available to provide estimates of diesel PM using PM_{10} monitoring data as a surrogate and estimating the fraction that is composed of diesel PM. The ARB used receptor-modeling techniques to generate risk estimates provided in the ARB 2009 Air Quality Almanac (ARB 2009) that include risks associated with diesel PM for the year 2000. Other more recent methods using NO_2 concentrations as a surrogate for diesel PM have also been used to estimate risk from this source.

ARB conducted a special study in Fresno to determine the adequacy of the air quality-monitoring network to identify impacts to children from TAC emissions. ARB analyzed monitoring data from the long-term Fresno First Street monitoring site and a temporary site located at a school as part of a 2006 special study, Community Air Quality Monitoring: Fresno, Fremont Elementary School (ARB 2006). The ARB conducted the study as part of a larger statewide evaluation of the adequacy of the State's air quality monitoring network as required by the Children's Environmental Health Protection Act (Escutia, Senate Bill 25, 1999 [SB 25]). Air monitoring at Fremont Elementary School was completed during a 15-month period, from June 2002 to August 2003. The study monitored 50 different air pollutants. As part of the study, data from Fremont Elementary School was compared with data from the nearest long-term monitoring site, Fresno–First Street, for the same time period.

Analysis of the monitoring results indicate that the potential cancer risk at Fremont Elementary School is mostly attributable to seven of the toxic air pollutants measured during the study: benzene,

1,3-butadiene, formaldehyde, acetaldehyde, perchloroethylene, carbon tetrachloride, and methylene chloride. Including the other toxic air pollutants measured at these sites does not significantly change the overall risk at each site, nor does it change the overall relationship of cancer risk between sites.

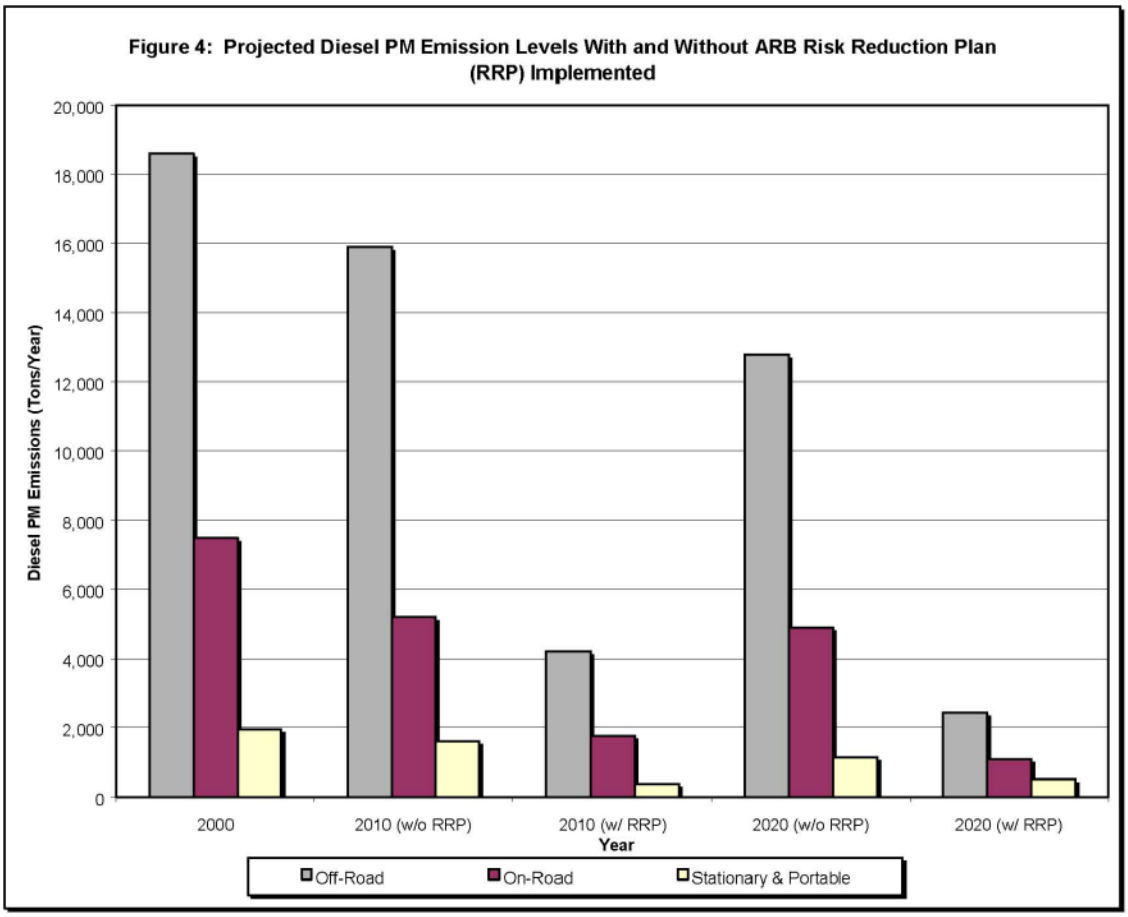
The cancer risk attributable to the ambient concentrations of the seven TACs was estimated at 156 in a million at the Fremont School site and 139 in a million at the Fresno First Street monitoring station during the period from July 2002 through June 2003. The Special Study on page 5 indicates that higher emissions and risk at the Fremont School compared with the Fresno First monitoring station were attributed to the school's location 0.5 mile east of State Route 99 and the proximity to a parcel distribution facility and other industrial and warehousing uses along State Route 99 (ARB 2006).

