

Policies and Strategies to Improve Air Quality and Public Health in the Coachella Valley

**Report to the Desert Healthcare District and Foundation
June 2023**

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About Tracking California

Tracking California is a program of the Public Health Institute, in partnership with the California Department of Public Health and the Centers for Disease Control's (CDC) National Environmental Public Health Tracking Program. Tracking California works to make environmental health data and information accessible through the development of a web-based data query system, state-of-the-art data displays, and innovative web tools and services.



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Executive Summary

Over 90 percent of Californians breathe unhealthy air, causing thousands of preventable illnesses and deaths each year. Toxic air pollutants contribute to stroke, cardiovascular disease, lung cancer, respiratory illnesses, neurological disease, adverse birth outcomes, and other health conditions. The impacts from polluted air are not experienced equally, with steep disparities by race and socioeconomic status. Reducing air pollution emissions is critical for protecting public health.

The goals of this contract were to document the extent of air quality hazards in the Coachella Valley region, ascertain baseline respiratory and cardiovascular health rates and disparities of its residents, and identify policy actions the Foundation can pursue to improve air quality and the public's health throughout the Valley.

This report is the final in a series of deliverables aimed to help the Desert Healthcare Foundation gauge community health needs with respect to air quality and health in the Coachella Valley region. Previous deliverables presented data on air pollution and air pollution sources in the Coachella Valley, administrative data for respiratory and cardiovascular health conditions in the Valley, and health survey results from socioeconomically vulnerable households in the community.

Our findings show that:

- > Coachella Valley residents face high rates of ozone and particulate matter air pollution. High rates of air pollution negatively impact public health.
- > Particulate matter pollution comes from varied and complex sources. High impact air pollution sources include dust from the Salton Sea and agricultural activities, emissions from petroleum combustion, and biomass burning.
- > High-poverty communities experience health disparities in cardiovascular and respiratory disease compared to low-poverty communities. Residents from the most vulnerable communities may be more likely to be living with undiagnosed respiratory health conditions.
- > Health risks in high-poverty communities are impacted by multiple overlapping social and economic conditions.
- > Ambitious air pollution reduction plans aim to reduce both particulate matter and ozone in the Coachella Valley and the entire South Coast Air Quality Management District. These reductions will benefit the public health of all residents.

We identified six areas for policy action and strategy to support current resident needs, reduce organizational air pollution emissions, and advance existing air pollution reduction plans for the Coachella Valley and the South Coast Air District. These strategies leverage the Desert Healthcare Foundation's position as a health leader and community convener, and would contribute to improvements in air quality and public health in the Coachella Valley.

Policy Actions and Strategies

Identify and Address Resident Needs for Healthcare Access and Clinical Services

The Desert Healthcare Foundation can continue its work to expand access to health services and preventative care in the Valley. This process may include continued growth in community relationships and trust, the identification of barriers to health insurance and healthcare services, and deeper reach into high-risk communities to identify the most vulnerable and clinically underserved households.

The Foundation can also continue to improve the diagnosis and management of existing air quality-related health conditions, including respiratory and cardiovascular disease risks and outcomes, especially among the most vulnerable patients.

Continue to Advance Health Equity Throughout All Policy Arenas

As the Air District and Coachella Valley pursue sharp reductions in air pollution emissions, DHCF can advocate for the development of equitable policies that positively impact the health of vulnerable and low-income households. Leveraging air quality planning and policy to benefit the social and economic well-being of low-income communities will provide more impactful public health benefits than reducing pollution alone.

Accelerate Organizational Emission Reductions

Ozone reduction plans in the South Coast Air District will require stringent reductions in emissions across all sectors. The Desert Healthcare Foundation can lead in the community by advancing its own internal emissions reductions, including an audit of existing emissions and the acceleration of zero and low emissions technologies throughout its operations.

Develop Collaborative Relationships to Advance Emission Controls in the Coachella Valley

The Desert Healthcare Foundation is uniquely positioned to collaborate and engage with community residents, community-based organizations, air regulators, governmental entities, and the private sector in air quality improvement planning and implementation. DHCF can participate in identifying community needs, monitoring and achieving air quality goals established in emission reduction plans, and leveraging emission reduction interventions to benefit community health.

Growing collaborative, long-term relationships with parties engaged in air pollution control will support the Foundation's efforts to improve air quality and public health in the Coachella Valley.

Support Emission Control Efforts Put Forth in the AQMD Air Quality Management Plan (AQMP) and the AB 617 Community Emissions Reduction Plan (CERP)

The AQMP and CERP serve as bold blueprints for the monitoring, control, and reduction of air pollution emissions in the South Coast Air District and the Coachella Valley. The Desert Healthcare Foundation can support and advocate for air pollution reductions put forth in these plans, with a unique perspective on ensuring healthy and equitable outcomes in the community. DHCF can position itself as a trusted collaborator and facilitator in processes to advance public health in the Coachella Valley.



Introduction

Air Pollution in California

Air pollution is a critical public health concern in California. According to the California Air Resources Board (CARB) – California’s agency charged with protecting the public from air pollution – over 90 percent of Californians breathe unhealthy air each year.¹ CARB has identified more than 200 pollutants as toxic air contaminants.² A toxic air contaminant is defined by the California Health and Safety Code (Section 39655) as any “air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health.” These toxic pollutants result in a wide variety of health concerns, including stroke, cardiovascular disease, lung cancer, respiratory illnesses, neurological disease, poor birth outcomes, and more.

