CHAPTER 3
ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION

3.1 AIR QUALITY

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The SCAB climate is influenced by a semi-permanent high-pressure system that lies off the coast. The resulting weather is mild, tempered by a daytime sea breeze and a nighttime land breeze. This mild climate is infrequently interrupted by periods of extremely hot weather, winter storms, and Santa Ana winds (strong, seasonal westward wind). Rainfall in the SCAB is primarily restricted to November through April, with rainfall totals being highly variable from year to year.

The Orange County coast experiences an average wind speed of 7.7 miles per hour (mph). Inland areas record slightly lower wind speeds. Because of the low average wind speed, air contaminants in the SCAB do not readily disperse. On spring and summer days most pollution is moved out of the SCAB through mountain passes or is lifted by the warm vertical currents produced by the heating of the mountain slopes. From late summer through the winter months, lower wind speeds and the earlier appearance of offshore breezes combine to trap pollution in the SCAB.

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In summer, the longer daylight hours and bright sunshine combine to cause a reaction between hydrocarbons and oxides of nitrogen to form ozone. In winter, the greatest pollution problems are carbon monoxide and nitrogen oxides, which are trapped and concentrated by the inversion layer.

APPLICABLE REGULATIONS

Federal Standards

The Federal Clean Air Act (CAA) of 1970 is the comprehensive law that regulates air emissions from area, stationary, and mobile sources. The law authorized the EPA to establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment. The goal of the Act was to set and achieve NAAQS in every state by 1975. The setting of maximum pollutant standards was coupled with directing the states to develop state implementation plans (SIPs) applicable to appropriate industrial sources in the state.

The Act was amended in 1977 primarily to set new goal dates for achieving attainment of NAAQS since many areas of the country had failed to meet the deadlines. The 1990 amendments to the CAA in large part were intended to meet unaddressed or insufficiently addressed problems such as acid rain, ground level ozone, stratospheric ozone depletion, and air toxics.

NAAQS have been established for carbon monoxide (CO), ozone (O_3), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), particulate matter (PM_{10}), particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), and lead (Pb). These contaminants are referred to as criteria pollutants. **Table 3.1-1** summarizes state and federal air quality standards. The following is a brief description of applicable criteria air pollutants.

Criteria Air Pollutants

Ozone (O_3). Ozone is a secondary pollutant produced through a series of photochemical reactions involving reactive organic compounds (ROCs) and nitrogen oxides (NO_x). Ozone creation requires ROCs and NO_x to be available for approximately three hours in a stable atmosphere with strong sunlight. Ozone is a regional air pollutant because it is not emitted directly by sources, but is formed downwind of sources generating ROCs and NO_x emissions. Ozone effects include eye and respiratory irritation, reduction of resistance to lung infection, and possible aggravation of pulmonary conditions in persons with lung disease. Ozone is also damaging to vegetation and untreated rubber.

Carbon Monoxide (CO). Carbon Monoxide is a non-reactive pollutant that is a product of incomplete combustion. Ambient CO concentrations usually follow the spatial and temporal distributions of vehicular traffic and are influenced by meteorological factors such as wind speed and atmospheric mixing. Under inversion conditions, CO concentrations may be distributed more uniformly over an area out to some distance from vehicular sources.

TABLE 3.1-1: AMBIENT AIR QUALITY STANDARDS FOR CRITERIA POLLUTANTS

Pollutant	Averaging Time	California Standard	Federal Primary Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
O_3	1 hour	0.09 ppm	0.12 ppm	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Motor vehicles.
	8 hours	---	0.08 ppm		
CO	1 hour	20 ppm	35 ppm	Classified as a chemical asphyxiant, CO interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9 ppm	9.0 ppm		
NO_2	Annual Average	---	0.05 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.25 ppm	---		
	24 hours	0.04 ppm	0.14 ppm		
PM_{10}, $PM_{2.5}$	Annual Geometric Mean	30 ug/m^3 (PM_{10})	65 ug/m^3 ($PM_{2.5}$)	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g. wind-raised dust and ocean sprays).
	Annual Arithmetic Mean	---	50 ug/m^3 (PM_{10})		
	24 hours	50 ug/m^3 (PM_{10})	150 ug/m^3 (PM_{10}) 15 ug/m^3 ($PM_{2.5}$)		
Pb	Monthly	1.5 ug/m^3	---	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurologic dysfunction (in severe cases).	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Quarterly	---	1.5 ug/m^3		

Source: California Air Resources Board, Ambient Air Quality Standards, January 25, 1999.

