APPENDIX L

Air Quality Background Report
and
Clean Air Act Conformity Analysis
(Section 176© of the Federal Clean Air Act)

Prepared by

Terra Nova Planning & Research, Inc.
400 S. Farrell Drive, Suite B-205
Palm Springs, CA 92262

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Air Quality Background Report For the Coachella Valley Multiple Species Habitat Conservation Plan/ Natural Community Conservation Plan

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Air Quality Background Report

Coachella Valley Multiple Species Habitat Conservation Plan/ Natural Community Conservation Plan

I. Purpose and Intent

The purpose of this technical background report is to describe the existing air quality conditions in the Coachella Valley Multiple Species Habitat Conservation Plan/Natural Communities Conservation Plan (HCP) planning area. The information provided herein serves as a foundation for assessing potential air quality impacts associated with implementation of the proposed HCP. The report addresses the fundamentals of air pollution, baseline air quality conditions in the planning area, the existing regulatory environment, pollutants of regional concern, and mitigation measures designed to reduce future air quality impacts. The analysis is intended for use by the Coachella Valley Association of Governments (CVAG) in considering HCP policy alternatives and mitigation measures, which will minimize potential adverse air quality impacts.

The Coachella Valley Association of Governments and its member jurisdictions, in conjunction with various state and federal regulatory agencies, prepared the HCP to serve two main goals: to balance environmental protection and economic development objectives in the HCP planning area, and to simplify compliance with endangered species related laws.[1] The HCP planning area encompasses more than 1,136,261± acres of developed and undeveloped land in the Coachella Valley portion of Riverside County, California. The planning area encompasses land under the jurisdiction of Riverside County; the cities of Desert Hot Springs, Palm Springs, Cathedral City, Rancho Mirage, Palm Desert, Indian Wells, La Quinta, Indio, and Coachella; and numerous public, private, and non-profit agencies. Indian Reservation lands, which occur within the planning area boundaries, are not covered by the HCP, but Tribal Councils may choose to adopt the Plan or use it for their own planning purposes.[2]

[1] "Public Review Draft, Coachella Valley Multiple Species Habitat Conservation Plan/Natural Communities Conservation Plan," Coachella Valley Mountains Conservancy, August 2000.

[2] Ibid.

II. Introduction to Air Pollution

Air pollution is generated by a wide range of man-made and natural sources, including factories, power plants, motor vehicles, dry cleaners, wildfires, and windblown dust. Depending upon its intensity, air pollution can result in a number of serious environmental hazards and economic consequences. On a large scale, air pollution is associated with global warming and other climatic changes, acid rain, and ozone depletion. On a more local level, air pollution can threaten human health, damage property and vegetation, and result in the formation of haze, which reduces visibility.

Ambient air pollutants are generally classified into two categories: primary and secondary. Primary pollutants are largely a direct consequence of the combustion of petroleum and other fuels, which results in the production of oxides of carbon, sulfur, nitrogen, and a number of reactive hydrocarbons and suspended particulates. These pollutants typically affect only local areas and do not undergo chemical modification or further dispersion.

Secondary pollutants are those that undergo chemical changes and disperse after emission, particularly under high ambient temperatures and high rates of solar insolation. Principal secondary pollutants are termed "oxidants" and include ozone, peroxynitrates, nitrogen dioxide, and chemical aerosols.

Like other metropolitan areas in the United States, Southern California has experienced severe air pollution problems over the past several decades. The Coachella Valley, in particular, has routinely exceeded federal and state ambient air quality standards for ozone and particulate matter (PM_{10}) over the past decade. However, in recent years, substantial local and regional efforts have been undertaken to improve air quality, and significant strides have been made. The continued implementation of air quality management programs and a local commitment to reducing air pollution are expected to have long-lasting positive impacts on the Coachella Valley environment.

III. Regulatory Environment

A. Federal Regulation

The federal Clean Air Act (CAA) was passed in 1970 and last amended in 1990. It is enforced by the U.S. Environmental Protection Agency (EPA) and is intended to ensure that Americans have basic health and environmental protections with regard to air quality. The CAA enables the EPA to address air pollution on a broad scale, by providing for interstate commissions on air pollution control and addressing international pollution that crosses U.S. borders with Canada and Mexico. It also enables the EPA to address point-source air pollution on a smaller scale, by requiring polluters to apply for a permit to release pollutants into the air, and increasing the penalties for violating the Act.

The Clean Air Act requires the EPA to establish National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. These are known as "criteria pollutants" and include carbon monoxide, nitrogen dioxide, ozone, lead, particulate matter (PM_{10}), and sulfur dioxide. These pollutants, their health effects, and the current NAAQS standards are further described in this report.

Although the CAA establishes air pollution standards, it delegates much of the responsibility for implementation to state agencies and allows states to enact and enforce stronger standards. The CAA requires that each state develop a State Implementation Plan (SIP), which describes the methods the state will use to achieve statutory air quality standards in polluted areas. The EPA must approve the SIP, and in the event that the SIP is deemed unacceptable, the EPA can assume responsibility for enforcing the law in that state. The CAA establishes deadlines for the states, local governments, and businesses to reduce air pollution, and includes stringent sanctions for failure to attain air quality standard or meet interim milestones.

B. State Regulation

The California Clean Air Act (CCAA) was enacted in 1988 to ensure the protection of the future health and welfare of California residents, as well as the State's environment and economy. The CCAA establishes ambient air quality standards for the same criteria pollutants as addressed by the federal Clean Air Act; these standards are shown in Table 1. However, ambient air quality standards set forth by the CCAA are generally more stringent than those established by the federal Clean Air Act, and the CCAA requires attainment of state ambient air quality standards by the earliest practicable date. The California Air Resources Board (CARB) has been entrusted as overseer of the CCAA, and it advises and oversees the efforts of approximately 35 local and regional air pollution control districts.

C. Regional Regulation

The South Coast Air Quality Management District (SCAQMD) is responsible for leading the regional effort to attain state and federal air quality standards for much of Southern California. SCAQMD's management area is divided into distinct air basins; the Coachella Valley is located within the Salton Sea Air Basin (SSAB). The SCAQMD develops and routinely updates the regional Air Quality Management Plan (AQMP), a multi-tier effort to regulate pollutant emissions from a variety of sources. The AQMP sets forth policies and implementation measures designed to help the District satisfy the requirements of the federal Clean Air Act and California Clean Air Act; it was last updated in 1997.

The SCAQMD is also responsible for addressing non-attainment issues within its jurisdiction and outlining and enforcing pollution control measures necessary to meet state and federal air quality standards. In 1990, the SCAQMD issued the "State Implementation Plan for PM_{10} in the Coachella Valley" (90-CVSIP), which addresses the Coachella Valley's federal and state non-attainment status for PM_{10} emissions.

SCAQMD has set forth a wide range of other pollution control initiatives, such as Rule 2202, which provides employers with a variety of options to reduce mobile source emissions generated by employee commutes. Other initiatives include Rule 1403, which outlines work practice requirements for demolition and renovation activities involving asbestos, and Rule 403, which addresses blowing dust from construction sites, landfills, open pit mines, and other industrial and commercial operations.[3]

[3] "Cathedral City General Plan Update Air Quality Background Study," Endo Engineering, July 1999.

In an effort to remedy this situation, the SCAQMD recently (2001) developed "Guidelines for Dust Control Plan Review in the Coachella Valley," which are intended to supplement local dust control ordinances. Should the region continue to fall short of federal PM_{10} standards, the U.S. EPA could impose more stringent regulations or sanctions on local jurisdictions.

D. Local Efforts

Local participation in air quality control management plans is critical to the improvement of air quality in the Coachella Valley. Local governments are responsible for making decisions about land use and growth management, as well as promoting and enforcing energy conservation, dust control programs, and other mitigation measures which minimize pollutant emissions. Air quality management programs implemented by local jurisdictions in the Coachella Valley include street sweeping, routine monitoring of regional air pollutant emissions, adopting ordinances that address fugitive dust emissions generated by construction, demolition, and agricultural activities, and establishing County Service Areas or similar mechanisms to fund implementation of the 90-CVSIP. The California Environmental Quality Act (CEQA) requires lead agencies to address potential air quality impacts and mitigation for proposed development projects through environmental analysis and public disclosure documentation.

The SunSweep street-sweeping program was initiated in 1997, through state and federal grants obtained by CVAG. The program is operated by Sunline Services Group, which provides public transit services to the Coachella Valley. Sunline's nine clean-burning compressed natural gas (CNG) powered regenitive air sweepers are state-of-the-art machines, which reduce PM10 emission rates by as much as 80% compared to typical broom sweepers, and do not emit polluting exhaust into the atmosphere.[4] Sunline sweeps approximately 39,000 curb-miles per year.[5]

Other local control measures are focused on reducing emissions from mobile sources, including the promotion of ridesharing, carpooling, flexible work schedules, telecommuting, and the use of clean-fuel burning vehicles. Sunline Transit Agency, which provides public transit services within the Coachella Valley, operates a fleet of buses powered by compressed natural gas (CNG). The City of Cathedral City's municipal vehicle fleet also operates on compressed natural gas, and the City of Palm Desert has acquired grant funding to convert its fleet to CNG. Palm Desert also owns and operates the Shopper Hopper Express, an electric bus that provides public transit services to the City's main shopping districts. CVAG's "Non-Motorized Transportation Element" (1995) proposes a coordinated system of regional multi-use trails and pathways for the entire Coachella Valley. Other local agencies have also developed integrated and coordinated multi-use trail plans, which accommodate bicycle, pedestrian, golf cart, and other non-motorized traffic, and once implemented, will contribute to cumulative reductions in mobile source emissions. Local efforts to minimize travel times and distances between residential, employment, and shopping centers are also expected to contribute to overall improvements in regional air quality.

[4] Lars Ravn, Sunline Services Group, letter correspondence, October 9, 2001.
[5] Ibid.

The Southern California Association of Governments (SCAG) and Coachella Valley Association of Governments (CVAG) are key participants in local and regional air quality improvement efforts. As per Assembly Bill 2766, a percentage of motor vehicle registration fees are allocated to each city and county for funding local and regional air quality projects. In the Coachella Valley, a portion of these funds is allocated to CVAG for funding regional air quality programs, and the transfer and utilization of such funds is overseen by SCAQMD.

CVAG has also been instrumental in initiating programs that address regional air quality problems and shortcomings. The 2002 Coachella Valley State Implementation Plan (2002 CVSIP) was prepared by the AQMD, local Coachella Valley jurisdictions, agencies and stakeholders. The 2002 CVSIP includes a request for an extension of the PM_{10} deadline, control measures and attainment demonstrations and an analysis of the Most Stringent Measures. The 2002 CVSIP was adopted by AQMD in June 2002, while the U.S. EPA approved the Plan in April 2003. SCAQMD now employs a Coachella Valley PM_{10} Air Quality Inspector, who works closely with CVAG, local jurisdictions, and developers to implement effective, site-specific PM_{10} mitigation measures.

IV. Criteria Pollutants

In an effort to protect public health, federal and state ambient air quality standards have been established for principal air contaminants, known as "criteria pollutants." They include: 1) carbon monoxide, 2) nitrogen dioxide, 3) sulfur dioxide, 4) lead, 5) ozone, and 6) particulate matter.

Carbon Monoxide (CO) is a colorless, odorless, toxic gas emitted by gasoline-powered motor vehicles and various industrial processes. High carbon monoxide concentrations typically occur during the winter, when meteorological conditions favor the build-up of emitted contaminants.[6] Carbon monoxide passes directly into the blood stream through the lungs, binding with hemoproteins and reducing the amount of oxygen available to vital organs, such as the heart, brain, and tissues. In high concentrations, carbon monoxide can contribute to the development of heart disease, anemia, impaired psychological behavior, reductions in birth weight, and death.[7]

Nitrogen Dioxide (NO_2) is one of seven oxides of nitrogen (NOx), which are created during combustion processes and emitted by motor vehicles, power plants, refineries, furnaces, turbines, and other industrial operations. Nitrogen oxides are major contributors to smog formation and acid deposition, and may be largely imported to the Coachella Valley from air basins to the west. Because it absorbs blue light, high concentrations of nitrogen dioxide leave a brownish-red haze in the atmosphere, thereby reducing visibility. Short-term exposure to nitrogen dioxide can result in airway constriction in healthy individuals and diminished lung capacity in individuals with asthma or chronic obstructive pulmonary disease.