Particulate matter and ozone are two pollutants that substantially impact public health in California. CARB estimates that excess PM_{2.5} pollution causes 7,200 premature deaths, 1,900 hospitalizations, and 5,200 emergency room visits each year. Recent research from the University of California, Los Angeles has estimated that PM_{2.5}-associated mortality in California ranges from 12,700 – 26,700 persons per year, and over 50% of this mortality is attributable to human-caused emissions occurring in California. That same study estimates ozone may be associated with up to 13,700 deaths each year, and that distant out-of-state emissions cause over 75% of ambient ozone in California.³

The negative health effects from air pollution are not distributed equally throughout California. Those with the highest risks from air pollution include low-income residents, people of color, persons living with chronic health conditions, pregnant people, the elderly, children, and people experiencing homelessness.

Air pollution inequities are deeply entrenched through decades of policies that encouraged racial and economic segregation. Communities of color and low-income households, for example, were subjected to redlining, limiting their access to financial lending and other services. Redlining forced many residents to live in neighborhoods closer to polluting freeways and industrial areas, leading to greater air pollution exposures – this legacy continues to impact many low-income and communities of color today. In addition, low-income households and people experiencing homelessness may have fewer protections against pervasive outdoor air pollution – such as homes with tight sealing windows and doors, or in-home air filters. Many lower-income workers are also more likely to experience bad air quality at their jobs, such as farmers, vehicle operators, and industrial workers. Occupational air quality concerns are increasing as outdoor laborers in California contend with smoke from more frequent and intense wildfires.

Other risks from air pollution are biologically driven – children and fetuses may be more susceptible to air pollution, as they breathe more pollutants on a pound-for-pound basis compared to adults. The elderly are less able to compensate for and recover from the negative health effects of environmental pollutants. For many Californians, they face overlapping social, economic, and biological risks that increase the overall impact of air pollution on their health. For example, a lack of health insurance or healthcare access can further perpetuate health inequities experienced in at-risk communities already burdened by air pollution.

The complexity and scale of air pollution risks means that regulators and policymakers must navigate difficult decisions to reduce air pollution emissions, improve public health, and promote equity among Californians. They must also be careful to avoid policies with negative unintended consequences that could exacerbate existing economic and public health inequities. Effective policy interventions will reduce air pollution while also actively promoting health and economic equity (see Box 1).

Box 1. More Equitable Environmental Policies

‘Congestion pricing’ is the practice of charging additional fees for drivers to enter a specified area (often a downtown area) with the goal to reduce vehicle trips, emissions, and noise, while simultaneously incentivizing transit, walking, or biking. Congestion pricing effectively reduces vehicular pollution in these areas, but the monetary fees may cause an additional hardship on low-income motorists. Small tweaks, such as carving out fee exemptions for lower-income commuters, or devoting program fees to be reinvested in targeted communities (such as transit improvements or affordable housing) can make the policy more equitable and effective, while simultaneously meeting pollution reduction goals. Considering equity as a core goal of any environmental policy can open new opportunities to benefit social, economic, and health conditions of a community.



California Ambient Air Quality Standards

California law has established a process for the development of California ambient air quality standards (CAAQS) that is allowed to be more stringent than national regulatory standards. This is in response to California’s unique history with air pollution shaped by its varied geography, relatively warm and sunny climate, rapid population growth, and recurring episodes of toxic smog. CAAQS are established based on expert review of scientific literature and a public review process. California-specific standards are shown in Table 1. These pollutants are predominantly caused by human activities.⁴

California law does not require that CAAQS attainment is met by a specified date, but instead seeks incremental progress to achieve these air quality goals. Areas of California that have been designated as ‘Nonattainment’ for failing to meet National Air Quality Ambient Standards (NAAQS) are required by federal law to set forth detailed plans to meet specific air quality requirements.

Table 1. Pollutants for which a California Ambient Air Quality Standard has been established and the pollutants' most common emission sources

Pollutant	Common Sources
Particulate Matter (PM ₁₀ and PM _{2.5})	PM _{2.5} – emissions from the combustion of gasoline, oil, diesel and wood PM ₁₀ – emissions from the combustion of fuels, as well as dust from construction sites, landfills, agriculture, wildfires, industrial sources, and pollen
Ozone (O ₃)	Ozone is formed in the atmosphere via chemical reactions between pollutants from vehicles, industrial sources, consumer products, evaporative paints, and other sources. Hydrocarbons and nitrogen oxide gases react in sunlight to form ozone.
Nitrogen Dioxide (NO ₂)	Most often formed in the atmosphere through reactions between nitric oxide (NO) and other pollutants in the presence of sunlight. Can also be emitted directly from combustion sources.
Sulfate	A common component of fine particulate matter (PM _{2.5}).
Carbon Monoxide	Pollutant that results from the incomplete combustion of carbon-containing fuels (such as gasoline, natural gas, or wood). Carbon monoxide is most commonly emitted from motor vehicles, power plants, wildfires, and incinerators.
Sulfur Dioxide (SO ₂)	Emitted from sulfur-containing fuels used in motor vehicles, trains, ships, off-road diesel equipment, and industrial processes such as petroleum extraction, oil refining, and metal processing.
Visibility Reducing Particles	Caused by particulate matter pollution, gaseous pollutants, and windblown dust.
Lead	Lead emissions were largely due to motor vehicle exhaust before lead was banned from gasoline – fallout is still present, especially in urban soils. Today lead is emitted from ore and metal processors, waste incinerators, utilities, and lead-acid battery manufacturers.
Hydrogen Sulfide (H ₂ S)	Emissions from oil and natural gas extraction and processing, natural emissions from geothermal activity, and sewage treatment facilities and landfills.
Vinyl Chloride	Emitted from industrial processes, landfills, sewage treatment sites, and other hazardous waste sites.