Nitrogen Oxides (NO_x). There are two oxides of nitrogen which are important in air pollution: nitric oxide (NO) and NO_2. Nitric oxide and NO_2 are both emitted from motor vehicle engines, power plants, refineries, industrial boilers, aircraft and railroads. NO_2 is primarily formed when NO reacts with atmospheric oxygen. NO_2 gives the air the "whiskey brown" color associated with smog.

Particulate Matter (PM_{10}). Particulate matter, PM_{10}, with a diameter less than 10 micrometers, can be inhaled deep into the lungs and cause adverse health effects. Particulate matter in the atmosphere results from many kinds of dust and fume-producing industrial and agricultural operations, fuel combustion, and atmospheric photochemical reactions. Some sources of particulate matter such as demolition and construction activities are more local in nature, while others such as vehicular traffic have a more regional effect.

Sulfur dioxide (SO_2). Sulfur dioxide is formed through the oxidation of elemental sulfur; suspended sulfates are the product of further oxidation of SO_2. In some parts of the state, elevated levels can be due to natural causes, such as wind-blown dust and sea salt spray. Suspended sulfates contribute to overall particulate concentrations in ambient air which, if high enough, are suspected to be a cause of premature death in individuals with pre-existing respiratory disease.

Toxic Air Contaminants (TACs). Toxic Air Contaminants, also known as hazardous air pollutants, are pollutants known or suspected to cause cancer or other serious health effects such as birth defects. TACs may also have significant adverse environmental and ecological effects. Examples of TACs include benzene, diesel particulates, hydrogen sulfide, methyl chloride, 1,1,1-trichloroethane, toluene, and metals such as cadmium, mercury, chromium, and lead. Health effects from TACs vary depending on the toxicity of the specific pollutant but may include cancer, immune system damage, as well as neurological, reproductive, developmental, and respiratory problems.

According to the EPA, approximately 50 percent of the TACs we are exposed to come from mobile source emissions. The California Air Resources Board (CARB) approved a comprehensive diesel risk reduction plan in September 2000. The EPA published its final rule to control emissions of hazardous air pollutants from mobile sources in the March 29, 2001 Federal Register.

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In 1967, California's legislature passed the Mulford-Carrel Act, which established the CARB. The CARB set state air quality standards for criteria pollutants. The state standards for these pollutants are more stringent than the corresponding federal standards (see Table 3.1-1). As in the Federal CAA, the California CAA classifies areas as either being in "attainment" or "non-attainment" for these criteria pollutants. Areas designated as non-attainment are then given a set time frame to achieve attainment.

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The project site is located within the jurisdiction of the SCAQMD. The SCAQMD adopted an Air Quality Management Plan (AQMP) in 1979, which intended to meet federal air quality standards by December 31, 1987. Using better data and modeling tools, the 1982 revision of the AQMP concluded that the basin could not demonstrate attainment by the 1987 deadline required by the federal CAA. Therefore, the 1982 Revision of the AQMP proposed a long-range strategy that could result in attainment in 20 years. In 1987, a federal court ordered the U.S. EPA to disapprove the 1982 AQMP revision because it did not demonstrate attainment of the federal standards by the 1987 deadline.[2]

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Currently, the SCAQMD is operating under the 1997 AQMP and the 1999 amendment to the 1997 ozone portion of the AQMP. The 1997 AQMP relies on short-term and intermediate-term attainment measures which were to be adopted by 2000, and long term attainment measures utilizing advances in technology reasonably expected to be available by the year 2010. On January 12, 1999, the U.S. EPA proposed a partial disapproval of the ozone portion of the 1997 AQMP. The AQMD responded with the 1999 Ozone State Implementation Plan revision, which the EPA indicated would be approvable. The SCAQMD has approved the Proposed 2003 Air Quality Management Plan for the SCAB. The 2003 AQMP demonstrates attainment with state and federal air quality standards and incorporates a revised emissions inventory, the latest modeling techniques, updated control measures remaining from the 1997/1999 SIP, and new control measures based on current technology assessments. Currently, the U.S. EPA is evaluating the adequacy of the 2003 AQMP.