Sulfur Dioxide (SO_2) is a colorless, pungent, extremely irritating gas, which is generated by the combustion of high-sulfur content fuels, such as coal and oil. Short-term exposure to sulfur dioxide can result in airway constriction and severe breathing difficulties in asthmatics. High levels of exposure can cause fluid accumulation in the lungs and damage to lung tissues.[8]

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6 Ibid.
7 "1997 Air Quality Management Plan," South Coast Air Quality Management District.
8 Ibid.

Lead (Pb) occurs in the atmosphere as particulate matter resulting from leaded gasoline and the manufacturing of batteries, paint, ink, and ammunition. The elimination of leaded gasolines in recent years has reduced the hazards associated with airborne lead. Exposure to lead can result in anemia, kidney disease, gastrointestinal dysfunction, and seizures. In severe cases, neuromuscular and neurological disorders can occur.

Ozone (O_3) is a pungent, colorless, toxic gas that is the main component of photochemical smog. It is not emitted directly into the air, but is formed when nitrogen oxides from fuel combustion and volatile organic gases from evaporated petroleum products react in the presence of sunlight. This is a daily occurrence associated with emissions from motor vehicles. Ozone levels are the highest during warm months, when there is prolonged sunshine, high temperatures, and an inversion layer. Excessive exposure to ozone can result in diminished breathing capacity, increased sensitivity to infections, and inflammation of the lung tissue.

The Coachella Valley has a history of exceeding regulatory ozone standards, although the number of days and months exceeding the federal one-hour standard has dropped steadily over the past decade. Ozone transport studies indicate that much of the ozone present in the Coachella Valley is actually generated in metropolitan areas west of the valley and transported to the valley by prevailing marine air currents. Please see the discussion below for more information about regional ozone concentrations.

Particulate Matter (PM_{10}) is composed of small, suspended particles, such as sand, dust, metallic and mineral substances, road-surfacing materials, pollen, smoke, fumes, and aerosols. These various particles are categorized according to settling characteristics, and those that are ten microns or smaller in diameter are referred to as "PM_{10}." Most PM_{10} in the Coachella Valley is generated by direct particle erosion and fragmentation associated with the natural process of sand migration. These eroded particles are further pulverized by motor vehicles on roadways and re-suspended in the air. PM_{10} particles can pass through the filtering system of the lungs and directly irrigate lung tissue, potentially resulting in serious health problems.

The Coachella Valley has a history of elevated PM_{10} levels, which are closely associated with fugitive dust emissions generated by grading and construction activity and the valley's natural wind processes. Despite the adoption of a "State Implementation Plan for PM_{10} in the Coachella Valley" and local fugitive dust control ordinances, the region's PM_{10} emissions continue to exceed state and federal standards. These issues are addressed in more detail below.

V. Federal and State Air Quality Standards

As mentioned above, the U.S. EPA and California Air Resources Board have established ambient air quality standards for six criteria pollutants. State standards are generally more restrictive than federal standards, particularly with regard to sulfur dioxide and PM_{10}. The federal Clean Air Act establishes two types of national standards: primary and secondary. Primary standards are directed at protecting public health, including the health of "sensitive" populations, such as asthmatics, children, and the elderly. Secondary standards are designed to protect public welfare, including protection against decreased visibility and damage to animals, crops, and buildings. Primary standards are most often used to evaluate ambient air quality.

State and federal air quality standards are listed in Table 1, below. Measurements are provided in parts per million (ppm) by volume, milligrams per cubic meter of air (mg/m^3), and micrograms per cubic meter of air ($\mu g/m^3$).

Table 1
State and Federal Ambient Air Quality Standards

	State Standard	Federal Standard	
Pollutant	**Concentration**	**Primary**	**Secondary**
Carbon Monoxide	9 ppm, 8-hr. average 20 ppm, 1-hr. average	9 ppm, 8-hr. average 35 ppm, 1-hr. average	--- ---
Nitrogen Dioxide	0.25 ppm, 1-hr. average	0.053 ppm, AAM	0.053 ppm, AAM
Ozone	0.09 ppm, 1-hr. average	0.12 ppm, 1-hr. average 0.08 ppm, 8-hr. average	0.12 ppm, 1-hr. average 0.08 ppm, 8-hr. average
Lead	1.5 $\mu g/m^3$, 30-day average	1.5 $\mu g/m^3$, quarterly average	1.5 $\mu g/m^3$, quarterly average
Particulate Matter (PM_{10})	30 $\mu g/m3$, AGM 50$\mu g/m^3$, 24-hr. average	50$\mu g/m^3$, AAM 150$\mu g/m^3$, 24-hr. average	50$\mu g/m^3$, AAM 150$\mu g/m^3$, 24-hr. average
Sulfur Dioxide	0.25 ppm, 1-hr. average 0.04 ppm, 24-hr. average	0.03 ppm, AAM 0.14 ppm, 24-hr. average	0.50 ppm, 3-hr. average

Notes: AAM = annual arithmetic mean; AGM = annual geometric mean
Source: South Coast Air Quality Management District and U.S. Environmental Protection Agency.

In 1997, in an effort to provide increased protection against health effects related to particulate matter, the U.S. EPA proposed implementing standards for $PM_{2.5}$ (particulate matter of 2.5 microns or less in diameter). The new standards would have been set as follows: an annual average of 15$\mu g/m^3$ and a 24-hour average of 65 $\mu g/m^3$.[9] The EPA claimed that fine particles measuring 2.5 micrometers in diameter and smaller were some of the most damaging to human health because they penetrate and remain in deep passages of the lung. However, on May 14, 1999, a federal court ruling blocked implementation of these standards. The EPA has asked the U.S. Supreme Court to reconsider that decision.

[9] "Fact Sheet: Updated Air Quality Standards," Office of Air & Radiation, Office of Air Quality Planning & Standards, U.S. Environmental Protection Agency, June 25, 1997.

VI. Sources of Air Pollution in the Coachella Valley

A. Geophysical and Climatic Conditions

The geophysical composition and climatic conditions of the Coachella Valley have a tremendous impact on regional air quality and the limited ability to control it. The valley is a northwest-southeast trending geologic basin, surrounded by major mountain ranges, which effectively isolate the valley from surrounding climatic elements, including coastal influences from the west, and precipitation and cooler temperatures from the mountains. The resulting environment is a hot, arid desert with sparse, widely spaced vegetation. The Coachella Valley is susceptible to severe drought, excessive flooding, high winds, blowing sand, and air inversions, each of which plays a major role in determining regional air quality.

Each spring, as the desert floor heats up, surface pressures are systematically lowered. This creates a vacuum-like effect, whereby cooler coastal air masses are drawn southeastwardly, through the narrow San Gorgonio Pass toward the desert. This process generates strong winds, which frequently exceed 40 miles per hour and flow southeast, crossing the most erosive part of the valley. An annual surface wind rose summary generated from data collected in Palm Springs indicates that the prevailing wind direction in Palm Springs is predominantly from the northwest.[10] The annual mean wind speed is 7.6 miles per hour, and calm conditions occur 13.6 percent of the time. The wind transports and deposits large quantities of blowing, abrasive sand (blowsand) and dust on buildings, fabrics, automobiles, streets and other structures. Extensive wind-borne sediments dirties streets, fills drainages and yards, pits windshields, damages landscaping, and limits visibility. Dust that remains on vegetation can interfere with plant respiration and stunt plant growth. The adverse health effects in humans, including reduced lung capacity and functioning, can be severe.

The geophysical characteristics of the Coachella Valley also play a significant role in determining the distribution and intensity of regional blowsand hazards. The local mountains are largely composed of granitic and metamorphic rocks, which readily weather into grain-size sediments that are spread and sorted on alluvial fans and shed onto the valley floor during rain events. The smallest and least compacted sediments are deposited in major active drainages that cross the valley floor, including the Whitewater River. Other major drainages include the Palm Canyon Wash, Mission Creek, Big and Little Morongo Creeks, Blind Creek, Long Creek, and numerous drainages emerging from the Indio Hills. These drainages emanate from the surrounding mountains, toward the central axis of the valley floor, where large cross-sections of desert land are exposed to the strongest regional winds. The alluvial (stream-deposited) and eolian (wind-deposited) sediments, which comprise the valley floor, are easily picked up and transported by prevailing winds. Flooding events can further exacerbate blowsand conditions, by exposing new, silty materials that are easily lifted into the air by light breezes, as well as strong winds common to the region. CVAG, Riverside County and several local jurisdictions have designated much of the central valley floor as a "Blowsand Hazard Area" in an effort to define the areas most susceptible to this severe form of erosion.

[10] "Cathedral City General Plan Update Air Quality Background Study," Endo Engineering, July 1999

The mountains bordering the valley are aligned in a northwest-southeast direction and act to contain and channel the flow of wind down the central axis of the Coachella Valley. The Valley floor slopes gently to the southeast, with elevations ranging from about 1,200 feet at the San Gorgonio Pass, to below sea level at the Salton Sea. This sloping terrain allows air masses to move unrestricted down the central axis of the Coachella Valley, where loose sediments can be picked up and transported down valley. Blowsand has the ability to reduce visibility, which typically exceeds about 35 miles in the desert, to less than a mile.

The Coachella Valley is also susceptible to occasional air inversions, in which a layer of stagnant surface air is trapped near the ground. Pollutants that have accumulated during the day are prevented from dissipating, and the air is further loaded with pollutants. This process, when combined with chemical aerosols and other pollutants emitted by automobiles, furnaces, and other sources, can further intensify air pollution, haziness, and poor visibility. Radiation inversions can limit the mixing of the lower atmosphere to a height of 200 to 2,000 feet.[11] They are usually present at night throughout the year and during the day in winter, but are destroyed early in the day in summer.[12]

B. Man-Made Sources

Although the geophysical composition and climatic conditions of the Coachella Valley have a tremendous impact on regional air quality, the man-made environment is also a major contributor to air pollution. Fugitive dust generated by grading and other construction activities, vehicles on roadways, agricultural tilling, and other land disturbances generate sand and dust, which are easily transported by the strong winds described above, and further contribute to poor visibility, sand accumulation, and potentially serious health problems. Automobile exhaust, emissions from heating and ventilating equipment, and emissions associated with the consumption of natural gas and the generation of electricity also contribute to regional air pollution, although their impacts locally are more limited.

C. Sensitive Receptors

"Sensitive receptors" are those persons or land uses that may be subject to respiratory stress and/or significant adverse impact as a result of exposure to air contaminants. The California Air Resources Board has indicated that the following segments of the population should be considered sensitive receptors: children under 14, seniors over 65, athletes, and people with cardiovascular and chronic respiratory diseases. Sensitive land uses include hospitals, nursing and retirement homes, schools, playgrounds, parks, athletic facilities, and residential and transient lodging facilities.

All of these populations, land uses, and facilities can be found within the Coachella Valley. The relatively high median age of the Coachella Valley population implies that a major portion of valley residents may be particularly susceptible to respiratory distress from air pollutants, particularly ozone and PM_{10}. Industrial activities in the Coachella Valley are largely limited to light industrial and a few gravel/surface mining operations. The most significant sources of pollution include motor vehicle traffic on Interstate-10 and major arterials, idling traffic at

[11] Ibid.
[12] Ibid.

intersections and parking lots, commercial aircraft associated with the Palm Springs International Airport, rail traffic along the Union Pacific Railroad, dry cleaners, automobile repair/maintenance shops, and other standard commercial operations. Local land use planning efforts are directed at siting sensitive receptors as far from these sources as possible, or providing sufficient buffers between them.

D. Pollutants of Regional Concern

SCAQMD operates and maintains numerous air quality monitoring stations, which monitor air pollution levels and trends throughout its jurisdiction. The Coachella Valley is located within Source Receptor Area (SRA) 30, which includes two monitoring stations: one at the North Palm Springs Fire Station and one in the City of Indio. The Indio site has been operational since 1985 and the Palm Springs site since 1987. The two most prevalent air pollutants affecting the Coachella Valley are ozone and PM_{10}, described below.

1. Ozone (O_3)

As described earlier, ozone is a pungent, colorless, toxic gas that is the main component of photochemical smog. The Coachella Valley has a history of exceeding regulatory ozone standards, although the number of days and months exceeding the federal one-hour standard has dropped steadily over the past decade. Regional exceedance trends from 1990 to 2002 are provided in Table 2. The Coachella Valley is currently classified as a "severe-17" ozone non-attainment area under the federal Clean Air Act. This classification means that the region must come into compliance with federal ozone standards by November 15, 2007, which is 17 years from the date the Clean Air Act was enacted.