Each community in California has its own unique air pollution risks – these may include near-roadway pollution, proximity to industrial sites, or agricultural-related pollution and dust, amongst many other potential hazards. To regulate and enforce region-specific air quality needs, California is divided into 35 Air Districts that are responsible for regional air planning, monitoring, and stationary source and facility permitting. CARB regulates air pollution, establishes statewide air quality standards, and works as a partner with the Air Districts. Both CARB and the Air Districts have the authority to enforce air quality rules and regulations.

The South Coast Air Quality Management District (South Coast AQMD) oversees the South Coast Air Basin (including Orange County and non-desert regions of Los Angeles, Riverside, and San Bernardino Counties) and the Coachella Valley.

Air Pollution and Health in the Coachella Valley

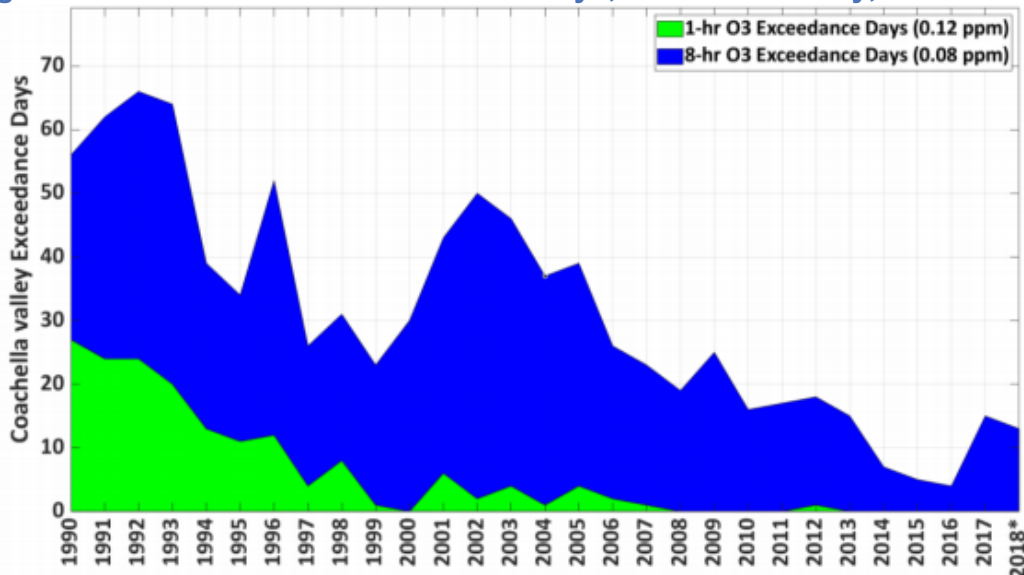
The Coachella Valley extends 45 miles from the San Geronio Pass to the Salton Sea and is approximately 15 miles wide. The primary pollutants of concern in the Valley are ozone, respirable particulate matter (PM₁₀ or particulate matter with diameter of 10 microns or less), and fine particulate matter (PM_{2.5} or particulate matter with diameter of 2.5 microns or less). The Coachella Valley is designated a nonattainment area for both 8-hour ozone and PM₁₀.⁵

We previously assessed data on ozone, PM₁₀, and PM_{2.5} from the U.S. EPA and CARB for 2017-2019. Data indicate that ozone and PM₁₀ are the pollutants of most concern for residents living in the Desert Healthcare District. Ozone is widespread throughout the South Coast AQMD, and its reduction is a primary focus of its 2022 “Air Quality Management Plan.”⁶ PM₁₀ is of particular concern in Eastern Coachella Valley communities and is a focus of the “Community Emissions Reduction Plan” adopted in 2021.⁷

Ozone

The Coachella Valley’s ozone pollution continues to exceed the 2015 federal standard of 0.070 ppm and is classified as “severe-15” (ongoing petitions aim to reclassify nonattainment as “extreme”).⁸ While there has been a decrease in the overall number of days exceeding the ozone standards (Figure 1), ozone pollution remains very high. Ozone levels peak in the summer, and the most recent data shows that **ozone exceeds the CAAQS 8-hr standard about 20 days per year** in the Coachella Valley.

Figure 1. Trends in Ozone exceedance days, Coachella Valley, 1990-2018



Ozone is transported to the Coachella Valley from the metro areas of the South Coast Air Basin via the San Geronio Pass. Ozone is also formed in the Valley from volatile organic compound precursors, such as transportation emissions and consumer products (which, again, primarily migrate from the South Coast metro areas) that combine with oxides of nitrogen on sunny days to produce ozone. According to the South Coast Air Quality Management District, local emission sources in the Valley have limited impact on ozone levels. The Coachella Valley will benefit from local emissions control efforts, but additional upwind emission control efforts by state and federal regulators will be required to meet federal standards for ozone.

Particulate Matter

Respirable particulate matter (PM₁₀) pollution is a persistent public health concern in the Coachella Valley. **PM₁₀ exceeds the CAAQS 24-hour standard of 50 µg/m³ approximately one-third of each year.** PM₁₀ generally begins to peak in the spring and continues into the summer. Community PM₁₀ concerns include windblown dust from the Salton Sea, agricultural-related emissions (including agricultural burning and pesticides), transportation-related pollution, and fugitive road dust and off-roading. PM_{2.5} exceeded the NAAQS 24-hour standard of 35 µg/m³ two times from 2017-2019 (California has not established its own AAQS for PM_{2.5} 24-hour average). PM_{2.5} tends to peak in the summer months, though large peaks can occur during other times of the year as well. Diesel particulate matter, more than 90% of which is a much smaller form of particulate matter and can be inhaled deeply into the lungs, is an important community concern in the Coachella Valley (diesel particulate matter is a portion of measured PM_{2.5} and PM₁₀).⁹

For this contract with DHCF, we partnered with Berkeley Air for a source apportionment analysis of particulate matter. Berkeley Air used a *Positive Matrix Factorization (PMF)* Model¹⁰ to characterize samples of particulate matter pollution and estimate the sources of PM pollution in Coachella Valley. The results from this analysis reiterated the complexity of causes and sources of particulate matter air pollution in the Coachella Valley, and the need for a multipronged approach to reduce PM pollution. Crustal and soil sources were found to be a substantial contributor to PM air pollution, with the Salton Sea and agricultural activities as likely contributors. Pollutants resulting from petroleum combustion, cooking, and biomass burning were also important contributors to overall levels of PM.