Existing Air Quality

The SCAB is in non-attainment for both the federal and state ozone, carbon monoxide, and PM_{10} standards. The state one-hour ozone standard in the SCAQMD was exceeded 5 days in 1998 and at least once per year from 1997 through 2001 (see **Table 3.1-2**). The PM_{10} standard was exceeded 15 times in 1999, and at least eight times a year from 1997 to 2001. The carbon monoxide standard has not been exceeded in the project area for the last five years. The SCAB is

TABLE 3.1-2: PROJECT AREA AIR POLLUTANT SUMMARY, 1997-2001[a]

Pollutant		Standard[b]	1997	1998	1999	2000	2001
O_3	Highest 1-hr average, ppm[c]	0.09	0.10	0.12	0.10	0.10	0.11
	Number of standard excesses[d]		1	5	NA	1	2
CO	Highest 1-hr average, ppm[c]	20.0	7.0	9.0	8.0	8.0	8.0
	Number of standard excesses[d]		0	0	0	0	0
	Highest 8-hr average, ppm[c]	9.1	5.8	7.0	6.4	6.3	4.71
	Number of standard excesses[d]		0	0	0	0	0
NO_2	Highest 1-hr average, ppm[c]	0.25	0.12	0.12	0.12	0.11	0.12
	Number of standard excesses[d]		0	0	0	0	0
PM_{10}*	Highest 24-hr average, $\mu g/m^3$ [c]	50	91	81	122	126	93
	Number of standard excesses[d,e]		11	12	15	8	9
	Annual Geometric Mean, $\mu g/m^3$ [c]	30	36.3	33.0	43.4	35.7	33.7
	Violation		Yes	Yes	Yes	Yes	Yes

Note: Underlined values indicate an excess of applicable standard.
* Central Orange County Air Monitoring Station Location.

a. Data are from the SCAQMD monitoring station located at the intersection of Mesa Verde Dr. and Adams Ave in the City of Costa Mesa. 1999 air quality data is incomplete.
b. State standard, not to be exceeded.
c. ppm - parts per million; $\mu g/m^3$ - micrograms per cubic meter.
d. Refers to the number of days in a year during which at least one excess was recorded.
e. Measured every six days.

NA = Not Available.

Source: South Coast Air Quality Management District, Air Quality Data Summaries, 1997-2001.

a maintenance area for the federal and state NO_x standards, which means it had once been in non-attainment.

SCAQMD Rule 403

In December of 1998, the SCAQMD revised its existing Rule 403 regarding fugitive dust emissions. The purpose of this rule is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions.[3] Under this rule, a person shall not cause or allow the emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area such that the presence of such dust remains visible in the atmosphere beyond the property line of the emission source. Second, a person conducting active operations within the boundaries of the SCAB shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type which is part of the active operation. Third, a person shall not cause or allow PM_{10} levels to exceed 50 micrograms per cubic meter when determined, by simultaneous sampling, as the difference between upwind and downwind samples collected on high-volume particulate matter samplers or other U.S. EPA-approved equivalent method for PM_{10} monitoring. Finally, any person in the SCAB shall prevent or remove within one hour the track-out of sand, gravel, soil, aggregate material less than two inches in length or diameter, and other organic or inorganic particulate matter onto public paved roadways as a result of their operations; or prevent the track-out of such material onto public paved roadways as a result of their operations and remove such material at anytime track-out extends for a cumulative distance of greater than 50 feet onto any paved public road during active operations and remove all visible roadway dust tracked-out upon public paved roadways as a result of active operations at the conclusion of each work day when active operations cease.[4]

Existing Air Pollution Sources

Air quality in the vicinity of the project site is affected by emissions from motor vehicle traffic on adjacent roadways. Generally wind blows polluted air east and as a result, the project area has some of the best air quality in the SCAB.