Because of its topography and physical isolation, atmospheric inversions, intense sunshine, high temperatures, and reliance on the automobile, the Coachella Valley is an ideal environment for the formation of ozone and ozone precursors, including nitrogen oxides (NOx) and volatile organic compounds (VOC). While some ozone is produced by local sources within the Coachella Valley, pollutant transport studies indicate that ozone and its precursor emissions from the Los Angeles and Riverside/San Bernardino metropolitan areas (South Coast Air Basin) contribute to ozone exceedances in the Coachella Valley.[13]

Ozone transport pathways have been confirmed, and are described by the SCAQMD as beginning at Pico Rivera, passing through Fontana and Banning, and finally entering the Coachella Valley through the San Gorgonio Pass.[14] It is interesting to note that ozone exceedances near Pico Rivera, the source region, typically occur around noon to 1:00 p.m., but exceedances downwind at Palm Springs most frequently occur around 6:00 p.m.[15] If ozone emissions were locally generated, ozone exceedances measured at Palm Springs would occur near mid-day. Instead, these observations suggest that coastal winds are transporting ozone and its precursor emissions from the west to the Coachella Valley.

[13] "A Tracer Study of Pollutant Transport in the Los Angeles Area," P.J. Drivas and F.H. Shair, Atmos. Environ., 8: 1155-1163, 1974.

[14] "1997 Air Quality Management Plan," South Coast Air Quality Management District.

[15] Ibid.

Table 2
Coachella Valley Air Quality Trends
Exceedances of Ozone Standards

Monitoring Station	Year	Max. Concentration in 1 hour	No. Days Standard Exceeded Federal[1]	State[2]
Palm Springs	1990	0.17 ppm	27	73
	1991	0.18 ppm	22	72
	1992	0.15 ppm	21	69
	1993	0.17 ppm	20	79
	1994[3]	0.17 ppm	13	71
	1995[3]	0.16 ppm	12	60
	1996	0.16 ppm	12	60
	1997*	0.16 ppm*	4*	45*
	1998	0.17 ppm	8	40
	1999	0.13 ppm	1	27
	2000	0.12 ppm	0	40
	2001	0.14 ppm	6	53
	2002	0.14 ppm	2	49
Indio	1990	0.16 ppm	10	47
	1991	0.18 ppm	13	48
	1992	0.14 ppm	8	45
	1993	0.16 ppm	3	25
	1994[3]	0.17 ppm	13	71
	1995[3]	0.16 ppm	9	49
	1996	0.12 ppm	0	26
	1997	0.11 ppm	0	3
	1998	0.13 ppm	2	16
	1999	0.13 ppm	1	13
	2000	0.11 ppm	0	43
	2001	0.11 ppm	0	21
	2002	0.11 ppm	0	24

[1] = > 0.12 parts per million in 1 hour
[2] = > 0.09 parts per million in 1 hour.
[3] Palm Springs and Indio ozone levels represented as a single Coachella Valley data value in SCAQMD annual reports. Values recorded are the highest recorded at either station.
*Less than 12 full months of data; may not be representative.
Source: Annual air quality site monitoring reports, prepared by South Coast Air Quality Management District.

Although it is difficult to quantify the amount of ozone contributed from the west, improved air quality in the Coachella Valley is partly dependent upon reduced ozone emissions in the South Coast Air Basin. Section 182(c)(2) of the federal Clean Air Act requires that every "serious" and above ozone nonattainment area achieve actual VOC emission reductions of at least three percent per year averaged over each consecutive 3-year period, beginning six years after enactment of the Act until the area's attainment date (November 15, 2007 for the Coachella

Valley).[16] Actual NOx emission reductions, which occur after 1990, can be substituted for VOC emission reductions under certain circumstances. Given these requirements, SCAQMD has initiated an aggressive ozone reduction strategy for both the Coachella Valley and the South Coast Air Basin, which consists of two components: 1) controlling VOC and NOx emission sources in the South Coast Air Basin, and 2) controlling locally generated emissions via mobile and stationary control measures implemented by state and federal actions.[17] Implementation of this strategy is expected to bring the Coachella Valley into compliance with federal ozone emission standards by its statutory attainment date.

2. Particulate Matter (PM_{10})

As described earlier, PM_{10} consists of small, suspended particles, which are ten microns or smaller in diameter. Among these particles are dust, sand, metallic and mineral substances, road-surfacing materials, pollen, smoke, fumes, and aerosols. The Coachella Valley has a history of elevated PM_{10} levels, which are closely and primarily associated with fugitive dust emissions from construction activities and the valley's natural wind processes. Regional PM_{10} trends for the past twelve years are described in Table 3.

PM10 Area Source Emissions

Most PM_{10} in the Coachella Valley is generated locally by direct particle erosion and fragmentation. These eroded particles may be further pulverized by motor vehicles on roadways and re-suspended in the air. The majority of the PM_{10} problem emanates from uncontrollable geologic and meteorological conditions, which are prevalent in the valley. As described earlier, the valley floor is sparsely vegetated and largely composed of loosely deposited sands and silts, which are easily transported by strong, sustained winds that emanate from the San Gorgonio Pass. These winds typically cross the valley in a southeastwardly direction, along the central axis of the valley, crossing dry washes and the most erosive lands in the valley. CVAG has designated much of the central valley floor as a "Blowsand Hazard Zone" in an effort to define the area most susceptible to extreme wind erosion.

The valley is also highly susceptible to drought conditions and exceptional flooding, which exacerbate the regional displacement of soils. Flooding can cause the exposure of new silty materials that can easily be lifted in the air by slight breezes, as well as by strong winds common to the region. The combination of soil types that characterize the valley floor and sustained high wind speeds results in the generation of relatively high levels of PM_{10} ("blowsand"). These natural events cannot feasibly be regulated or controlled by human intervention.

[16] Ibid.
[17] Ibid.

Table 3
Coachella Valley Air Quality Trends
Exceedances of PM_{10} Standards

Monitoring Station	Year	Maximum Concentration ($\mu g/m^3$/24hours)	No. (%) Samples Exceeding 24-hr. Standards		Annual Average ($\mu g/m^3$)	
			Federal[1]	State[2]	AAM[3]	AGM[4]
Palm Springs	1990	83	0 (0.0%)	9 (15.3%)	34.5	30.5
	1991	197	1 (1.8%)	14 (25.0%)	42.9	36.6
	1992	175	1 (1.7%)	4 (6.7%)	29.6	24.3
	1993	58	0 (0.0%)	1 (1.7%)	27.0	23.6
	1994	97	0 (0.0%)	23 (38.3%)	48.7	45.3
	1995^	199	1 (1.6%)	27 (44.3%)	52.0	47.2
	1996	130	0 (0.0%)	2 (3.3%)	29.3	25.2
	1997[a)]	63	0 (0.0%)	1 (1.8%)	26.4	23.6
	1998	72	0 (0.0%)	3 (5.2%)	26.4	23.8
	1999	104	0 (0.0%)	3 (5.0%)	28.8	26.1
	2000	44	0(0.0%)	0(0.0%)	24.4	22.7
	2001*	53	0(0.0%)	1(2%)	26.7	23.9
	2002*	75	0(0.0%)	3(5.1%)	27.1	24.6
Indio	1990	520	4 (6.8%)	41 (69.5%)	79.3	64.9
	1991	340	3 (5.1%)	37 (62.7%)	69.0	59.8
	1992	117	0 (0.0%)	18 (30.5%)	43.4	39.2
	1993	125	0 (0.0%)	25 (41.0%)	46.4	40.6
	1994	97	0 (0.0%)	23 (38.3%)	48.7	45.3
	1995^	199	1 (1.6%)	27 (44.3%)	52.0	47.2
	1996*	117	0 (0.0%)	29 (50.0%)	50.8	46.1
	1997[a)]*	144	0 (0.0%)	23 (42.6%)	49.1	44.2
	1998	114	0 (0.0%)	32 (40.0%)	48.1	43.8
	1999	119	0 (0.0%)	30 (54.0%)	52.7	49.8
	2000*	114	0(0.0%)	52(50.0%)	51.9	48.4
	2001*	149	0(0.0%)	50(45%)	50.2	44.3
	2002*	139	0(0.0%)	52(45.2%)	50.6	49.1

[1] = > 150 $\mu g/m^3$ in 24 hour period
[2] = > 50 $\mu g/m^3$ in 24 hour period
[3] Federal Annual Average Standard = AAM > 50$\mu g/m^3$
[4] State Annual Average Standard = AGM > 30$\mu g/m^3$
^ Includes high-wind natural event days
[a)] Less than 12 full months of data; may not be representative.
* Data for samples collected on high-wind days were excluded in accordance with EPA's Natural Events Policy.
Source: Annual air quality site monitoring reports, prepared by South Coast Air Quality Management District.

However, a significant portion of local PM_{10} is generated by anthropogenic (man-made) events, both intentionally and unintentionally. Intentional events include grading, construction, demolition, off-road vehicle use, agricultural tilling, surface mining, and other land disturbances. Unintentional events may include large accidental structural fires, major traffic congestion due to accident or obstruction, and chemical spills or other industrial accidents. The Coachella Valley has experienced rapid urbanization over the past two decades, which has resulted in associated increases in land disturbance and fugitive dust. Whereas early twentieth century development occurred primarily in the lee of the protecting mountain coves, more recent development has expanded into the central valley floor, where high winds and blowing sand predominate. SCAQMD estimates that the grading of one acre of land can generate approximately 26.4 pounds of fugitive dust per day.[18] Pollutant transport studies conducted in Southern California have also indicated that PM_{10} precursors, including nitrates and sulfates, are transported to the Coachella Valley from Los Angeles and other metropolitan areas to the west. These pollutants further contribute to the formation of local PM_{10}.

SCAQMD prepared the Table 4, below, to identify and compare various sources of PM_{10} in Riverside County. The table compares 1987 PM_{10} emissions with 2010 projections. Although the primary source of PM_{10} in 1987 was natural/unspecified sources (77.8 tons/day), this is expected to change dramatically by 2010, when construction emissions (157.4 tons/day) will far exceed any other source.

Table 4
PM_{10} Area Source Emissions
In Riverside County

Source Category	Baseline Year 1987 (tons/day)	Year 2010 (tons/day)
Farming Operations	0.3	0.5
Construction	12.1	157.4
Paved Roads	16.1	5.2
Unpaved Roads	9.0	18.7
Waste Disposal	2.7	7.2
Natural/Unspecified	77.8	77.8
Total	**118.0**	**266.8**

Source: "AQMP Draft Technical Report III-F Inventory of PM_{10} Emissions," South Coast Air Quality Management District, December 1990.

2003 CVSIP EMISSIONS INVENTORY

About 30.5 tons of PM10 were emitted on an average day in the Coachella Valley in 2000. The1995 baseline inventory was used in the modeling analysis. The increase in year 2000 construction emissions, versus 1995, was due to large–scale construction, which increased by a factor of thirty between 1995 and 2000 (see 2002 CVSIP, page 3-4.). Approximately 29.1 tons/day (~95% of the total) were fugitive dust emissions from wind erosion of disturbed sources, entrained road dust, construction and demolition activity, and farming operations. About 0.8 tons/day of primary PM10 emissions are emitted by mobile sources in the study area, with about half from on-road sources and half from off-road sources. However, mobile sources contribute to PM10 exceedances through entrained paved road dust (6.9 tons per day) and

[18] Table A9-9, "CEQA Air Quality Handbook," South Coast Air Quality Management District, April 1993.

entrained unpaved road dust (4.2 tons per day). Emission estimates for peak 24-hour PM10 days reflect large amounts of windblown dust entrained by high winds (~60 mph). Existing control programs are incorporated into the Coachella Valley 2000 base year inventory, including the Clean Streets Management Program. The control efficiency of previous control programs has been described and documented in the 1990 CVSIP, the 1994 CVSIP, the 1996 CV Plan, and the 2002 CVSIP, as well as staff reports for the AQMD's fugitive dust rules. The 2000 PM10 emissions inventory is provided in the table below.