Respiratory and Cardiovascular Health in the Coachella Valley

We previously examined data for air pollution-related health conditions in the Coachella Valley, specifically respiratory and cardiovascular conditions. We found that rates of air pollution-related health conditions in the Coachella Valley – measured using administrative data for emergency department (ED) visits and hospitalizations – were similar to the average rates for all of California. However, this overall average disease rate hides substantial disparities in illness rates between lower-poverty and higher-poverty ZIP codes in the Coachella Valley (Map 1).

- > ED visits and hospitalizations for **chronic obstructive pulmonary disease (COPD)** were 70% and 85% higher, respectively, in higher-poverty ZIP codes compared to lower-poverty ZIP codes.
- > ED visits and hospitalizations for **asthma** were 18% and 27% higher, respectively, in higher-poverty ZIP codes compared to lower-poverty ZIP codes.
- > ED visits and hospitalizations for **heart disease** were both 26% higher in higher-poverty ZIP codes compared to lower-poverty ZIP codes.
- > ED visits and hospitalizations for **myocardial infarctions** were 41% and 44% higher, respectively, in higher-poverty ZIP codes compared to lower-poverty ZIP codes.

We defined higher-poverty ZIP codes as those with a poverty rate $\geq 20\%$. The average household in these areas have a lower median income, lower rates of insurance, and lower rates of educational attainment (Table 2). These residents are facing multiple social, economic, and environmental challenges that will impact their overall health.

Map 1. Coachella Valley ZIP codes included in the analysis, by poverty rate

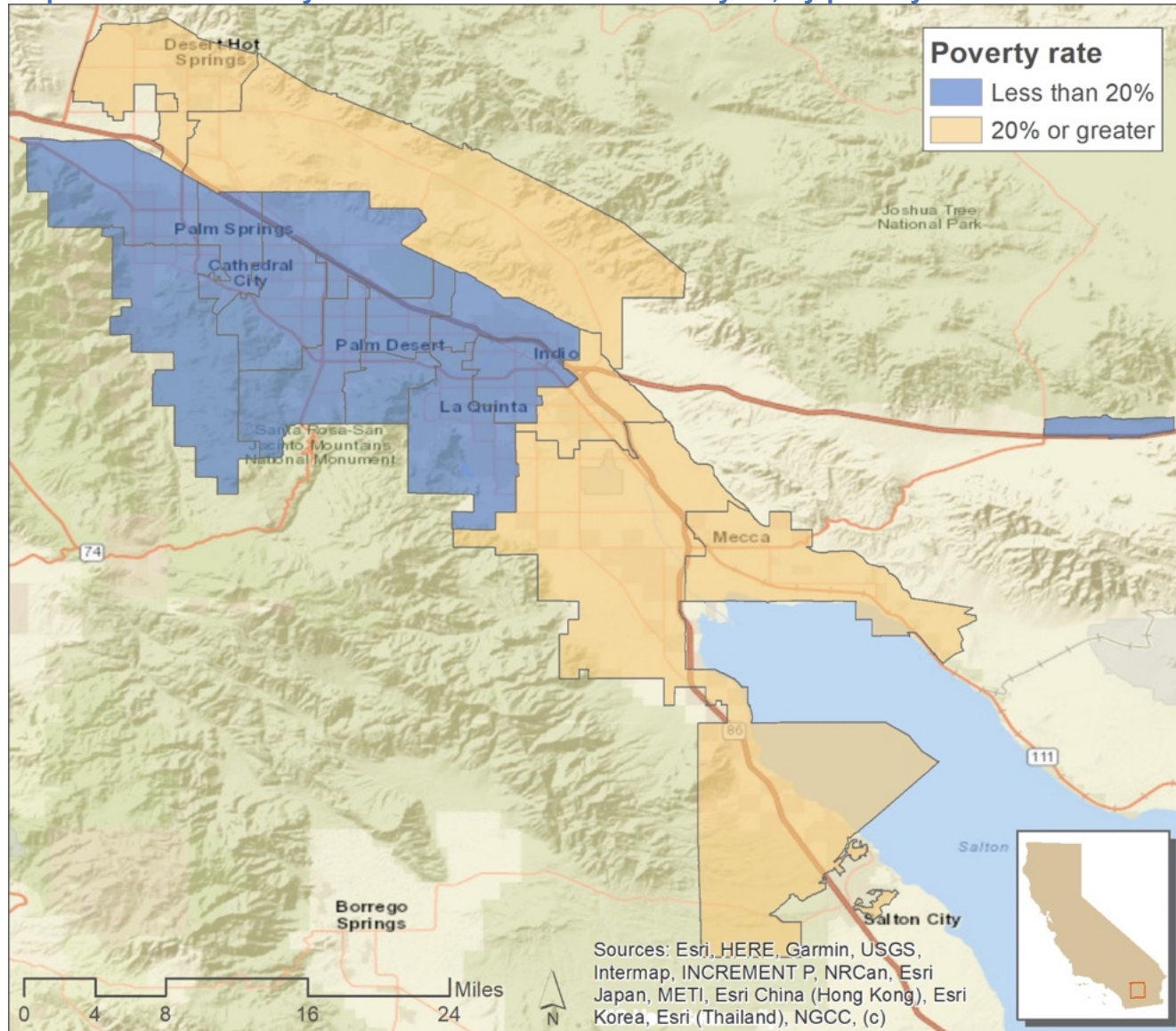


Table 2. Social and economic indicators for lower-poverty (<20%) and higher-poverty (≥20%) ZIP codes in the Coachella Valley