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. The SCAQMD includes in its list of sensitive receptors residences, schools, playgrounds, childcare centers, convalescent homes, retirement homes, rehabilitation centers, and athletic facilities. Sensitive population groups include children, the

[3] South Coast Air Quality Management District. *Rule 403.* December 1998.

[4] *Ibid.*

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	Annual Geometric Mean, $\mu g/m^3$ [c]	30	36.3	33.0	43.4	35.7	33.7
	Violation		Yes	Yes	Yes	Yes	Yes

Note: Underlined values indicate an excess of applicable standard.
* Central Orange County Air Monitoring Station Location.

a. Data are from the SCAQMD monitoring station located at the intersection of Mesa Verde Dr. and Adams Ave in the City of Costa Mesa. 1999 air quality data is incomplete.
b. State standard, not to be exceeded.
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a maintenance area for the federal and state NO_x standards, which means it had once been in non-attainment.

SCAQMD Rule 403

In December of 1998, the SCAQMD revised its existing Rule 403 regarding fugitive dust emissions. The purpose of this rule is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions.[3] Under this rule, a person shall not cause or allow the emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area such that the presence of such dust remains visible in the atmosphere beyond the property line of the emission source. Second, a person conducting active operations within the boundaries of the SCAB shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type which is part of the active operation. Third, a person shall not cause or allow PM_{10} levels to exceed 50 micrograms per cubic meter when determined, by simultaneous sampling, as the difference between upwind and downwind samples collected on high-volume particulate matter samplers or other U.S. EPA-approved equivalent method for PM_{10} monitoring. Finally, any person in the SCAB shall prevent or remove within one hour the track-out of sand, gravel, soil, aggregate material less than two inches in length or diameter, and other organic or inorganic particulate matter onto public paved roadways as a result of their operations; or prevent the track-out of such material onto public paved roadways as a result of their operations and remove such material at anytime track-out extends for a cumulative distance of greater than 50 feet onto any paved public road during active operations and remove all visible roadway dust tracked-out upon public paved roadways as a result of active operations at the conclusion of each work day when active operations cease.[4]

Existing Air Pollution Sources

Air quality in the vicinity of the project site is affected by emissions from motor vehicle traffic on adjacent roadways. Generally wind blows polluted air east and as a result, the project area has some of the best air quality in the SCAB.

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[3] South Coast Air Quality Management District. *Rule 403.* December 1998.

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CHAPTER 3
ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION

3.1 AIR QUALITY

The air quality impact analysis considers excavation and construction impacts associated with the proposed project. Excavation and construction emissions are estimated following standards provided in the South Coast Air Quality Management District (SCAQMD) CEQA Air Quality Handbook.[1]

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The SCAB climate is influenced by a semi-permanent high-pressure system that lies off the coast. The resulting weather is mild, tempered by a daytime sea breeze and a nighttime land breeze. This mild climate is infrequently interrupted by periods of extremely hot weather, winter storms, and Santa Ana winds (strong, seasonal westward wind). Rainfall in the SCAB is primarily restricted to November through April, with rainfall totals being highly variable from year to year.

The Orange County coast experiences an average wind speed of 7.7 miles per hour (mph). Inland areas record slightly lower wind speeds. Because of the low average wind speed, air contaminants in the SCAB do not readily disperse. On spring and summer days most pollution is moved out of the SCAB through mountain passes or is lifted by the warm vertical currents produced by the heating of the mountain slopes. From late summer through the winter months, lower wind speeds and the earlier appearance of offshore breezes combine to trap pollution in the SCAB.

In the SCAB, a persistent temperature inversion layer limits vertical dispersion of air pollutants. In an inversion condition, temperature increases with altitude. As the pollution rises it reaches an area where the ambient temperature exceeds the temperature of the pollution. This causes the pollution to sink back to the surface. This phenomenon acts to trap air pollution near the surface.

[1] South Coast Air Quality Management District, *CEQA Air Quality Handbook*, April 1993.

In summer, the longer daylight hours and bright sunshine combine to cause a reaction between hydrocarbons and oxides of nitrogen to form ozone. In winter, the greatest pollution problems are carbon monoxide and nitrogen oxides, which are trapped and concentrated by the inversion layer.