Rules and Regulations that Reduce TAC Impacts

Risk from TAC emissions is declining rapidly due to regulations adopted at the federal, state, and air district levels. The ARB's Diesel Risk Reduction Plan has led to the adoption of new state regulatory standards for all new on-road, off-road, and stationary diesel-fueled engines and vehicles to reduce diesel PM emissions by about 90 percent overall from year 2000 levels. The projected emission benefits associated with the full implementation of this plan, including federal measures, are reductions in diesel PM emissions and associated cancer risks of 75 percent by 2010 and 85 percent by 2020 (ARB 2000). The reductions in diesel PM emissions attributable to the Diesel Risk Reduction Plan are displayed in Exhibit 5.3-7. Regulations on stationary sources such as ARB's Air Toxic Control Measures (ATCM) and Toxic Best Available Control Technology (T-BACT) implemented by the SJVAPCD provide similar reductions for other TACs. The Diesel Risk Reduction Plan has not been updated, so the data includes projections for 2010 that has already passed. The ARB has aggressively implemented the Diesel Risk Reduction Plan and success in achieving the projected reductions appears likely based on reductions identified for individual regulations listed in Section 5.3.5.

There is no level of toxic emissions that is considered to have no health impacts. In that situation, decision makers must determine a level of risk that is acceptable considering the benefits of the activities provided by the emission sources. For example, using diesel trucks to transport goods and using gasoline to fuel motor vehicles are the two largest sources of TAC emissions, but are integral to the mobility of people in the San Joaquin Valley and to the economy. In light of the existing average TAC risk levels in the San Joaquin Valley of about 516 in a million, it seems appropriate to consider existing risk a significant impact. The implementation of future development under the General Plan Update will add TAC emissions to the air that would exceed the 10 in a million risk threshold. Therefore, the Proposed Project's contribution to cumulative TAC emissions would be considerable and would result in a significant cumulative impact.

Exhibit 5.3-7: ARB Diesel Risk Reduction Plan Reductions



To summarize, residents of the City of Fresno experience average risks of approximately 516 in a million from TAC emissions. Risk to individuals at specific locations has not been determined and may be higher or lower than the average because of the importance of localized sources. Development of new TAC sources in areas of the Planning Area with large concentrations of existing sources such as a freeway or a distribution center should undergo an assessment to determine if sensitive receptors would be exposed to elevated levels of TAC emissions (100 in a million cancer risk) from sources within an approximate 1,000 foot radius with and without the project. Projects at locations that exceed the cumulative threshold should be assessed to determine if they would make a significant cumulative contribution to an existing significant impact as defined by a 10 in a million increase in cancer risk threshold proposed by the SJVAPCD. Projects that result in a significant cumulative contribution should implement all feasible measures to mitigate their significant cumulative impact. Emissions and risk are declining to due regulations on TAC sources, so as the Planning Area is built out in accordance with the General Plan and Development Code Update, the chances of projects exceeding the project and cumulative thresholds will be less.

Mitigation Measures

Project Specific

No specific development projects are identified in the General Plan that would allow an assessment of project specific criteria pollutant localized impacts and TAC impacts. However, the possibility exists that one or more projects would exceed the thresholds for these pollutants during project buildout. Therefore, measures are identified below that shall be implemented on a project-by-project basis when a potentially significant impact would occur.

MM AQ-1 Projects that include five or more heavy-duty truck deliveries per day with sensitive receptors located within 300 feet of the truck loading area shall provide a screening analysis to determine if the project has the potential to exceed criteria pollutant concentration based standards and thresholds for NO_2 and PM2.5. If projects exceed screening criteria, refined dispersion modeling and health risk assessment shall be accomplished and if needed, mitigation measures to reduce impacts shall be included in the project to reduce the impacts to the extent feasible. Mitigation measures include but are not limited to:

- Locate loading docks and truck access routes as far from sensitive receptors as reasonably possible considering site design limitations to comply with other City design standards.
- Post signs requiring drivers to limit idling to 5 minutes or less.