TABLE 2-3
2000 PM10 Emission Inventory by Major Source Category (tons/day)

Source Category	Ann. Avg.	Max. 24-hour
STATIONARY SOURCES		
Point Sources		
Other Mfg./Industrial	0.04	0.04
Service and Commercial	0.00	0.00
Mineral Processes	0.02	0.02
Wood & Paper	0.01	0.01
Total Point Sources	**0.07**	**0.07**
Area Sources		
Residential Fuel Combustion	0.12	0.12
Cooking	0.35	0.35
Farming Operation	1.23	1.23
Construction & Demolition	7.42	7.42
Entrained Road Dust/Paved	6.89	5.86
Entrained Road Dust/Unpaved	4.23	4.23
Fires	0.01	0.01
Waste Burning and Disposal	0.05	0.05
Windblown Dust	9.31	2285.50
Total Area Sources	**29.61**	**2305.80**
TOTAL STATIONARY SOURCES	**29.68**	**2305.87**
MOBILE SOURCES		
On-Road Vehicles		
Light-Duty Passenger	0.16	0.16
Lt.- Med.- Trucks	0.12	0.12
Heavy-Duty Gas Trucks	0.00	0.00
Heavy-Duty Diesel Trucks	0.10	0.10
School Buses	0.00	0.00
Total On-Road Vehicles	**0.38**	**0.38**
Other Mobile		
Aircraft	0.00	0.00
Trains	0.04	0.04
Recreational Boats	0.03	0.03
Off-Road Equipment	0.25	0.25
Farm Equipment	0.07	0.07
Truck Stops	0.01	0.01
Total Other Mobile	**0.40**	**0.40**
TOTAL MOBILE SOURCES	**0.78**	**0.78**
TOTAL ALL SOURCES	**30.46**	**2306.65**

PM10 Mitigation Efforts

In 1990, the South Coast Air Quality Management District adopted the "State Implementation Plan for PM_{10} for the Coachella Valley" (90-CVSIP), which outlined "reasonably available control measures" for PM_{10} and established a future attainment date for areas previously unable to meet federal PM_{10} standards. The Coachella Valley Association of Governments and its member jurisdictions worked closely with one another to implement the measures set forth in the CV-SIP, including the adoption of jurisdiction-based dust control ordinances, street cleaning programs, and the use of chemical stabilizers, site watering techniques and landscape treatments designed to reduce on-site fugitive dust. However, in January 1993, the Coachella Valley was reclassified from a "moderate" to "serious" non-attainment area for PM_{10} by the U.S. EPA. This reclassification occurred because it was determined that the region could not "practicably attain" federal Clean Air Act PM_{10} standards by December 31, 1994.

Although the Coachella Valley achieved the federal PM_{10} standard for several years in the mid-1990s, it was unable to achieve the annual average standard for a sufficient, extended period of time. The region continues to be designated a "serious" non-attainment area for PM_{10}. In an effort to remedy this situation, local governments in the Coachella Valley have adopted Fugitive Dust (PM_{10}) Control ordinances, which establish minimum dust control requirements for construction and demolition activities and similar land uses, and require that reasonably available control measures be implemented so that fugitive dust emissions are in compliance with South Coast Air Quality Management District regulations. Among the measures set forth in the ordinances are the preparation and approval of fugitive dust mitigation plans, reductions in vehicular speeds on unpaved roads and construction sites, application of chemical and/or vegetative dust suppressants and stabilizers, paving of parking lots and roadways, installation of wind fencing, re-vegetation of disturbed areas, and implementation of street and vehicle cleaning programs at construction sites. Jurisdictions will not issue grading or demolition permits without an approved fugitive dust mitigation plan, and have the authority to monitor and inspect grading and demolition activities to ensure that each fugitive dust mitigation plan is properly implemented.

Although implementation of local fugitive dust control ordinances has contributed somewhat to PM_{10} reductions on a site-specific basis, marked reductions have not been realized on a regional scale. In 1999, SCAQMD received an average of 100 dust complaints per month from the Coachella Valley, and numerous Notices of Violation were issued to local developers and contractors for violations of SCAQMD rules and state statutes.[19] In response, SCAQMD, in coordination with CVAG, developed "Guidelines for Dust Control Plan Review for the Coachella Valley" in 2003 (see Appendix A. The guidelines are intended to assist local government staff in reviewing dust control plans submitted for construction projects in the Coachella Valley, and are designed to supplement, rather than replace, local dust control ordinances. They include sample site plan and inspection checklists, dust control plan application forms, and dust control review checklists, which are recommended for use by applicants and local government staff. They also include recommendations regarding construction site signage, conditions of approval, and specific dust control measures that can be employed on-site. Additionally, SCAQMD employs a Coachella Valley Air Quality Inspector who is responsible for coordinating and consulting with local developers and jurisdictions regarding the mitigation

[19] Aurora Kerr, Coachella Valley Association of Governments, memorandum to CVAG Energy and Environmental Resources Committee, November 2, 2000.

of development-generated fugitive dust. Each city in the valley has appointed a "PM_{10} Dust Czar" who serves as a single point of contact for local PM_{10} issues and concerns.[20]

Urbanization and Preservation of Biological Habitat

A delicate balance exists between facilitating urbanization, controlling PM_{10} emissions, and preserving sensitive biological habitat in the Coachella Valley. The natural process of sand migration is critical to the survival and propagation of numerous native wildlife species that occupy blowsand habitat. Several sand-dependent species, including the Coachella Valley milk vetch, Coachella giant sand treader cricket, Coachella Valley fringe-toed lizard, and Coachella Valley Jerusalem cricket, are listed as endangered, threatened, or sensitive by the U.S. Fish and Wildlife Service and California Department of Fish and Game. Particularly sensitive blowsand habitat includes land contained within three preserves established by the Coachella Valley Fringe-toed Lizard Habitat Conservation Plan, and upwind lands that facilitate natural sand migration to the preserves.

The urbanization of undeveloped land on the central valley floor impedes the natural migration of sand throughout the Coachella Valley. The construction of buildings, roads, sidewalks and other paved surfaces, and the installation of vegetative and other types of windbreaks in upwind areas can interrupt or shield sand transport corridors, and degrade or destroy the habitat value of downwind sand dunes and fields. The application of chemical and/or other sand stabilizers during grading and construction further reduce local fugitive dust emissions. These techniques, which contribute to reductions in locally generated PM_{10}, are considered essential to the protection of public health and welfare. However, over the long-term, the continued urbanization of the Coachella Valley could result in adverse impacts to sensitive blowsand species and natural communities. These issues must be fully considered by local jurisdictions and regulatory agencies as future development occurs and PM_{10} mitigation measures are implemented.

Sunline Services Group, which provides public transit services to the Coachella Valley, recently implemented a sand re-deposition program to enhance sand availability in the Coachella Valley Preserve. The Preserve encompasses about 15,000 acres near Thousand Palms, and is the largest of three blowsand habitat preserves established by the Coachella Valley Fringe-toed Lizard Habitat Conservation Plan.[21] It provides important habitat for the Fringe-toed Lizard and other endemic sand-dependent species. In spring 2000, Sunline expanded its street-sweeping program and implemented a sand re-deposition program, in coordination with the U.S. Fish and Wildlife Service. Sand collected after major blowsand incidents is sifted through large screens to remove trash and road debris, and is re-deposited by CNG-operated (compressed natural gas) dump trucks in the westerly, upwind portion of the Coachella Valley Preserve. During 2000, approximately 200 tons of sand were deposited in the Preserve.[22] The program helps replenish sand resources in this important habitat area and reduces, to some extent, the impacts of urbanization in the western Coachella Valley on natural blowsand processes.

[20] Aurora Kerr, Coachella Valley Association of Governments, personal communication, October 1, 2001.

[21] "The Coachella Valley Preserve System Management Plan and Decision Record," U.S. Bureau of Land Management, November 1995.

[22] Lars Ravn, Sunline Services Group, letter correspondence, October 9, 2001.

VII. Conclusions

The Coachella Valley exceeds state and federal ambient air quality standards for ozone and PM_{10}, due to a combination of locally-generated pollution, unique topographic and climatic characteristics, and the transport of pollutants from metropolitan areas to the west. Local public agencies have taken a proactive approach to reducing these and other pollutants in recent years; however, long-term improvement will require even greater participation by the public and private sectors, as well as local residents.

The proposed MSHCP project alternatives and implementation mechanisms should be given careful consideration with regard to their short- and long-term potential impacts on regional air quality. The optimal project alternative will not only be consistent with the standards established by regional, state, and federal regulatory agencies, but will also contribute to a reduction in future pollution emissions, facilitate or enhance the natural sand migration process critical to sand-dependent species, minimize erosion and other land disturbances, and support the continued implementation of effective pollution control measures.

GLOSSARY

90-CVSIP	State Implementation Plan for PM_{10} in the Coachella Valley
Ambient Air	Outside air
Anthropogenic	Man-made; caused by some sort of human activity
AQMP	Air Quality Management Plan
Attainment	Legal recognition that a geographic area meets standards for a particular pollutant
Blowsand	The natural migration of sandy, silty soils facilitated by wind
CAA	Federal Clean Air Act
CCAA	California Clean Air Act
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
CNG	Compressed natural gas
County Service Area	A distinct geographic area that is estimated to have public services or facilities provided by the County
Criteria Pollutant	Pollutants for which air quality standards currently exist (including carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, ozone, and PM_{10})
CVAG	Coachella Valley Association of Governments
EPA	Environmental Protection Agency; federal agency responsible for managing ambient air quality
Fugitive Dust	Any solid particulate matter that becomes airborne, other than that emitted from an exhaust stack, directly or indirectly as a result of the activities of man
HCP	Coachella Valley Multiple Species Habitat Conservation Plan/Natural Communities Conservation Plan
Inversion	Atmospheric condition in which a layer of warm air overlies a layer of cooler air, trapping pollutants in the mixing layer beneath

NAAQS	National Ambient Air Quality Standards
Nonattainment Area	Geographic area that does not meet state or federal standards for a particular pollutant
$PM_{2.5}$	Fine, suspended particulate matter with an aerodynamic diameter equal to or smaller than 2.5 microns
PM_{10}	Fine, suspended particulate matter with an aerodynamic diameter equal to or smaller than 10 microns
PPM	Parts per million by volume
Primary Pollutant	Pollutants emitted directly from a source, which are typically a direct consequence of the combustion of petroleum and other fuels
SCAQMD	South Coast Air Quality Management District
Secondary Pollutant	Pollutant which disperses and undergoes chemical changes under conditions of high ambient temperatures and high rates of solar insolation
Sensitive Receptor	A person, land use, or facility that may be subject to respiratory stress and/or significant adverse impact as a result of exposure to air contaminants
SIP	State Implementation Plan; an analysis required by EPA for air quality management districts to address the attainment of PM_{10} National Ambient Air Quality Standards
SSAB	Salton Sea Air Basin

APPENDIX A:
"Guidelines for Dust Control Plan Review for Coachella Valley Jurisdictions," Coachella Valley Association of Governments, 2003

Section 100 Purpose

The purpose of this ordinance is to establish minimum requirements for construction and demolition activities and other specified sources in order to reduce man-made fugitive dust and the corresponding PM10 emissions.

Section 200 Definitions

For the purpose of this ordinance, the following definitions are applicable:

1 AGRICULTURAL OPERATIONS are any operation directly related to the growing of crops, or raising of fowls or animals for the primary purpose of making a livelihood.

2 AQMD is the South Coast Air Quality Management District and the representatives thereof.

3 AVERAGE DAILY TRAFFIC (ADT) is the number of motor vehicles that traverse a given unpaved or paved surface during a specified 24-hour period. ADT levels are calculated as the average daily volume over a specified 48-hour period as determined by the City (County) in consultation with the AQMD.

4 BULK MATERIAL is all sand, gravel, soil, aggregate and other organic and inorganic particulate matter.

5 CHEMICAL DUST SUPPRESSANTS are non-toxic chemical soil binders that are not prohibited for use by the City (County), the California Regional Water Quality Control Board, the California Air Resources Board, the U.S. Environmental Protection Agency (U.S. EPA), or any other law, rule or regulation, used to reduce dust on disturbed surfaces.

6 COACHELLA VALLEY BEST AVAILABLE CONTROL MEASURES (CV BACM) are methods to prevent or mitigate the emission and/or airborne transport of fugitive dust, as identified in the Coachella Valley Fugitive Dust Control Handbook.