APPLICABLE REGULATIONS

Federal Standards

The Federal Clean Air Act (CAA) of 1970 is the comprehensive law that regulates air emissions from area, stationary, and mobile sources. The law authorized the EPA to establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment. The goal of the Act was to set and achieve NAAQS in every state by 1975. The setting of maximum pollutant standards was coupled with directing the states to develop state implementation plans (SIPs) applicable to appropriate industrial sources in the state.

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NAAQS have been established for carbon monoxide (CO), ozone (O_3), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), particulate matter (PM_{10}), particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), and lead (Pb). These contaminants are referred to as criteria pollutants. **Table 3.1-1** summarizes state and federal air quality standards. The following is a brief description of applicable criteria air pollutants.

Criteria Air Pollutants

Ozone (O_3). Ozone is a secondary pollutant produced through a series of photochemical reactions involving reactive organic compounds (ROCs) and nitrogen oxides (NO_x). Ozone creation requires ROCs and NO_x to be available for approximately three hours in a stable atmosphere with strong sunlight. Ozone is a regional air pollutant because it is not emitted directly by sources, but is formed downwind of sources generating ROCs and NO_x emissions. Ozone effects include eye and respiratory irritation, reduction of resistance to lung infection, and possible aggravation of pulmonary conditions in persons with lung disease. Ozone is also damaging to vegetation and untreated rubber.

Carbon Monoxide (CO). Carbon Monoxide is a non-reactive pollutant that is a product of incomplete combustion. Ambient CO concentrations usually follow the spatial and temporal distributions of vehicular traffic and are influenced by meteorological factors such as wind speed and atmospheric mixing. Under inversion conditions, CO concentrations may be distributed more uniformly over an area out to some distance from vehicular sources.

TABLE 3.1-1: AMBIENT AIR QUALITY STANDARDS FOR CRITERIA POLLUTANTS

Pollutant	Averaging Time	California Standard	Federal Primary Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
O_3	1 hour	0.09 ppm	0.12 ppm	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Motor vehicles.
	8 hours	---	0.08 ppm		
CO	1 hour	20 ppm	35 ppm	Classified as a chemical asphyxiant, CO interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9 ppm	9.0 ppm		
NO_2	Annual Average	---	0.05 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.25 ppm	---		
	24 hours	0.04 ppm	0.14 ppm		
PM_{10}, $PM_{2.5}$	Annual Geometric Mean	30 ug/m^3 (PM_{10})	65 ug/m^3 ($PM_{2.5}$)	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g. wind-raised dust and ocean sprays).
	Annual Arithmetic Mean	---	50 ug/m^3 (PM_{10})		
	24 hours	50 ug/m^3 (PM_{10})	150 ug/m^3 (PM_{10}) 15 ug/m^3 ($PM_{2.5}$)		
Pb	Monthly	1.5 ug/m^3	---	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurologic dysfunction (in severe cases).	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Quarterly	---	1.5 ug/m^3		

Source: California Air Resources Board, Ambient Air Quality Standards, January 25, 1999.

Nitrogen Oxides (NO_x). There are two oxides of nitrogen which are important in air pollution: nitric oxide (NO) and NO_2. Nitric oxide and NO_2 are both emitted from motor vehicle engines, power plants, refineries, industrial boilers, aircraft and railroads. NO_2 is primarily formed when NO reacts with atmospheric oxygen. NO_2 gives the air the "whiskey brown" color associated with smog.

Particulate Matter (PM_{10}). Particulate matter, PM_{10}, with a diameter less than 10 micrometers, can be inhaled deep into the lungs and cause adverse health effects. Particulate matter in the atmosphere results from many kinds of dust and fume-producing industrial and agricultural operations, fuel combustion, and atmospheric photochemical reactions. Some sources of particulate matter such as demolition and construction activities are more local in nature, while others such as vehicular traffic have a more regional effect.

Sulfur dioxide (SO_2). Sulfur dioxide is formed through the oxidation of elemental sulfur; suspended sulfates are the product of further oxidation of SO_2. In some parts of the state, elevated levels can be due to natural causes, such as wind-blown dust and sea salt spray. Suspended sulfates contribute to overall particulate concentrations in ambient air which, if high enough, are suspected to be a cause of premature death in individuals with pre-existing respiratory disease.