Indicator	Higher-poverty ZIP codes	Lower-poverty ZIP codes
Median household income	\$33,000	\$59,000
Proportion Hispanic residents	78%	39%
Proportion White residents	48%	75%
Health insurance rate	83%	91%
Proportion of residents with a high school degree	59%	86%

We also partnered with Comité Civico del Valle, a community organization in the Imperial Valley, to perform a health survey of 158 individuals in 7 low-income communities to supplement administrative ED and hospitalization data. Surveys are an important tool for understanding the full scope of disease burden, particularly in lower-income communities where administrative data may be less able to accurately capture the full scope of a community's disease burden because of lower insurance rates, reduced healthcare access, greater distrust in healthcare setting, and other possible reasons. We found that 11% of respondents reported having been diagnosed or treated for asthma,

but 20% of respondents *who had never been diagnosed with asthma* reported symptoms consistent with asthma. This suggests that asthma in these communities may be a greater public health burden than is shown in administrative hospital data. Improving access to care and providing more preventive care for these communities may improve the population's respiratory health.

Our findings are consistent with previous research demonstrating higher rates of morbidity in poorer communities across multiple health conditions. There are many social, economic, health, and environmental factors that contribute to higher rates of illness in these communities, such as lower rates of health insurance; fewer health promoting resources; reduced economic opportunities; higher stress levels resulting from more frequent racial discrimination and economic depravity; lower educational attainment; higher risk for environmental hazards at home, school, and work; and many other potential contributing factors.

No single intervention will eliminate persistent and pervasive health inequities. Rather, policies will need to address multiple contributing factors across social, economic, and environmental arenas. This report's focus is on policies to improve air quality and reduce air pollution-related diseases, and offers policy actions that can be taken by Desert Healthcare Foundation to support improved air quality and public health.



Achieving Air Pollution Reductions in the Coachella Valley

Air pollution in the South Coast AQMD and the Coachella Valley is emitted from a variety of sources regulated by overlapping federal, state, and local authorities. The primary goal of enforcement activities is to enforce existing air control regulations and protect public health.

Two recent air pollution control plans are the blueprint for future emission reductions in the Coachella Valley. The *Eastern Coachella Valley (ECV) Communities Emission Reduction Plan (CERP)* emerged from a community-driven process, mandated by Assembly Bill (AB) 617 to reduce air pollution in environmental justice communities. The ECV CERP, published in July 2021, “outlines goals and actions by the Community Steering Committee (CSC), the South Coast AQMD, and the California Air Resources Board (CARB) to reduce air pollution in the ECV community and improve public health.” The central focus of the CERP is on reducing particulate matter pollution, including diesel particulate matter, in highly impacted communities.

The 2022 *South Coast AQMD Air Quality Management Plan (AQMP)* provides a long-term plan for meeting Federal air quality guidelines in the Air District. The 2022 AQMP builds upon existing air quality control measures and provides further policy guidance for bringing air pollution into federal attainment. The focus of the 2022 AQMP is on attaining the NAAQS ozone standard throughout the South Coast AQMD.

Together, these documents outline actionable practices and policies to reduce ozone and particulate matter in the Coachella Valley. The plans are ambitious in scope and will require substantial emissions reductions above and beyond existing control measures.

Eastern Coachella Valley Community Emissions Reduction Plan – AB 617

Assembly Bill (AB) 617 was passed in 2017 to address disproportionate air pollution impacts in environmental justice communities.¹¹ As part of this legislation, local air districts must develop and adopt a Community Emissions Reduction Plan (CERP) within a year after an area is designated as an AB 617 community. The CERP must be developed in consultation with CARB, community-based organizations, affected sources, and local governmental bodies. A draft Eastern Coachella Valley (ECV) CERP was presented to AQMD’s governing board in December of 2020, and the plan was finalized in July 2021.

The ECV CERP seeks to address air pollution priorities identified through a collaborative and community-engaged process. The CERP process recognized that air pollution issues in the Coachella Valley are unique from those in the rest of the South Coast AQMD, including higher levels of PM₁₀, and tailored solutions accordingly. Identified air pollution priorities included the Salton Sea, pesticides, open burning and illegal dumping, fugitive road dust and off-roading, diesel mobile sources, and the Greenleaf Desert View Power Plant. Diesel particulate matter (DPM) was identified as the “main air toxic pollutant in the community”.

The CERP identified 15 goals and numerous specific actions to reduce air pollution in the ECV community (Table 3). These actions are in addition to or reaffirming of ongoing efforts and regulations by South Coast AQMD, CARB, United States Environmental Protection Agency (EPA), and Tribal EPA. ECV CERP goals and actions are summarized below. Additional details on goal activities and timelines are available in the final CEPR.

The common focus of CERP goals and actions are:

- > Improved information sharing and community engagement in air pollution regulations, enforcement, and planning;
- > Greater collaboration between responsible local, regional, and state agencies;
- > Increased air pollution monitoring, data, and community education;
- > Reductions of air pollution emissions; and
- > Interventions to mitigate air pollution exposures.

Table 3. Eastern Coachella Valley (ECV) Community Emissions Reduction Plan (CERP) goals and actions identified to reduce air pollution and air pollution impacts.