7 COACHELLA VALLEY FUGITIVE DUST CONTROL HANDBOOK is the most recently approved reference document by the AQMD that includes a description of fugitive dust control measures, guidance for preparation of Fugitive Dust Control Plans, notification forms, signage provisions, and test methods.

8 CONSTRUCTION ACTIVITIES are any on-site activities preparatory to or related to the building, alteration, rehabilitation, or improvement of property, including, but not limited to the following activities; grading, excavation, trenching, loading, vehicular travel, crushing, blasting, cutting, planning, shaping, breaking, equipment staging/storage areas, weed abatement activities or adding or removing bulk materials from storage piles.

9 DEMOLITION ACTIVITIES are the wrecking or taking out of any load-supporting structural member of a structure or building and related handling operations or the intentional burning of any structure or building.

10 DISTURBED SURFACE AREA is any portion of the earth's surface (or material placed thereupon) that has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed native condition (including vehicular disturbances) thereby increasing the potential for the emission of fugitive dust. This definition does not include land that has been restored to a native condition, such that the vegetative ground cover and soil characteristics are equal to surrounding native conditions.

11 EARTH-MOVING OPERATIONS are the use of any equipment for an activity where soil is being moved or uncovered.

12 FINISH GRADE is the final grade of the site that conforms to the approved grading plan.

13 FUGITIVE DUST is any solid particulate matter that becomes airborne, other than that emitted from an exhaust stack, directly or indirectly as a result of human activities. PM10 is a subset of fugitive dust and is defined as particulate matter with an aerodynamic diameter of 10 microns or less.

14 FUGITIVE DUST CONTROL PLAN is a document that describes fugitive dust sources at a site and the corresponding control measures and is prepared in accordance with the guidance contained in the Coachella Valley Fugitive Dust Control Handbook.

15 HIGH-WIND EPISODE is when wind speeds exceed 25 miles per hour as measured by:
A. the closest AQMD monitoring station, or
B. a certified meteorological monitoring station, or
C. an on-site wind monitor calibrated and operated on-site in accordance with the manufacturer's specifications with a data logger or strip chart.

16 OPERATOR is any person who owns, leases, operates, controls, or supervises any potential fugitive dust generating operation subject to the requirements of this ordinance. This definition includes any person who has been officially designated by a property owner as the person responsible for fugitive dust control at a site, as indicated in an approved Fugitive Dust Control Plan.

17 PAVED ROAD is an improved street, highway, alley, public way, or easement that is covered by roadway materials (e.g., cement, asphalt or asphaltic concrete).

18 PHYSICAL ACCESS RESTRICTION is any barrier, including but not limited to; curbs, fences, gates, posts with fencing, shrubs, trees, or other measures that are effective in preventing vehicular and Off-Highway Vehicle (OHV) use of a specified site.

19 SILT is any bulk material with a particle size less than 75 micrometers in diameter that passes through a Number 200 sieve as determined by American Society of Testing and Materials (ASTM) Test Method C 136 or any other test method approved by the U.S. EPA and AQMD.

20 SITE is the real property on which construction, demolition, or other activities subject to this ordinance may occur.

21 STABILIZED SURFACE is any portion of land that meets the minimum standards as established by the applicable test method contained in the Coachella Valley Fugitive Dust Control Handbook.

22 STORAGE PILE is any accumulation of bulk material with a height of three feet or more and a total surface area of 300 or more square feet.

23 UNPAVED PARKING LOT is an area utilized for parking vehicles and associated vehicle maneuvering that is not covered with roadway materials (e.g., cement, asphalt or asphaltic concrete).

24 UNPAVED ROAD is any service roads, internal access roads, heavy and light duty equipment paths and other roadways which are not covered by typical roadway materials (e.g., cement, asphalt, asphaltic concrete).

25 TEMPORARY UNPAVED PARKING LOTS are those used less than 24 days per year.

Section 300 Performance Standards and Test Methods

All performance standards and test methods referenced in this ordinance shall be based on the methodologies included in the Coachella Valley Dust Control Handbook.

Section 400 Control Requirements

410. Work Practices – All Fugitive Dust Sources

1 No operator shall conduct any potential dust-generating activity on a site unless the operator utilizes one or more Coachella Valley Best Available Control Measures, as identified in the Coachella Valley Fugitive Dust Control Handbook for each fugitive dust source such that the applicable performance standards are met.

2 Any operator involved in any potential dust-generating activity on a site with a disturbed surface area greater than one acre shall, at a minimum, operate a water application system as identified in the Coachella Valley Fugitive Dust Control Handbook, if watering is the selected control measure.

Performance Standards and Test Methods
3 No person subject to the requirements contained in Section 410.1 shall cause or allow visible fugitive dust emissions to exceed 20 percent opacity, or extend more than 100 feet either horizontally or vertically from the origin of a source, or cross any property line.

420. Construction and Demolition Activities

1 Any operator applying for a grading permit, or a building permit for an activity with a disturbed surface area of more than 5,000 square feet, shall not initiate any earth-moving operations unless a Fugitive Dust Control Plan has been prepared pursuant to the provisions of the Coachella Valley Fugitive Dust Control Handbook and approved by the City (County).

2 A complete copy of the approved Fugitive Dust Control Plan must be kept on site in a conspicuous place at all times and provided to the City (County) and AQMD upon request.

3 Any operator involved in demolition activities shall comply with AQMD Rule 1403 (Asbestos Emissions from Demolition/Renovation Activities) requirements, and the requirements of Title 40, Part 61 of the code of Federal Regulations.

4 Any operator involved in earth-moving operations shall implement at least one of the following short-term stabilization methods during non-working hours:

A. maintaining soils in a damp condition as determined by sight or touch; or
B. establishment of a stabilized surface through watering; or
C. application of a chemical dust suppressant in sufficient quantities and concentrations to maintain a stabilized surface.

5 Within 10 days of ceasing activity, an operator shall implement at least one of the following long-term stabilization techniques for any disturbed surface area where construction activities are not scheduled to occur for at least 30 days:

A. revegetation that results in 75 percent ground coverage provided that an active watering system is in place at all times; or
B. establishment of a stabilized surface through watering with physical access restriction surrounding the area; or
C. use of chemical stabilizers to establish a stabilized surface with physical access restriction surrounding the area.

6 Any operator shall remove all bulk material track-out from any site access point onto any paved road open to through traffic:

A. within one hour if such material extends for a cumulative distance of greater than 25 feet from any site access point; and
B. at the conclusion of each workday.

7 Any operator of a project with a disturbed surface area of five or more acres or of any project that involves the import or export of at least 100 cubic yards of bulk material per day shall install and maintain at least one of the following control measures at the intersection of each site entrance and any paved road open to through traffic with all vehicles exiting the site routed over the selected device(s):

A. pad consisting of minimum one inch washed gravel maintained in a clean condition to a depth of at least six inches and extending at least 30 feet wide and at least 50 feet long; or
B. paved surface extending at least 100 feet and at least 20 feet wide; or

C. wheel shaker / wheel spreading device consisting of raised dividers (rails, pipe, or grates) at least three inches tall and at least six inches apart and 20 feet long; or
D. a wheel washing system.

8 Any operator required to submit a Fugitive Dust Control Plan under Section 420.1 shall install and maintain project contact signage that meets the minimum standards of the Coachella Valley Fugitive Dust Control Handbook, including a 24-hour manned toll-free or local phone number, prior to initiating any type of earth-moving operations.

9 Any operator of a project with a disturbed surface area of 50 or more acres shall have an on-site Environmental Observer that:

A. is hired by the property owner or developer; and
B. has dust control as the sole or primary responsibility; and
C. has successfully completed the AQMD Coachella Valley Fugitive Dust Control Class and has been issued a Certificate of Completion for the class; and
D. is identified in the approved Fugitive Dust Control Plan as having the authority to immediately employ sufficient dust mitigation 24-hours per day, seven days a week and to ensure compliance with this ordinance, the approved Fugitive Dust Control Plan, and AQMD regulations.

Performance Standards and Test Methods

10 No operator required to submit a Fugitive Dust Control Plan under Section 420.1 shall cause or allow visible fugitive dust emissions to exceed 20 percent opacity, or extend more than 100 feet either horizontally or vertically from the origin of a source, or cross any property line.

11 Exceedance of the visible emissions prohibition in Section 420.10 occurring due to a high-wind episode shall constitute a violation of Section 420.10, unless the operator demonstrates to City (County) all the following conditions:

A. all Fugitive Dust Control Plan measures or applicable Coachella Valley Best Available Control Measures were implemented and maintained on site; and
B. the exceedance could not have been prevented by better application, implementation, operation, or maintenance of control measures; and
C. appropriate recordkeeping was complied and retained in accordance with the requirements in Section 420.12 through 420.15; and
D. documentation of the high-wind episode on the day(s) in question is provided by appropriate records.

Reporting / Recordkeeping

Before Construction

12 The operator of a project with ten acres or more of earth-moving operations shall:

A. forward two copies of a Site-Specific, Stand Alone [8_ by 11 inch] Fugitive Dust Control Plan to the AQMD within ten days after approval by the City (County). [Note: A separate AQMD approval will not be issued]; and
B. notify the City (County) and the AQMD at least 24-hours prior to initiating earth-moving operations.

During Construction

13 Any operator involved in earth-moving operations shall compile, and maintain for a period of not less than three years, daily self-inspection recordkeeping forms in accordance with the guidelines contained in the Coachella Valley Fugitive Dust Control Handbook.

14 Any operator involved in earth-moving operations that utilizes chemical dust suppressants for dust control on a site shall compile records indicating the type of product applied, vendor name, and the method, frequency, concentration, quantity and date(s) of application and shall retain such records for a period of not less than three years.

After Construction

15 Any operator subject to the provisions of Section 420.12 shall notify the City (County) and the AQMD within ten days of the establishment of the finish grade or at the conclusion of the finished grading inspection.

430. Disturbed Vacant Lands / Weed Abatement Activities

1 Owners of property with a disturbed surface area greater than 5,000 square feet shall within 30 days of receiving official notice by the City (County) prevent trespass through physical access restriction as permitted by the City (County).

2 In the event that implementation of Section 430.1 is not effective in establishing a stabilized surface within 45 days of restricting access, the owner shall implement at least one of the following long term stabilization techniques within an additional 15 days, unless the City (County) has determined that the land has been restabilized:
A. uniformly apply and maintain surface gravel or chemical dust suppressants such that a stabilized surface is formed; or
B. begin restoring disturbed surfaces such that the vegetative cover and soil characteristics are similar to adjacent or nearby undisturbed native conditions. Such restoration control measure(s) must be maintained and reapplied, if necessary, such that a stabilized surface is formed within 8 months of the initial application.

3 Any operator conducting weed abatement activities on a site that results in a disturbed surface area of 5,000 or more square feet shall:
A. apply sufficient water before and during weed abatement activities such that the applicable performance standards are met; and
B. ensure that the affected area is a stabilized surface once weed abatement activities have ceased.

Performance Standards and Test Methods

4 No person subject to the provisions of Sections 430.1 through 430.3 shall cause or allow visible fugitive dust emissions to exceed 20 percent opacity, or extend more than 100 feet either horizontally or vertically from a source, or cross any property line, and shall either:
A. maintain a stabilized surface; or
B. maintain a threshold friction velocity for disturbed surface areas corrected for non-erodible elements of 100 centimeters per second or higher.

Reporting / Recordkeeping

5 Within 90 days of ordinance adoption, operators of property with disturbed surface area of 5,000 or more square feet shall notify the City (County) of the location of such lands and provide owner contact information.

6 Any person subject to the provisions of Sections 430.1 through 403.3 shall compile, and retain for a period of not less than three years, records indicating the name and contact person of all firms contracted with for dust mitigation, listing of dust control implements used on-site, and invoices from dust suppressant contractors/vendors.

440. Unpaved Roads

UNPAVED PRIVATE ROAD REQUIREMENTS MUST CAN BE PLACED IN THE DUST CONTROL ORDINANCE OR THE MEMORANDUM OF UNDERSTANDING

1 Owners of public or private unpaved roads with average daily traffic levels between 20 and 150 vehicles must take measures (signage or speed control devices) to reduce vehicular speeds to no more than 15 miles per hour.