MM AQ-2 Projects that result in an increased cancer risk of 10 in a million or exceed criteria pollutant ambient air quality standards shall implement site-specific measures that reduce TAC exposure to reduce excess cancer risk to less than 10 in a million. Possible control measures include but are not limited to:

- Locate loading docks and truck access routes as far from sensitive receptors as reasonably possible considering site design limitations to comply with other City design standards.
- Post signs requiring drivers to limit idling to 5 minutes or less
- Construct block walls to reduce the flow of emissions toward sensitive receptors
- Install a vegetative barrier downwind from the TAC source that can absorb a portion of the diesel PM emissions
- For projects proposing to locate a new building containing sensitive receptors near existing sources of TAC emissions, install HEPA filters in HVAC systems to reduce TAC emission levels exceeding risk thresholds.
- Install heating and cooling services at truck stops to eliminate the need for idling during overnight stops to run onboard systems.

- For large distribution centers where the owner controls the vehicle fleet, provide facilities to support alternative fueled trucks powered by fuels such as natural gas or bio-diesel.
- Utilize electric powered material handling equipment where feasible for the weight and volume of material to be moved.

Cumulative

Implementation of mitigation measures MM AQ-1 and MM AQ-2 is required. Projects located in areas with multiple existing or planned TAC sources nearby may result in elevated cancer risks to sensitive receptors also impacted by the project. Under this condition, it is appropriate to assess the additional cumulative impact from localized sources within the screening distances identified by ARB as warranting special consideration. MM AQ-2 would require the additional analysis per the specified criteria. Projects proposing development containing sensitive receptors may be located near to large or multiple existing TAC sources. Under this circumstance, analysis of the impact of the existing sources within the ARB screening distances is appropriate to identify the potential impact to the sensitive receptors within the proposed project. Mitigation measure AQ-4 addresses the situation where projects containing sensitive receptors are proposed near to existing TAC sources. The following mitigation measures are proposed to ensure that projects with the potential to expose sensitive receptors to significant TAC concentrations are identified during later environmental reviews.

MM AQ-3 Require developers proposing projects on ARB's list of projects in its Air Quality and Land Use Handbook (Handbook) warranting special consideration to prepare a cumulative health risk assessment when sensitive receptors are located within the distance screening criteria of the facility as listed in the ARB Handbook.

MM AQ-4 Require developers of projects containing sensitive receptors to provide a cumulative health risk assessment at project locations exceeding ARB Land Use Handbook distance screening criteria or newer criteria that may be developed by the SJVAPCD

Level of Significance After Mitigation

Project Specific

Significant impact. Mitigation measures MM AQ-1 and MM AQ-2 provides a list of measures that will serve to reduce the impacts of individual projects on sensitive receptors. However, identification of applicable project specific mitigation measures is not feasible without site-specific information. Project specific mitigation measures will depend on the types and amounts of pollutants that are present, the design characteristic of the site, and the location of the receptors in relation to the site. Projects may be proposed as part of the buildout of the General Plan and Development Code Update where there are no feasible measures to reduce impacts to less than significant. Those projects would require the preparation of an Environmental Impact Report and a Statement of Overriding Considerations if the project were approved. Implementation of the Proposed Project would continue to add emissions that contribute to cumulative TAC impact. Although, individual projects

can reduce impacts with implementation of mitigation measures MM AQ-1 and MM AQ -2, any contribution would still result in a significant impact. Therefore, the project level impacts of the General Plan and Development Code Update would remain significant.

Cumulative

Significant impact. Mitigation measures MM AQ-1 through MM AQ-4 will serve to ensure that the cumulative impacts of projects implemented in accordance with the General Plan and Development Code Update are assessed to determine if they will expose sensitive receptors to potentially significant cumulative impacts from TAC emissions. However, the project's cumulative assessment may identify significant impacts or cumulative contributions for which feasible mitigation measures are not available. Therefore, cumulative TAC impacts would remain significant.

Odors

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

Project Specific Impact Analysis

Potential Odor Sources in the City of Fresno Planning Area

The City of Fresno has many sources with the potential to generate odors including wastewater treatment facilities, landfills, transfer stations, recycling centers, manufacturing plants, food processors, painting operations, and rendering plants. Based on review of odor complaint history, very few of these facilities experience substantial odor complaints over the last three years. The implementation of the Proposed General Plan Update could result in the odor sources identified in Section 5.3.4 being located within the screening threshold distances and could result in significant impacts on sensitive receptors.

The proposed General Plan Update could also result in sensitive receptors being constructed within the screening level distances from existing odor sources. Under this situation, these potential odor impacts on new sensitive receptors could be significant. When potential odor impacts on these new sensitive receptors occur, the SJVAPD has authority under Rule 4102 to require the owner of the odor-generating source to take actions that would reduce impacts to less than significant.