Land Use Planning
Goal: Coordinate with relevant agencies to implement community plans and develop strategies to lessen cumulative impacts from land use and reduce emissions and exposures. <i>Actions:</i> Improved outreach and communications on California Environmental Quality Act–Intergovernmental Review program, tree planting, incentive low-emission mobile source projects, funding for home weatherization and other initiatives, and improved cross-agency collaboration.
Salton Sea
Goal: Expand air monitoring networks and improve notification systems related to the Salton Sea. <i>Actions:</i> Expand hydrogen sulfide and PM₁₀ monitoring, greater research on air quality baseline and Salton Sea soil composition, and increased collaboration in the community.
Goal: Reduce emissions from the Salton Sea. <i>Actions:</i> Partner with other agencies to improve air pollution and dust data, implement dust suppression projects, and mitigate pesticide runoff into the Salton Sea. Perform outreach on dust regulations and best practices to reduce dust emissions, and partner with communities to outreach regarding Salton Sea impacts and dust complaints.
Goal: Reduce air pollution exposures from the Salton Sea. <i>Actions:</i> Identify and secure funding for air filtration systems and weatherization projects, partner with community organization to conduct community outreach on air quality data, conduct educational outreach on air pollution mitigation, and identify tree planting opportunities.
Pesticides
Goal: Gather Information and conduct air monitoring for pesticides. <i>Actions:</i> Identify pesticides used in the Coachella Valley; support pesticide air monitoring, data analysis, and interpretation; support and coordinate pesticide sampling and analysis; share information on statewide efforts for pesticide notification systems.
Goal: Pursue pesticides emissions and exposure reductions. <i>Actions:</i> Evaluate community health risks, increase outreach regarding and seek to improve pesticide regulations, identify funding for pesticide exposure reduction projects, and establish partnerships to reduce pesticide emissions and exposures.
Fugitive Road Dust and Off-Road Dust
Goal: Expand monitoring networks for PM₁₀. <i>Actions:</i> Identify opportunities to expand existing PM₁₀ monitoring, provide real-time data, and implement data calibration protocols.

Goal: Reduce emissions from fugitive road dust and off-roading. <i>Actions:</i> Pursue partnerships needed to implement paving projects, identify funding to reduce road dust emissions, partner with community to address road-dust concerns, and evaluate the need for additional regulations and/or outreach efforts.
Goal: Reduce exposure from fugitive road dust and off-roading. <i>Actions:</i> Outreach to the community regarding air quality alerts and identify funds for air filtration systems and home weatherization projects.
Open Burning and Illegal Dumping
Goal: Improve Monitoring Network. <i>Actions:</i> Work with the CSC to establish a PM_{2.5} air quality sensor network, quantify air quality impacts, and provide better air quality information to the community.
Goal: Reduce Emissions from Open Burning. <i>Actions:</i> Leverage collaborative partnerships to reduce open burning through enforcement, outreach, and additional regulations; pursue funds for equipment or service alternatives to agricultural burning; conduct outreach to encourage best burn practices and to report suspected illegal burning.
Goal: Reduce Exposure to Open Burning. <i>Actions:</i> Partner with other agencies and community organizations for community outreach and education, pursue opportunities to develop a notification system for permitted burnings, and identify funding sources for weatherization projects near frequent burn sites.
Goal: Reduce Illegal Dumping. <i>Actions:</i> Pursue collaboration to reduce illegal dumping, perform community outreach on reporting of illegal dumping, and pursue funds for mitigations to reduce illegal dumping.
Diesel Mobile Sources
Goal: Reduce Emissions and Exposure from Diesel Mobile Sources. <i>Actions:</i> Prioritize diesel emission reductions based on community input, identify incentives to replace high-pollution diesel sources, identify funds to replace school buses with zero/near-zero emission vehicles, and identify funds to install zero emission charging infrastructure.
Greenleaf Desert View Power Plant
Goal: Reduce Emissions from Greenleaf Desert View Power Plant. <i>Actions:</i> Work with partners to identify and mitigate community concerns regarding the power plant, and consider requiring all future funds from the power plant be committed to reduce air pollution in ECV.

South Coast AQMD 2022 Air Quality Management Plan

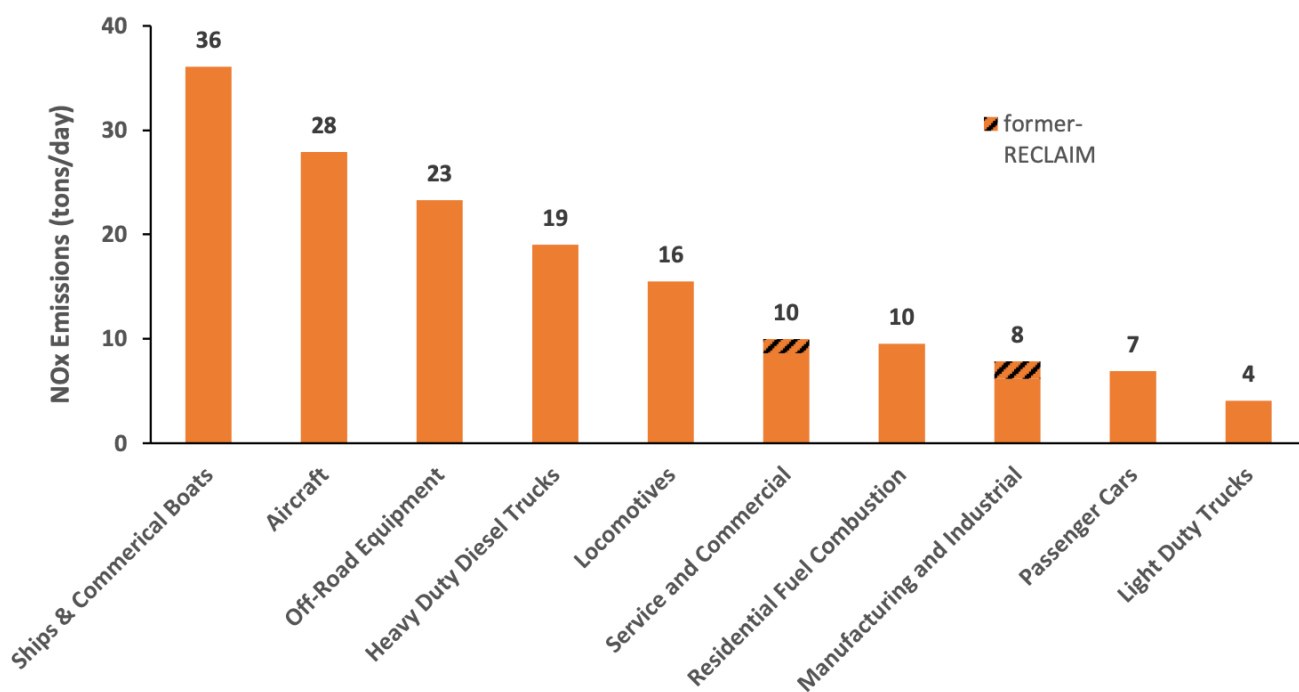
Any area that does not meet NAAQS must submit a State Implementation Plan (SIP) to the U.S. EPA to show how the area will meet federal air standards. The U.S. EPA has designated the South Coast Air Basin as “extreme” nonattainment and the Coachella Valley as “severe-15” nonattainment for the 2015 8-hour ozone standard.