2 Owners of a cumulative distance of six or less miles of public or private unpaved roads shall pave each segment having 150 or more average daily trips or, alternatively apply and maintain chemical dust suppressants in accordance with the manufacturer's specifications for a travel surface and the performance standards included in Section 440.4 in accordance with the following treatment schedule:
A. one-third of qualifying unpaved road segments within one year of ordinance adoption; and
B. remainder of qualifying unpaved road segments within three years of ordinance adoption. (Note: treatments in excess of annual requirements can apply to future years.)

3 Owners of a cumulative distance of more than six miles of public or private unpaved roads shall stabilize each segment having 150 or more average daily trips in accordance with the following treatment schedule:
A. at least two miles paved or four miles stabilized with chemical dust suppressants in accordance with the manufacturer's specifications for a travel surface and the performance standards established in Section 440.4 within one year of the ordinance adoption; and
B. at least two miles paved or four miles stabilized with chemical dust suppressants in accordance with the manufacturer's specifications for a travel surface and the performance standards included in Section 440.4 in accordance with the following treatment schedule

annually thereafter until all qualifying unpaved roads have been stabilized. (Note: treatments in excess of annual requirements can apply to future years).

Performance Standards and Test Methods

4 Owners of any public or private unpaved road shall not allow visible fugitive dust emissions to exceed 20 percent opacity, or extend more than 100 feet either horizontally or vertically from the origin of a source, and shall either:
A. not allow silt loading to be equal to or greater than 0.33 ounces per square foot; or
B. not allow the silt content to exceed six percent.

Reporting / Recordkeeping

5 Within 90 days of ordinance adoption, owners of unpaved roads shall provide to the City (County) and the AQMD the location and ADT estimates for all unpaved roads.
6 Owners of unpaved roads that utilize chemical dust suppressants shall compile, and retain for a period of not less than three years, records indicating the type of product applied, vendor name, and the method, frequency, concentration, quantity and date(s) of application.

450. Unpaved Parking Lots

UNPAVED PRIVATE PARKING LOT REQUIREMENTS MUST CAN BE INCLUDED IN THE DUST CONTROL ORDINANCE OR THE MEMORANDUM OF UNDERSTANDING

1 Owners of parking lots established subsequent to ordinance adoption are required to pave such areas, or alternatively apply and maintain chemical dust suppressants in accordance with the manufacturer's specifications for traffic areas and the performance standards included in Section 450.4.

2 Owners of existing public or private unpaved parking lots shall implement one of the following control strategies within 180 days of ordinance adoption:
A. pave; or
B. apply and maintain chemical dust suppressants in accordance with the manufacturer's specifications for traffic areas and the performance standards included in Section 450.4;
C. apply and maintain washed gravel in accordance with the performance standards included in Section 450.4.

3 Owners of public or private temporary unpaved parking lots (those that are used 24 days or less per year) shall apply and maintain chemical dust suppressants in accordance with the manufacturer's specifications for traffic areas and the performance standards included in Section 450.4 prior to any 24-hour period when more than 40 vehicles are expected to enter and park. The owner of any temporary unpaved parking lot greater than 5,000 square feet shall implement the disturbed vacant land requirements contained in Section 430 during non-parking periods.

Performance Standards and Test Methods

4 The operator of any public or private unpaved parking lot shall not allow visible fugitive dust emissions to exceed 20 percent opacity, or extend more than 100 feet either horizontally or vertically from the origin of a source, and shall either:
A. not allow silt loading to be equal to or greater than 0.33 ounces per square foot; or
B. not allow the silt content to exceed eight percent.
Reporting / Recordkeeping

5 Within 90 days of ordinance adoption, owners of unpaved parking lots shall provide to the City (County) and the AQMD the location and ADT estimates and the size (in square feet) of unpaved parking lots.

6 Owners of unpaved parking lots that utilize chemical dust suppressants or apply gravel shall compile, and retain for a period of not less than three years, records indicating the type of product applied, vendor name, and the method, frequency, concentration, quantity and date(s) of application.

460. Public or Private Paved Roads

1 Any owner of paved roads shall construct, or require to be constructed all new or widened paved roads in accordance with the following standards:
A. curbing in accordance with the American Association of State Highway and Transportation Officials guidelines or as an alternative, road shoulders paved or treated with chemical dust suppressants or washed gravel in accordance with the performance standards included in Section 440.4 with the following minimum widths:

Average Daily Trips	Minimum Shoulder Width
500 - 3,000	4 feet
3,000 or greater	8 feet

B. paved medians or as an alternative, medians surrounded by curbing and treated with landscaping, chemical dust suppressants, or washed gravel applied and maintained in accordance with the performance standards included in Section 440.4.

2 Any owner of public or private paved roads shall remove or cause to be removed any erosion-caused deposits of greater than 2,500 square feet within 24-hours after receiving notice by the City (County) or the AQMD or prior to resumption of traffic where the paved area has been closed to vehicular traffic.

Section 500 Administrative Requirements

1 Any operator preparing a Fugitive Dust Control Plan shall complete the AQMD Coachella Valley Fugitive Dust Control Class and maintain a current valid Certificate of Completion.

2 At least one representative of each construction or demolition general contractor and subcontractor responsible for earth-movement operations shall complete the AQMD Coachella Valley Fugitive Dust Control Class and maintain a current valid Certificate of Completion.

3 All reporting / recordkeeping required by Section 420 shall be provided to the City (County) and AQMD representatives immediately upon request.

4 All reporting / recordkeeping required by Section 430 through Section 460 shall be provided to the City (County) and AQMD representatives within 24-hours of a written request.

Section 600 Exemptions

JURISDICTIONS MAY REMOVE ANY EXEMPTION

1 The provisions of this ordinance shall not apply to:
A. agricultural operations including on-field sources and unpaved roads used solely for agricultural operations.
B. any dust-generating activity where necessary fugitive dust preventive or mitigative actions are in conflict with either federal or State Endangered Species Act provisions as determined in writing by the appropriate federal or state agency.
C. any action required or authorized to implement emergency operations that are officially declared by the City (County) to ensure the public health and safety.

2 The provisions of Section 420.1 shall not apply to any construction or demolition activity meeting any of the following activity levels or requirements:
A. the activity is occurring entirely within an enclosed structure from which no visible airborne particulate matter escapes; or
B. activities that do not require issuance of a grading permit or those that require a building permit provided that the project results in 5,000 or less square feet of soil disturbance.

3 The provisions of Section 420.8 shall not apply to:
A. projects that takes two weeks or less to complete provided that a long-term stabilization technique(s) identified in Section 430 are implemented; and
B. line projects (i.e., pipelines, cable access lines, etc.).

Section 700 Compliance

1 A person violating any section of this ordinance or with an approved Dust Control Plan shall be guilty of an infraction punishable by a of a fine of not more than one hundred dollars ($100.00) for a first violation and a fine not exceeding four hundred dollars ($400.00) for a second violation within one year. A third violation, or more, within one year shall be prosecuted at a level consistent with a misdemeanor violation.

2 In addition to any other remedy provided by law, failure to correct any condition indicated in a notice of violation within one hour of issuance will permit the City (County) to initiate one or more of the following actions where appropriate:
A Criminal proceedings.
B Civil proceedings to obtain an injunction; or any other relief against the owner or operator to stop operations at the site.
C Refusal to issue future permits and/or release of securities held until owner or operator has adequately demonstrated compliance with the notice of violation.
D Correction of the condition by the City (County) through the use of any securities held under this ordinance.

1 Violation of, or failure to comply with any provisions of an approved Fugitive Dust Control Plan shall be a violation of this ordinance.

2 Any person who violates this ordinance shall be guilty of a misdemeanor and subject to a fine.

Coachella Valley Association of Governments
US Fish and Wildlife Service

AIR QUALITY CONFORMITY ANALYSIS

for the

Coachella Valley Multiple Species Habitat Conservation Plan

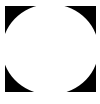
Prepared for

Coachella Valley Association of Governments
73-710 Fred Waring Drive, Suite 200
Palm Desert, CA
92262

and

US Fish and Wildlife Service
Department of the Interior
6010 Hidden Valley Road
Carlsbad, CA 92009

Prepared By



Terra Nova Planning & Research, Inc.®
400 South Farrell Drive, Suite B-205
Palm Springs, CA 92262

AIR QUALITY CONFORMITY ANALYSIS

Introduction

The Coachella Valley is in "non-attainment" for PM_{10} (particulate matter 10 microns or smaller) and ozone. Section 176 (c) of the Clean Air Act (CAA), as amended (42 U.S.C. 7401 et seq.) and regulations under 40 CFR part 51 subpart W requires federal agencies to make a determination that a proposed action is or will be in conformity with applicable implementation plans meant to bring an area into compliance. The exceedances for ozone are primarily due to ozone's production and importation outside the plan area and, therefore, there are currently no implementation plans for ozone in the planning area.

Within the plan area, however, PM_{10} is primarily associated with local conditions and activities. State Implementation Plans (SIPs) have been adopted, which direct actions to be taken to bring the respective areas into compliance with federal PM_{10}standards.

Coachella Valley PM10 Plan Conformity Analysis

The air quality conformity analysis is a process that evaluates a variety of criteria, including special and jurisdictional applicability, current SIP and its status and rules and provisions, and other issues. Each of these steps is described and addressed below.

The South Coast Air Quality Management District adopted the 2003 CVSIP on August 1, 2003, which details the control measures necessary to attain the PM_{10} standards again. It is the conformance of the proposed Coachella Valley Multiple Species Habitat Conservation Plan (MSHCP) the 2003 CVSIP and its more stringent standards that this conformance analysis addresses.

Spatial and Jurisdictional Applicability

The Coachella Valley encompasses approximately 2,500 square miles and is located in the central portion of Riverside County known as the Southeast Desert Air Basin (SEDAB). The 2003 CVSIP focuses on the Coachella Valley as defined by Banning Pass to the north, by the Riverside/Imperial county boundary lines to the south, by the San Jacinto Mountains to the west, and by the San Bernardino Mountains to the east. Elevation ranges from 500 feet above sea level to 150 feet below sea level.

On private and state-regulated lands, the South Coast Air Quality Management District (SCAQMD) has responsibility for assuring compliance with applicable state and federal air quality regulations. The US EPA is directly involved in assuring that SCAQMD and affected jurisdictions take appropriate actions to "attain" federal standards. Lands under federal control are required to demonstrate compliance with applicable attainment plans, including the Coachella Valley SIP.

Coachella Valley 2003 State Implementation Plan

In November 1990, areas in the United States that were previously designated as federal nonattainment areas for PM_{10}, including the Coachella Valley, were initially designated as "moderate" PM10 nonattainment areas. The Coachella Valley PM_{10} SIP (CVSIP) was adopted in November, 1990 and incorporated "reasonably available control measures" (RACM). The 90-CVSIP identified candidate control measures and demonstrated attainment of the NAAQS for $PM_{10}$by the year 1995, one year after the statutory limit for moderate nonattainment areas.

Unable to meet regulatory standards, the Coachella Valley was redesignated as "serious" effective February 8, 1993. In response, the SCAQMD prepared a SIP revision (94-CVSIP) that identified candidate Best Available Control Measures (BACM) for implementation prior to February 8, 1997. Compliance seemed to have been achieved in the period from 1993 through 1995. The 1996 CVSIP demonstrated attainment of the PM10 standards.

From 1999 through 2001, PM_{10} dust levels rose sufficiently to exceed the annual average PM_{10} standard. During this same timeframe, the region experienced significant increases in construction activities. In the 2003 CVSIP, the construction-related emissions were revised based on actual 2000 construction activity data, which was higher than predicted in the 1996 CVSIP. Based upon the exceedances during this period, the Coachella Valley was determined to be on nonattainment of federal PM_{10} standards.

Under Title I of the CAA, EPA sets limits on how much of a particular pollutant can be present in the air for any given location within the United States. EPA, states, and local governments are required under the CAA to implement measures to prevent and control air pollution, with significant responsibility resting with the states. The major mechanism used to attain the standards in individual areas is a SIP.

The 2003 Coachella Valley State Implementation Plan (CVSIP) updates the previous Coachella Valley plans to address the recent rise in PM_{10} levels above the standard and forestall a notice of failure to attain. Its elements include the following:

- Air quality summary from 1997-2002, including natural events;
- Emissions inventory update for 2003;
- Most Stringent Measures (MSM) analysis and Proposed Control Strategy;
- Attainment demonstration;
- Natural Events Action Plan status and update; and
- 2003 PM_{10} CVSIP attainment deadline approval request.