Toxic Air Contaminants (TACs). Toxic Air Contaminants, also known as hazardous air pollutants, are pollutants known or suspected to cause cancer or other serious health effects such as birth defects. TACs may also have significant adverse environmental and ecological effects. Examples of TACs include benzene, diesel particulates, hydrogen sulfide, methyl chloride, 1,1,1-trichloroethane, toluene, and metals such as cadmium, mercury, chromium, and lead. Health effects from TACs vary depending on the toxicity of the specific pollutant but may include cancer, immune system damage, as well as neurological, reproductive, developmental, and respiratory problems.

According to the EPA, approximately 50 percent of the TACs we are exposed to come from mobile source emissions. The California Air Resources Board (CARB) approved a comprehensive diesel risk reduction plan in September 2000. The EPA published its final rule to control emissions of hazardous air pollutants from mobile sources in the March 29, 2001 Federal Register.

State Standards

In 1967, California's legislature passed the Mulford-Carrel Act, which established the CARB. The CARB set state air quality standards for criteria pollutants. The state standards for these pollutants are more stringent than the corresponding federal standards (see Table 3.1-1). As in the Federal CAA, the California CAA classifies areas as either being in "attainment" or "non-attainment" for these criteria pollutants. Areas designated as non-attainment are then given a set time frame to achieve attainment.

Local Regulations

The project site is located within the jurisdiction of the SCAQMD. The SCAQMD adopted an Air Quality Management Plan (AQMP) in 1979, which intended to meet federal air quality standards by December 31, 1987. Using better data and modeling tools, the 1982 revision of the AQMP concluded that the basin could not demonstrate attainment by the 1987 deadline required by the federal CAA. Therefore, the 1982 Revision of the AQMP proposed a long-range strategy that could result in attainment in 20 years. In 1987, a federal court ordered the U.S. EPA to disapprove the 1982 AQMP revision because it did not demonstrate attainment of the federal standards by the 1987 deadline.[2]

[2] South Coast Air Quality Management District and Southern California Association of Governments, Final 1989 Air Quality Management Plan, March 1989.

Currently, the SCAQMD is operating under the 1997 AQMP and the 1999 amendment to the 1997 ozone portion of the AQMP. The 1997 AQMP relies on short-term and intermediate-term attainment measures which were to be adopted by 2000, and long term attainment measures utilizing advances in technology reasonably expected to be available by the year 2010. On January 12, 1999, the U.S. EPA proposed a partial disapproval of the ozone portion of the 1997 AQMP. The AQMD responded with the 1999 Ozone State Implementation Plan revision, which the EPA indicated would be approvable. The SCAQMD has approved the Proposed 2003 Air Quality Management Plan for the SCAB. The 2003 AQMP demonstrates attainment with state and federal air quality standards and incorporates a revised emissions inventory, the latest modeling techniques, updated control measures remaining from the 1997/1999 SIP, and new control measures based on current technology assessments. Currently, the U.S. EPA is evaluating the adequacy of the 2003 AQMP.

Existing Air Quality

The SCAB is in non-attainment for both the federal and state ozone, carbon monoxide, and PM_{10} standards. The state one-hour ozone standard in the SCAQMD was exceeded 5 days in 1998 and at least once per year from 1997 through 2001 (see **Table 3.1-2**). The PM_{10} standard was exceeded 15 times in 1999, and at least eight times a year from 1997 to 2001. The carbon monoxide standard has not been exceeded in the project area for the last five years. The SCAB is

TABLE 3.1-2: PROJECT AREA AIR POLLUTANT SUMMARY, 1997-2001[a]

Pollutant		Standard[b]	1997	1998	1999	2000	2001
O_3	Highest 1-hr average, ppm[c]	0.09	0.10	0.12	0.10	0.10	0.11
	Number of standard excesses[d]		1	5	NA	1	2
CO	Highest 1-hr average, ppm[c]	20.0	7.0	9.0	8.0	8.0	8.0
	Number of standard excesses[d]		0	0	0	0	0
	Highest 8-hr average, ppm[c]	9.1	5.8	7.0	6.4	6.3	4.71
	Number of standard excesses[d]		0	0	0	0	0
NO_2	Highest 1-hr average, ppm[c]	0.25	0.12	0.12	0.12	0.11	0.12
	Number of standard excesses[d]		0	0	0	0	0
PM_{10}*	Highest 24-hr average, $\mu g/m^3$ [c]	50	91	81	122	126	93
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Note: Underlined values indicate an excess of applicable standard.
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Sensitive Receptors