In 2022, South Coast AQMD submitted their Air Quality Management Plan (AQMP) and federally required SIPs. The AQMP provides a framework for attaining the 2015 8-hour ozone standard of 70 parts per billion (ppb) by the year 2037. The plan was developed through a multi-agency effort that included South Coast AQMD, CARB, the Southern California Association of Governments, and the U.S. EPA, and the process incorporated public feedback from private, academic, nongovernmental, and community groups.

To meet the 2015 8-hour ozone standard, emissions of nitrogen oxide (NO_x) – the primary pollutant that creates ozone – must be cut by 67%, to 60 tons per day of NO_x. South Coast AQMD has determined that there is “no viable pathway” other than widespread adoption of zero-emission technologies for all stationary and mobile sources throughout the region in order to meet target ozone reductions.

Approximately 20% of projected future NO_x emissions fall under the jurisdiction of South Coast AQMD, primarily from stationary sources. Most NO_x emissions are under the jurisdiction of State (34%) or federal regulators (46%) and include emissions from heavy trucks, ships, and other mobile sources (Figure 2). Therefore, significant action on the part of the U.S. EPA is needed to meet ozone attainment. Furthermore, transitioning to widespread zero and low-emission technologies will require “black box” measures – these may be new or advanced technologies or further regulated emissions reductions that are not yet identifiable. These advanced technologies will require significant public and private investments.

Figure 2. Largest NO_x emission sources projected for 2037 in tons per day. Source: AQMD.



Federal, state, and regional entities will need to pursue multiple approaches and control measures for NO_x and targeted VOC emission reductions to attain the federal ozone standard by 2037 (Table 4).

Table 4. Summary NO_x and VOC emissions reductions needed to reach attainment by 2037 under the Air Quality Management Plan, by emission source (tons per day). Source: AQMD.

	NO_x Emissions	VOC Emissions
Year 2037 Projected Baseline	184	339
Emission Source Reductions		
South Coast AQMD Stationary Sources	19	1
South Coast Stationary Sources – further clean technologies needed	3	0
South Coast AQMD Mobile Sources	7	0
CARB's Zero Emissions Standard for Space and Water Heaters	3	0
Sources under CARB Authority (except residential and commercial space and water heaters)	30	17.5
Primarily Federally and Internationally Regulated Sources (CARB Measures)	11	0.5
Primarily Federally and Internationally Regulated Sources (Federal action needed)	51	3
Total Reductions (all measures)	125	22

Stationary and area-wide emission reductions include:

- > NO_x control measures, including zero emission technologies across large and small stationary and mobile sources, achieved through rulemaking processes and incentive programs. South Coast AQMD will prioritize incentive funding in EJ communities.
- > Co-benefits gained from climate and energy efficiency programs.
- > Limited and strategic reductions in volatile organic compounds (VOC).

Mobile source control measures include:

- > Emission growth management to reduce emissions from development projects by working with land use planners, developers, and other agencies.
- > Reductions from facility-based mobile sources, such as ports and railyards.
- > Emission reductions from on-road and off-road mobile sources.
- > Incentive funding to encourage the early deployment of cleaner sources.

AQMD control measures include “black box” NO_x reductions of 3 tons per day for stationary sources and 7 tons per day for mobile source incentives. AQMD notes that black box reductions for U.S. EPA regulated sources – including aircrafts, ships, and international trucks – will need to be much larger at 58 tons per day. This is because the U.S. EPA has not yet adopted aggressive NO_x control measures for these sources.



Policy Actions and Strategies

We found that average rates of certain respiratory and cardiovascular health conditions in the Coachella Valley are similar to Statewide averages. However, this population-wide average disease rate hides substantial disparities in illness rates in higher-poverty ZIP codes. In addition, rates of some respiratory illnesses may be higher than expected based on state administrative data alone, as 20% of residents surveyed in high-poverty communities reported experiencing respiratory symptoms, despite never receiving a clinical diagnosis.

Coachella Valley's higher-poverty communities are at an increased risk of being uninsured and have lower rates of educational attainment. This was reiterated by a 2023 market analysis for Desert Healthcare Foundation that identified "High Risk" communities in the Coachella Valley.¹² The communities in the market analysis defined as High Risk were inclusive of all the high-poverty ZIP codes demarcated in this air pollution and health report. Their analysis also found higher overall rates of illness in these High Risk areas and noted a higher risk for transportation challenges and housing insecurity in these communities. These data underline the multiple health, social, and economic challenges faced by lower-income communities in the Coachella Valley.