The following table is a summary of the control strategies in the 2002 CVSIP, which are being implemented under the 2003 CVSIP. For a detailed description of the 2003 CVSIP proposed control strategies, the reader is referred to Appendix A.

Summary of 2002 CVSIP Control Strategies

CONTROLMEASURE	TITLE	CONTROL METHOD
BCM-1	Further Control of Emissions from Construction Activities	watering, chemical stabilization, wind fencing, revegetation, track-out control
BCM-2	Disturbed Vacant Lands	chemical stabilization, wind fencing, access restriction, revegetation
BCM-3	Unpaved Roads and Unpaved Parking Lots	paving, chemical stabilization, access restriction, revegetation
BCM-4	Paved Road Dust	minimal track-out, stabilization of unpaved road shoulders, clean streets maintenance
BCM-5	Control of Emissions from Agricultural Activities	requirements to implement agricultural handbook conservation practices

Air Quality Impact Analysis for the Proposed Coachella Valley MSHCP
The proposed Coachella Valley MSHCP addresses the MSHCP elements, including Habitat Conservation Area Goals and Objectives, and Hiking/Biking/Equestrian Trails addressed in the Santa Rosa and San Jacinto Mountains Trails Plan, which is a part of the Coachella Valley MSHCP.

Of the Plan elements set forth above, those with the potential to generate potentially significant levels of blowing and fugitive dust, which could contribute to PM_{10} generation, are limited to Conservation Area monitoring and management activities, and to possible new trails construction. Potential impacts associated with the MSHCP, how potential impacts are mitigated and how actions comply with CVSIP provisions and rules are discussed for each of the two MSHCP elements below.

Conservation Area Lands Monitoring and Management: Potential PM10 generation associated with the proposed MSHCP are very limited. The issuance of new or renewed rights of way for windparks, communication sites and utilities would require consistency with the habitat conservation objectives of the Coachella Valley Multiple Species Habitat Conservation Plan (CV MSHCP), which is expected to limit potential new uses to trails, trailheads and interpretive displays. While these have not yet been identified, their development would require conformance with the MSHCP plan objectives.

Potential areas of PM_{10} impact include the limited construction, maintenance and use of trails and initial site disturbance for associated facilities. Any new construction activities would be required to comply with the 2002 CVSIP rules and provisions, including the following:

- All fugitive dust sources will be required to implement Coachella Valley Best Available Control Measures (CV BACM).

- Dust control plans required prior to issuance of building permits for projects with more than 5,000 square feet of disturbed soils unless a dust control plan has already been issued to the builder/developer through a grading permit. The plan must have the required elements described in the Coachella Valley Dust Control Handbook.

- Site-specific dust mitigation plan required for construction activities greater than or equal to 10 acres (must be forwarded to AQMD after local approval). AQMD staff will compile this information for compliance purposes and not issue a separate approval. Project-related disturbance of this scale is not anticipated.

- Construction activities greater than or equal to 10 acres must notify local jurisdiction/AQMD at least 24-hours prior to initiating earth-movement activities. Project-related disturbance of this scale is not anticipated.

- Construction activities greater than or equal to 10 acres must notify local jurisdiction/AQMD within 10 days of project completion. Project-related disturbance of this scale is not anticipated.

- Construction site signage is required for projects requiring issuance of grading permit or building permit for a site with greater than or equal to 5,000 square feet (approximately 0.1 acre) of disturbed soils, activities that import or export more than 100 cubic yards of material, or trenching activities greater than 100 feet in length. Sites with more than ten acres would be required to install four-foot by eight-foot signs with the following information provided in three-inch lettering: project name, permittee name, phone number of person(s) responsible for dust control, AQMD phone number, dust control permit (plan) number, and project acreage.

- Dust control monitor (responsible person) required for sites with greater than or equal to 50 acres of actively disturbed soils. Monitor(s) must be hired by property owner or developer, have dust control as primary responsibility, and have the authority to initiate dust control measures.

Work Practice Requirements

Under existing dust control ordinance requirements, activities that submit a dust control plan are required to provide sufficient detail to demonstrate compliance with AQMD Rule 403. Specific dust control work practices include the following.

- Earth-moving operations on sites with greater than one acre of disturbed surfaces are required to operate a water application system (i.e., water truck) while conducting earth-moving operations if watering is the selected control measure.

- Short-term stabilization (maintaining soils in a damp condition, surface crust, or chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of six months) required for after-hours/weekends.

- Long-term stabilization techniques required within 10 days for areas where construction activities are not scheduled for 30 days.

Track-out control device (washed gravel pad at least 30 feet wide, 50 feet long, and six inches deep, paving starting from the point of intersection with a paved public roadway and extending for a centerline distance of at least 100 feet and a width of at least 20 feet, grizzly or wheel wash system) required for construction projects greater than or equal to five acres or those that import/export greater than or equal to 100 cubic yards per day. Regardless of project size or track-out control device selected, material tracked-out onto a paved public road must be removed at anytime it extends more than 50 feet from a site entrance and at the conclusion of the work day.

Motorized Vehicle Access: Potential PM_{10} generation associated with proposed MSHCP elements are limited by the management strategy incorporated into the proposed MSHCP. Current conditions do not prohibit the use of existing trails or jeep trails, which are not otherwise restricted by private owners or public agencies. Many of these trails occur in foothills and mountain areas, and others within wash areas on canyons and alluvial fans comprised of course sands and gravels, and are mostly outside areas with high levels of soil silt and fines. Nonetheless, the on-going use of these trails has the limited but probably negligible potential to emit or create conditions for fugitive dust. The average level of use on these trails have been estimated for high and low-activity periods: vehicular/jeep trails are limited to 5 average daily trips (ADT) on weekdays and during all days in the summer; and 25 ADT on weekends.

The proposed MSHCP would limit the number and extent of available trails and would prohibit routes of travel by motorized vehicles on nearly 100 miles of existing jeep trails on lands managed by the BLM. An unquantified number and extent of jeep trails would be eliminated from use on lands acquired for the MSHCP and would further reduce the potential for fugitive dust generation from these sources. Based upon current knowledge and understanding of this use and its potential to contribute to PM_{10} emissions, it is not believed that the proposed MSHCP will result in significant PM_{10} air quality impacts, but rather will result in a net reduction in potential dust generation as conservation lands are acquired and managed. Nonetheless, the manager of these conservation lands (the Coachella Valley Conservation Committee or CVCC) shall apply the following provisions and regulations to the use of such trails. Trail management and use would be required to comply with the 2003 CVSIP rules and provisions, including the following:

- Measures the CVCC shall implement on unpaved jeep trails that have motorized vehicle traffic with between 20 and 150 average daily traffic (ADT) levels shall include signage or speed control devices to reduce vehicular speeds to 15 miles per hour).

- Measures the CVCC shall implement on unpaved jeep trails constructed prior to July 1, 2002 that have motorized vehicle traffic with ADT levels of 150 or more, shall be paved, or the CVCC shall apply and maintain chemical dust suppressants according to the applicable rule standards/test methods in accordance with the following schedule: 1/3 of qualifying unpaved roads within one year of MSHCP adoption and acquisition of the subject conservation lands, with the remainder treated on acquired lands within two years of MSHCP adoption.

Motorized Vehicle Area Designations: As with other MSHCP elements, potential PM10 generation is limited by the management strategy incorporated into the proposed MSHCP. No access for motorized vehicles is provided for in the MSHCP except for monitioring and research, and in the event of emergencies such as fires, medical and similar emergencies. Given the very low levels of motorized vehicle use that might occur within the MSHCP conservation lands, the implementation of the MSHCP is not expected to increase local or regional levels of fugitive dust or to adversely affect any sensitive receptors. Vehicular access by the public to conservation lands would be limited to trailheads located immediately adjacent to public roads and would not permit public use of jeep trails within conservation lands.

Based upon current knowledge and understanding of this use and its very limited potential to contribute to PM_{10} emissions, it is not believed that the proposed MSHCP will result in PM10 impacts that will significantly affect sensitive receptors. Nonetheless, the CVCC shall apply the following provisions and regulations to the use of vehicular access areas that are provided in the future under the MSHCP. Area management and use would be consistent and compliant with the 2002 CVSIP rules and provisions. Proposed CVCC provisions include the following:

A variety of management strategies may also be imposed, including the shutdown of trailhead areas during period of high winds, installation of “rattle bars” or cattle guards to remove dirt, and on-site use restrictions.

- Motorized vehicle access areas shall be clearly delineated to assure that use is restricted to those areas, such as access drives and parking areas, designated for such use. The CVCC shall utilize signage, fencing or other appropriate methods to assure motor vehcile use only within designated areas.

- Ingress and egress points for motor vehicle use areas shall incorporate "rattle bar" or cattle guard equipment to remove sand and dirt from vehicles leaving trailshead and/or parking area, where the potential for tracking dirt is not precluded by the use of paving, crushed stone or other appropriate surface on access roads and/or parking areas. As necessary, signage at these points shall also direct users to clean their vehicles prior to traveling off-site.

- Unstabilized access roads and parking areas shall be closed during high wind periods, i.e. when surface winds reach or are in excess of 30 mph.

Conclusions of Air Quality Conformity Analysis

The proposed MSHCP incorporate restrictions in the extent, use, management and regulation of lands located within its conservation lands, which complement and contribute to the goals set forth in the 2003 CVSIP. The MSHCP will also utilize regulations and mitigation measures, which are consistent or compatible with those set forth in the CVSIP and also incorporates designs meant to reduce impacts to and enhance air quality in the Coachella Valley.

APPENDIX A
POTENTIAL POLLUTANT DISPLACEMENT

COACHELLA VALLEY
MULTIPLE SPECIES HABITAT CONSERVATION PLAN

AIR QUALITY CONFORMANCE ANALYSIS

Introduction

The following analysis is based upon an analysis of lands proposed for conservation under the Coachella Valley Multiple Species Habitat Conservation Plan (MSHCP). Land use designations and development potential of these lands were reviewed and used as the basis for calculating potential air pollutant emissions associated with their development at buildout. The analysis is based upon the "CEQA Air Quality Handbook," prepared by South Coast Air Quality Management District, April 1993.

This analysis is not meant to indicate that the potential future emissions set forth below will be entirely eliminated by implementation of the MSHCP. Rather, the analysis indicates the maximum potential for precluded emissions. While some portion of the development potential of lands planned for conservation may shift to non-conservation lands, enhanced land use and transportation efficiencies are expected to result. Therefore, a substantial portion, if not all, of the potentially displaced emission may be realized.

CV MSHCP Estimated Natural Gas and Electricity Demand

Natural Gas

Buildout of the subject lands is anticipated to generate approximately 21,377 single-family dwelling units and approximately 424 multi-family dwelling units. As shown in Table 1, the natural gas consumption associated with residential uses during buildout of the subject lands is approximately 144,178,581 cubic feet per month.

Table 1
Natural Gas Consumption
for Residential Development at Project Buildout
(Lbs. per 10^6 Cu.Ft.)

Monthly Natural Gas Consumption (cf/unit/mo)	Total No. Dwelling Units	Total Monthly Natural Gas Consumption (cf/mo)
Single Family DUs= 6,665.0	21,377	142,477,705
Multi Family DUs= 4,011.5	424	1,700,876
	TOTAL:	**144,178,581**

Based on per unit usage and emissions factors provided in Tables A9-12-A and A9-12-B, "CEQA Air Quality Handbook," prepared by South Coast Air Quality Management District, April 1993.

Buildout of the subject lands is expected to provide approximately 12,948,140 square feet of industrial land uses. Table 2 shows the natural gas consumption associated with industrial uses during buildout of the subject lands is approximately 65,151,072 cubic feet per month.

Table 2
Natural Gas Consumption
for Industrial Development at Project Buildout
(Lbs. per 10^6 Cu.Ft.)

Land Use Type	Usage Factor	Projected Demand
Industrial (12,948,140 sq. ft.)	4.8 cf/sq. ft./month	65,151,072 cf/mo
	TOTAL	**65,151,072 cf/mo**

Based on cf/square foot usage and emissions factors provided in Tables A9-12-A and A9-12-B, "CEQA Air Quality Handbook," prepared by South Coast Air Quality Management District, April 1993.