Odor Complaints in City of Fresno Planning Area

The District provided a record of all odor complaints within the City of Fresno Planning Area from 2009 through 2011, which are summarized in Table 5.3-12. Two of the facilities shown in Table 5.3-12, the E&J Gallo Winery and Darling International facility experienced substantial numbers of complaints.

Table 5.3-12: Odor Complaints in City of Fresno Planning Area 2009-2011

Location	Date	Complaint Number	Findings
Concept Coatings Powder, 2540 S. Sarah Ave.	09/23/2009	C-0909-060	There were odors during cooking/cleaning the coating oven. The company now vacuums out the oven; odors resolved.
E&J Gallo Winery	10/01/2009	C-0910-004	Odors possibly from pomace generated from crushing.
	01/21/2010	C-1001-046	At inspection, odors at green waste receiving location.
	03/17/2010	C-1003-018	At inspection, odors were of fresh green waste in stockpiles and windrows.
	10/17/2011	C-1110-060	At inspection, fermenting grape odor.
Darling International, 795 W. Belgravia	07/07/2011	C-1107-011	The District was not able to confirm the odor was affecting residents near Darling International.
	07/28/2011	C-1107-056	The District was not able to confirm odors.
	11/28/2011	C-1107-058	The District was not able to confirm odors.
Protein Inc. 3902 E. Calwa	08/26/2011	C-1108-068	The truck that picks up the grease trap can be odorous.
Daytona Auto Sales	09/19/2011	C-1109-055	Complaint reported odors from spray painting. The District reported no violation, as the shop appears to be compliant.
	09/26/2011	C-1109-083	
Richard's Collision Center, 4934 E. Lansing Way	10/10/2011	C-1110-034	Facility had odors from automotive coating operations.
	11/08/2011	C-1111-025	The District was unable to confirm painting odor.
	11/14/2011	C-1111-043	The District was unable to confirm painting odor.
Lanna Café	11/23/2011	C-1111-083	The District was unable to confirm potential coffee roasting odor
Source: San Joaquin Valley Air Pollution Control District, request for information, 2012.			

Potential impacts from odor sources would be mitigated through compliance with General Plan Policy PU-9-d and by enforcement actions by agencies with regulatory authority over odors. General Plan Policy PU-9-d would ensure that waste and recycling facilities are properly located. Potential odor impacts from waste and recycling facilities is one of the primary factors considered in the location decision and are regulated by the State of California through CalRecycle and the Local Enforcement Agency delegated by the State. The SJVAPCD addresses odor issues through Rule 4102 – Nuisance. Facilities creating nuisance odors generating public complaints can result in SJVAPCD enforcement action. Individual development projects are required to determine if odors would be a potentially significant impact as part of CEQA review. The General Plan does not identify specific projects that are likely to result in an increase in odors. However, projects meeting the screening criteria are likely to be proposed in the Plan Area. In addition, projects containing sensitive receptors are likely to be proposed near existing odor sources. Projects proposing new receptors within

screening level distances will reduce the impact to less than significant through procedures provided by Rule 4102. Proposal of a new source within the screening distance would require the applicant to demonstrate that the proposed facility includes odor controls within its design and through implementation of odor management practices to reduce odors to less than significant. Therefore, impacts from the project are potentially significant.

Cumulative Impact Analysis

The geographic scope of the cumulative odor analysis is the local area. Impacts relative to objectionable odors are generally limited to the area in close vicinity to the source and are not cumulative in nature. As the emissions that cause odors disperse, the odor becomes less and less detectable. Odor impacts can occur when a project is an odor generator with the potential to impact sensitive receptors and when a project containing sensitive receptors is proposed within the odor screening distances from an existing odor generator. There are no specific land uses or policies proposed in the General Plan that would result in a concentration of odor sources at any particular location. With the buildout of the Proposed General Plan Update, impact from projects could result in a cumulative impact. Therefore, cumulative odors impacts are potentially significant.

Mitigation Measures

Project Specific

General Plan Policy PU-9-d addresses only one potential odor source type (waste and recycling facilities). Other odor source types listed in Table 5.3-6 may result in a potentially significant impact that would require mitigation to ensure the impact is reduced to less than significant.

MM AQ-4 Require developers of projects with the potential to generate significant odor impacts as determined through review of SJVAPCD odor complaint history for similar facilities and consultation with the SJVAPCD to prepare an odor impact assessment and to implement odor control measures recommended by the SJVAPCD or the City to the extent needed to reduce the impact to less than significant.

Cumulative

Implementation of Mitigation Measure AQ-4 is required.

Level of Significance After Mitigation

Project Specific

Less than significant impact.

Cumulative

Less than significant impact.