Socioeconomic challenges are compounded by environmental risks. The Coachella Valley is designated a nonattainment area for both 8-hour ozone and PM₁₀, and residents face elevated risks from these pollutants. Sources of particulate matter pollution are varied and include (but are not limited to) dust from the Salton Sea and agricultural activities, emissions from petroleum combustion, and biomass burning.

Air pollution risks will be the highest for households living near pollution sources, residents living in substandard or poorly ventilated housing, and for individuals also impacted at work (such as outdoor laborers and industrial workers). Ambitious plans exist for reducing both particulate matter and ozone, and reductions in air pollution will positively impact public health for all Valley residents. Additional social, economic, and public health support systems would benefit residents living in the most impacted communities.

Overall, core findings indicate that:

- > Coachella Valley residents face high rates of ozone and particulate matter air pollution. High rates of air pollution negatively impact public health.
- > Particulate matter pollution comes from varied and complex sources. Sources of concern include dust from the Salton Sea and agricultural activities, emissions from petroleum combustion, and biomass burning.
- > Residents living in high-poverty communities experience health disparities in cardiovascular and respiratory disease compared to low-poverty communities. Residents from the most vulnerable communities may be more likely to be living with undiagnosed respiratory health conditions.
- > Multiple overlapping social and economic challenges are likely to also impact overall health risks in high-poverty communities.
- > Ambitious air pollution reduction plans aim to reduce both particulate matter and ozone in the Coachella Valley and the entire South Coast Air Quality Management District. These reductions will benefit the public health of all residents.

Policy recommendations are presented here as near-term, medium-term, and long-term actions and strategies. These recommendations aim to benefit environmental health conditions experienced in the community and support lasting and sustainable air pollution reductions throughout the region.

Near-Term Actions and Strategies

Identify and Address Resident Needs for Healthcare Access and Clinical Services

Coachella Valley residents currently experience high levels of air pollution. Air pollution contributes to many poor health outcomes. We found that there are large disparities in respiratory and cardiovascular health conditions between low- and high-poverty communities in the Coachella Valley. Furthermore, there is evidence that some of the most vulnerable residents in the Coachella Valley may be living with undiagnosed and unmanaged respiratory symptoms.

- > The Desert Healthcare Foundation can continue its work to expand access to health services and preventative care in the Valley. This process may include continued growth in community relationships and trust, the identification of barriers to health insurance and healthcare services, and deeper reach into high-risk communities to identify the most vulnerable and clinically underserved households.
- > The Foundation can also continue to improve the diagnosis and management of existing air quality-related health conditions, including respiratory and cardiovascular disease risks and outcomes, especially among the most vulnerable patients.

Continue to Advance Health Equity Throughout All Policy Arenas

Leveraging air quality planning and policy to benefit the social and economic well-being of low-income communities will provide more impactful public health benefits than reducing pollution alone. The pursuit of equitable policies will rely on the developing and sustaining long-term relationships and collaborations with local residents, community organizations, businesses, and governmental entities throughout the Coachella Valley.

- > As the Air District and Coachella Valley pursue sharp reductions in air pollution emissions, DHCF can advocate for the development of equitable policies that positively impact vulnerable and low-income households. This work may open up new policy arenas for engagement and advocacy, based on community needs and policy opportunities.

Medium-Term Actions and Strategies

Accelerate Organizational Emission Reductions

Ozone reduction plans in the South Coast Air District will require stringent reductions in emissions across all sectors. The South Coast Air Management District notes that there is “no viable pathway” to achieve ozone attainment by 2037 other than widespread adoption of zero-emission technologies for all stationary and mobile sources throughout the region.

- > The Desert Healthcare Foundation can lead in the community by advancing its own internal emissions reductions, including an audit of existing emissions and the acceleration of zero and low emissions technologies throughout its operations.

Develop Collaborative Relationships to Advance Emission Controls in the Coachella Valley

The Desert Healthcare Foundation is uniquely positioned to collaborate and engage with community residents, community-based organizations, air regulators, governmental entities, and the private sector in air quality improvement planning and implementation efforts.

- > DHCF can participate in identifying community needs, pursuing and monitoring air quality goals established in emission reduction plans, and leveraging emission reduction interventions to benefit community health. Growing collaborative, long-term relationships with parties engaged in air pollution control will support the Foundation's efforts to improve air quality and public health in the Coachella Valley.
- > Specific strategies may include prioritizing and targeting high-poverty communities for emission reduction initiatives – such as home weatherization, electric vehicle/transit access and infrastructure, and appliance upgrades.

Long-Term Actions and Strategies

Support Emission Control Efforts Put Forth in the *AQMD Air Quality Management Plan (AQMP)* and the *AB 617 Community Emissions Reduction Plan (CERP)*

The AQMP and CERP are bold blueprints for the monitoring, control, and reduction of air pollution emissions in the South Coast Air District and the Coachella Valley. The AQMP is focused on ozone attainment by 2037 and requires the aggressive and widespread adoption of low and zero emissions technologies. The AB 617 CERP for the Eastern Coachella Valley is focused on reductions in particulate matter pollution and will necessitate close collaboration between regulatory agencies at multiple levels of government, community residents, and community organizations.

- > The Desert Healthcare Foundation can support and advocate for air pollution reductions put forth in these plans, with a unique perspective on ensuring healthy and equitable outcomes in the community. DHCF can position itself as a trusted collaborator and facilitator in processes to advance public health in the Coachella Valley.

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