Buildout of the subject lands is expected to provide approximately 751,328 square feet of commercial land uses. Table 3 shows the natural gas consumption associated with commercial uses during buildout of the subject lands is approximately 2,178,851 cubic feet per month.

Table 3
Natural Gas Consumption
for Commercial Development at Project Buildout
(Lbs. per 10^6 Cu.Ft.)

Land Use Type	Usage Factor	Projected Demand
Retail/Shopping (751,328 sq. ft.)	2.9 cf/sq. ft./month	2,178,851 cf/mo
	TOTAL	**2,178,851 cf/mo**

Based on cf/square foot usage and emissions factors provided in Tables A9-12-A and A9-12-B, "CEQA Air Quality Handbook," prepared by South Coast Air Quality Management District, April 1993.

The combined natural gas consumption associated with residential, industrial and commercial development at buildout of the subject lands is approximately 211,508,504 cubic feet per month.

Electricity

Buildout of the subject lands is anticipated to generate approximately 21,377 single-family dwelling units and approximately 424 multi-family dwelling units. When combined, the subject lands could generate approximately 21,801 dwelling units at buildout. As shown in Table 4, the electrical power demand associated with residential uses during buildout of the subject lands is approximately 122,663,327 kwh per year.

Table 4
Projected Electrical Power Demand
for Residential Development at Project Buildout
(Lbs. per 1,000 kwh)

Land Use Type	Usage Factor	Projected Demand
Residential (21,801 d.u.)	5,626 kwh/unit/year	122,663,327 kwh/yr
	TOTAL	**122,663,327 kwh/yr**

Based on kwh/unit usage factors provided in Tables A9-12-A, "CEQA Air Quality Handbook," prepared by South Coast Air Quality Management District, April 1993.

Buildout of the subject lands is expected to provide approximately 12,948,140 square feet of industrial land uses. Table 5 shows the estimated electrical power demand associated with industrial uses during buildout of the subject lands is approximately 56,324,409 kwh per year.

Table 5
Projected Electrical Power Demand
for Industrial Development at Project Buildout
(Lbs. per 1,000 kwh)

Land Use Type	Usage Factor	Projected Demand
Warehouse (12,948,140 sq. ft.)	4.35 kwh/sq. ft./year	56,324,409 kwh/yr
	TOTAL	**56,324,409 kwh/yr**

Based on kwh/sq. ft. usage factors provided in Tables A9-12-A, "CEQA Air Quality Handbook," prepared by South Coast Air Quality Management District, April 1993.

Buildout of the subject lands is anticipated to provide approximately 751,328 sq. ft. of commercial development. As shown in Table-6, commercial land uses could generate an estimated electrical power demand of approximately 10,180,494 kwh per year during buildout of the subject lands.

Table 6
Projected Electrical Power Demand
for Commercial Development at Project Buildout
(Lbs. per 1,000 kwh)

Land Use Type	Usage Factor	Projected Demand
Retail (751,328 sq. ft.)	13.55 kwh/sq. ft./year	10,180,494 kwh/yr
	TOTAL	**10,180,494 kwh/yr**

Based on kwh/sq. ft. usage factors provided in Tables A9-12-A, "CEQA Air Quality Handbook," prepared by South Coast Air Quality Management District, April 1993.

The combined electrical power demand from residential, commercial, and industrial land uses at buildout of the subject lands is approximately 189,168,230 kwh per year.

CV MSHCP Air Quality Impacts

Stationary Emissions

Power Plant Emissions

Estimates of power plant emissions associated with the buildout of residential, industrial, and commercial development on the subject lands are shown in the following tables.

Table 7
Annual Power Plant Emission Projections
for Residential Development at Project Buildout
(Lbs. per 1,000 kwh)

Annual Electric Energy Usage (kwh/unit/year)	Total No. Dwelling Units	Total Annual Electric Usage (kwh)
5,626.50	21,801	122,663,327

Pollutants	Carbon Monoxide	Nitrogen Oxides	Sulfur Oxides	Particulates	Reactive Organic Gases
	122,663	122,663	122,663	122,663	122,663
Factor	0.2	1.15	0.12	0.04	0.01
Lbs./Year	24532.7	141062.8	14719.6	4906.5	1226.6
Lbs./Day	67.2	386.5	40.3	13.4	3.4

Based on per unit usage and emissions factors provided in Tables A9-11-A and A9-11-B, "CEQA Air Quality Handbook," prepared by the South Coast Air Quality Management District, April 1993. Assumes continued availability and use of natural gas in power plants and an average contribution from hydro-electric sources. Represents total pounds emitted per year by all residential development at buildout.

Table 8
Annual Power Plant Emission Projections
for Industrial Development at Project Buildout
(Lbs. per 1,000 kwh)

Estimated Total Annual Electric Usage: 56,324,409 kwh/year

Pollutants	Carbon Monoxide	Nitrogen Oxides	Sulfur Oxides	Particulates	Reactive Organic Gases
	56,324	56,324	56,324	56,324	56,324
Factor	0.2	1.15	0.12	0.04	0.01
Lbs./Year	11,264.9	64,773.1	6,758.9	2,253.0	563.2
Lbs/Day	30.86	177.46	18.52	6.17	1.54

Based on kwh/square foot usage and emissions factors provided in Tables A9-11-A and A9-11-B, "CEQA Air Quality Handbook," prepared by South Coast Air Quality Management District, April 1993. Assumes continued availability and use of natural gas in power plants and an average contribution from hydro-electric sources. Represents total pounds emitted per year by all industrial development at buildout.

Table 9
Power Plant Emission Projections
for Commercial Development at Project Buildout
(Lbs. per 1,000 kwh)

Estimated Total Annual Electric Usage: 10,180,494 kwh/year

Pollutants	Carbon Monoxide	Nitrogen Oxides	Sulfur Oxides	Particulates	Reactive Organic Gases
	10,180	10,180	10,180	10,180	10,180
Factor	0.2	1.15	0.12	0.04	0.01
Lbs./Year	2,036.1	11,707.6	1,221.7	407.2	101.8
Lbs./Day	5.6	32.1	3.3	1.1	0.3

Based on kwh/square foot usage and emissions factors provided in Tables A9-11-A and Table A9-11-B, "CEQA Air Quality Handbook," prepared by South Coast Air Quality Management District, April 1993. Assumes continued availability of natural gas in power plants and an average contribution from hydro-electric sources. Represents total pounds emitted per year by all commercial development at buildout.

Natural Gas Emissions

The following tables show the anticipated emissions associated with natural consumption by the residential, industrial, and commercial buildout of the subject lands.

Table 10
Emissions Associated with Natural Gas Consumption

for Residential Development at Project Buildout
(Lbs. per 10^6 Cu.Ft.)

Monthly Natural Gas Consumption (cf/unit/mo)	Total No. Dwelling Units	Total Monthly Natural Gas Consumption (cf/mo)
Single Family DUs= 6,665.0	21,377	142,477,705
Multi Family DUs= 4,011.5	424	1,700,876
	TOTAL:	144,178,581

Pollutants	Carbon Monoxide	Nitrogen Oxides	Sulfur Oxides	Particulates	Reactive Organic Gases
	144.2	144.2	144.2	144.2	144.2
Factor	20	80	negligible	0.2	5.3
Lbs./Month	2,883.6	11,534.3	negligible	28.8	764.1
Lbs./Day	96.1	384.5	negligible	1.0	25.5

Based on per unit usage and emissions factors provided in Tables A9-12-A and A9-12-B, "CEQA Air Quality Handbook," prepared by South Coast Air Quality Management District, April 1993.

Table 11
Emissions Associated with Natural Gas Consumption
for Industrial Development at Project Buildout
(Lbs. per 10^6 Cu.Ft.)

Estimated Total Monthly Natural Gas Usage:	65,151,072	cf/month

Pollutants	Carbon Monoxide	Nitrogen Oxides	Sulfur Oxides	Particulates	Reactive Organic Gases
	65.2	65.2	65.2	65.2	65.2
Factor	20	120	negligible	0.2	5.3
Lbs./Month	1,303.0	7,818.1	negligible	13.0	345.3
Lbs./Day	43.43	260.60	negligible	0.43	11.51

Based on cf/square foot usage and emissions factors provided in Tables A9-12-A and A9-12-B, "CEQA Air Quality Handbook," prepared by South Coast Air Quality Management District, April 1993.

Table 12
Emissions Associated with Natural Gas Consumption
for Commercial Development at Project Buildout
(Lbs. per 10^6 Cu.Ft.)

Estimated Total Monthly Natural Gas Usage:	2,178,851	cf/month

Pollutants	Carbon Monoxide	Nitrogen Oxides	Sulfur Oxides	Particulates	Reactive Organic Gases
	2.2	2.2	2.2	2.2	2.2
Factor	20	120	negligible	0.2	5.3
Lbs./Month	43.6	261.5	negligible	0.4	11.5
Lbs./Day	1.5	8.7	negligible	0.0	0.4

Based on cf/square foot usage and emissions factors provided in Tables A9-12-A and A9-12-B, "CEQA Air Quality Handbook," prepared by South Coast Air Quality Management District, April 1993.

Moving Emissions

Trip Generation

Trip generation represents the amount of traffic that is attracted to a site or that is produced by the development that occurs there. The proposed land uses on the subject lands include 14,371 single-family dwelling units, 424 multi-family dwelling units, 751,328 square feet of commercial development and 15,341,500 square feet of industrial development. Trip generation rates for each of the land uses proposed on the subject lands are based on data collected by the Institute of Transportation Engineers (ITE), and are used to calculate the daily trip-ends generated by the subject lands at buildout conditions. Table 13 shows that approximately 303,859 trip-ends per day will result from the development facilitated by the subject lands.

Table 13
Trip Generation by Land Use Type

Land Use	Units	Average Daily Rate	Daily Trip-ends
Single-Family Detached Housing	21,377 DU	9.57	204,578
Apartment	424 DU	6.63	2,811
Shopping Center	751,328 SF	42.92	32,247
Warehousing	12,948,140 SF	4.96	64,223
		Total	**303,859**

Source: Institute of Transportation Engineers (ITE), "Trip Generation," Sixth Edition, 1997, Land Use Categories 150, 210, 220, and 820.
DU = Dwelling Unit
SF = Square Feet

The daily trips generated by the development types proposed on the subject lands will generate emissions, which are expected to contribute to the deterioration or degradation of the air quality in the Coachella Valley. On a daily basis, moving exhaust emissions at buildout of the subject lands are as follows.

Table 14
Moving Exhaust Emission Projections at Project Buildout
Year 2030
(pounds per day)

Total No. Vehicle Trips/Day		**Ave. Trip Length (miles)**		**Total miles/day**
303,859	x	5	=	1,519,295

Pollutant	ROG	CO	NOx	SOx	PM10
Pounds per day	724.70	5,512.00	528.71	13.67	189.91

Based on California Air Resources Board Highest EMFAC 2002 (version 2.2) Emissions Factors for On-Road Vehicles. Based upon Year 2023 emission factors. All the emision factors account for the emissions from start, running and idling exhaust. In addition, the ROG emission factors take into account diurnal, hot soak, running and resting emissions, and PM10 emission factor accounts for the tire and brake wear.

Summary of Impacts

The anticipated cumulative daily project-related emissions associated with the buildout of the subject lands are shown in Table 15. The SCAQMD threshold criteria for carbon monoxide, nitrogen oxide, particulate, and reactive organic gases would be exceeded on a daily basis at buildout of the subject lands.

Table 15
Anticipated Cumulative Daily Project-Related Emissions
Associated with Buildout of the Subject Lands
(pounds per day)

	Stationary Source Emissions		Moving Source Emissions	Total Anticipated Emissions	SCAQMD Threshold Criteria*
	Power Plants	Nat.Gas Consumption	Vehicles	Total lbs. Per day	Total lbs. Per day
Carbon Monoxide	103.66	141.03	5,512.00	5,756.69	550.00
Nitrogen Oxides	596.06	653.80	528.71	1,778.57	100.00
Sulfur Oxides	62.12	negligible	13.67	75.79	150.00
Particulates	20.67	1.43	189.91	212.01	150.00
ROCs	5.24	37.41	724.70	767.35	75.00

* Threshold criteria offered by the South Coast Air Quality Management District for assistance in determining the significance of air quality impacts. Source: "CEQA Air Quality Handbook," prepared by South Coast Air Quality Management District, April 1993.

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