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elderly, and the acutely and chronically ill, especially those with cardio-respiratory diseases. Residential areas are considered to be sensitive to air pollution because residents tend to be home for extended periods of time, resulting in sustained exposure to any pollutant present. Sensitive receptors in the vicinity of the project site include single-family residences located south of the SAR and PCH. Recreational users of the bike paths and state beach would also be considered sensitive receptors.

3.1.2 IMPACTS AND MITIGATION

CRITERIA FOR DETERMINING SIGNIFICANCE

The CEQA Guidelines checklist provides the following thresholds for determining significance with respect to air quality. Air quality impacts would be considered significant if the project would:

- conflict with or obstruct implementation of the applicable air quality plan;
- violate any air quality standards or contribute substantially to an existing or projected air quality violation;
- result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- expose sensitive receptors to substantial pollutant concentration; or,
- create objectionable odors affecting a substantial number of people.

In addition, the SCAQMD has adopted suggested air quality thresholds of significance for construction activities and project operations that are shown in **Table 3.1-3**.

TABLE 3.1-3: SCAQMD AIR POLLUTION SIGNIFICANCE CRITERIA

Air Pollutant	Project Construction	Project Operation
CO	550 lbs per day	550 lbs per day
ROC	75 lbs per day	55 lbs per day
NO_x	100 lbs per day	55 lbs per day
PM_{10}	150 lbs per day	150 lbs per day

Source: SCAQMD.

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Impact 3.1-1: Construction of the proposed project would emit criteria pollutants. Estimated daily average construction emissions would be less than significance thresholds set by the SCAQMD.

Construction of either of the alternatives would generate air emissions. Construction-related emissions would primarily be: 1) dust generated from excavation and directional drilling; 2) exhaust emissions from powered construction equipment; and 3) motor vehicle emissions associated with construction activities.

Fugitive dust emissions would vary depending on the level and type of activity, silt content of soil, and prevailing weather. Some fugitive dust would be larger-diameter particles that would settle out of the air close to the site of the actual activity. Smaller-diameter dust would remain suspended for longer periods and would include PM_{10}. Fugitive dust emissions were calculated utilizing emissions factors found in U.S. EPA's AP-42 compilation of emissions factors and SCAQMD CEQA Air Quality Handbook.

In addition to fugitive dust, project construction would also result in emissions of other criteria air pollutants, including CO, ROC, and NO_x, due to combustion of fuel for heavy equipment operation, truck trips, and construction worker trips. Construction-phase air quality impacts were analyzed quantitatively utilizing construction emissions estimation worksheets (Appendix C). The worksheets follow methodology outlined in the SCAQMD CEQA Air Quality Handbook and utilize emissions factors found in the EMFAC-2002 air emissions models and CARB Emission Inventory Publication number MO99-32.3.

Excavation & Pipe Installation

The air emissions calculations assume that the total construction emissions would last 11 months and would vary day to day depending on the activities being performed. The types of construction equipment needed for each type of construction activity are shown in Table 2-2 of the project description. Each piece of equipment would operate between 6 and 8 hours per day. Some equipment such as backhoes and loaders are estimated to operate 8 hours per day for the full 11 month period, whereas other pieces of equipment such as pavers would only operate for a period of 20 days. These assumptions are summarized in the emissions calculation worksheets provided in Appendix C.

During excavation, up to 45,000 cubic yards of soil would be excavated and removed from the project site during the 11-month construction period (See Table 2-1). The amount of soil removed would vary for each alternative. Open trenching methods would generate larger volumes of soil than drilling. Table 2-1 summarizes the soil volumes for each alternative. In addition, each alternative would require daily haul trucks delivering equipment to the site. The emissions estimates assume that haul truck trips (including to and from the construction site) would vary between 23 and 27 round trips per day depending on the alternative.

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