

Open Space in Palmdale

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PALMDALE 2045
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Chapter 15

Air Quality

The Air Quality Element establishes goals and policies related to protecting, maintaining, and enhancing air quality within Palmdale.

Statutory Requirements

The federal and state government each regulate air quality by monitoring and limiting emission of airborne pollutants. Both levels of government have established ambient air quality standards for outdoor concentrations of various pollutants that are used to determine the adequacy of a community's air environment. Per California Government Code Section 65302, objectives and policies centered around air quality are geared toward reducing the unique or compounded health risks in disadvantaged communities by means that include, but are not limited to, the reduction of pollution exposure, including the improvement of air quality, and the promotion of public facilities, food access, safe and sanitary homes, and physical activity.

Federal Clean Air Act

The Federal Clean Air Act (FCAA) is the comprehensive federal law that regulates air emissions at the national level. The goal of the Act is to protect public health by ensuring that air quality across the United States meets the recommended guidance to protect human wellbeing. The law grants the United States Environmental Protection Agency (USEPA) the authority to establish National Ambient Air Quality Standards (NAAQS). Through the FCAA, the USEPA requires states to develop state implement plans (SIPs) that outline strategies to meet the established national standards. Federal and state standards have been established for ozone, CO, NO₂, SO₂, PM₁₀, PM_{2.5}, and Pb. The national and state ambient air quality standards have been set at levels whose concentrations could be generally harmful to human health and welfare, and to protect the most sensitive persons from illness or discomfort with a margin of safety.

California Air Resource Board

The California Air Resource Board (CARB) is a regulatory body that establishes standards and procedures for adequate air quality across the state. The state air quality standards regulated by CARB are known as the California Ambient Air Quality Standards (CAAQS). Local control in air quality management is provided by CARB through multi-county and county-level Air Pollution Control Districts (APCD). CARB establishes statewide air quality standards and is responsible for the control of mobile emission sources, while the local APCDs are responsible for enforcing standards and regulating stationary sources. Palmdale is under the jurisdiction of the Antelope Valley Air Quality Management District (AVAQMD), with monitoring contracted to the Mojave Desert Air Quality Management District. The California Air Resource Board (CARB) is a regulatory body that establishes standards and procedures for adequate air quality across the state. The state air quality standards regulated by CARB are known as the California Ambient Air Quality Standards (CAAQS). Local control in air quality management is provided by CARB through multi-county and county-level Air Pollution Control Districts (APCD). CARB establishes statewide air quality standards and is responsible for the control of mobile emission sources, while the local APCDs are responsible for enforcing standards and regulating stationary sources. Palmdale is under the jurisdiction of the Antelope Valley Air Quality Management District (AVAQMD), with monitoring contracted to the Mojave Desert Air Quality Management District.

Relevant Plans & Documents

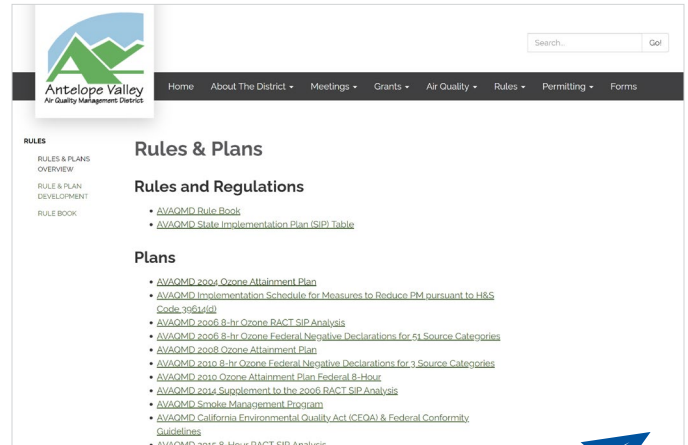
AVAQMD Air Quality Management Plan

Under state law, the AVAQMD is required to prepare a plan for air quality improvement for pollutants for which the district is in non-compliance. The AVAQMD updates the plan every three years. Each iteration is an update of the previous plan and has a 20-year horizon. AVAQMD released the final 2016 Air Quality Management Plan (AQMP) in March 2017. It provides a comprehensive and integrated plan primarily focused on addressing ozone standards. The plan is a regional and multi-agency effort involving AVAQMD, CARB, the Southern California Association of Governments (SCAG), and the USEPA.

AVAQMD Attainment Planning Documents

The AVAQMD has several additional planning documents that are prepared to facilitate regional compliance with air quality standards. In the Los Angeles County portion of the Mojave Desert Air Basin (MDAB), the AVAQMD is required to prepare a plan for improvement for the air pollutants for which the MDAB is in non-attainment. The AVAQMD has developed the following federal and State attainment planning documents:

- 8-hour Reasonably Available Control Technology State Implementation Plan (SIP) (2015)
- 8-hour Ozone Standards State Implementation Plan: Coachella Valley and Western Mojave Desert 8-hour Ozone Nonattainment Areas (2014)
- 2008 Ozone Early Progress Plans
- 2007 Mojave Desert Ozone Attainment Plan
- 2004 Antelope Valley Ozone Attainment Plan



AVAQMD Attainment Planning Documents



Context

Climate and Topography

As noted above, Palmdale is located in the MDAB, which is under the jurisdiction of the AVAQMD. The AVAQMD is the local air quality management agency responsible for monitoring the local air pollutant levels to ensure that state and federal air quality standards are met. The MDAB is characterized by mountain ranges and valleys, with frequent prevailing winds originating from the coastal and central regions.

Palmdale is located in northern Los Angeles County within Antelope Valley. Antelope Valley is located on the western side of the Mojave Desert which stretches approximately 3,000 square miles. The Antelope Valley is separated from the San Joaquin Valley on the northwest by the Tehachapi Mountains. It is also divided by the San Gabriel Mountains on the south and southwest. Isolated buttes distinguish the north and east boundaries of the Antelope Valley. Palmdale is dominated by the region's Pacific high-pressure system, which contributes to the area's hot, dry summers, and relatively mild winters.

Air Pollutants of Primary Concern

The United States EPA and the CARB have established ambient air quality standards for certain "criteria" pollutants. Criteria pollutants are those pollutants in which the relative atmospheric concentrations are indicators of overall air quality. The primary criterion pollutants for which EPA and CARB standards exist include ozone (O₃), carbon monoxide (CO), suspended particulates (PM₁₀), fine particulate matter (PM_{2.5}), lead (Pb) and sulfur dioxide (SO₂). Ambient criteria air pollutant concentrations are affected by the rates and distributions of corresponding air pollutant emissions, as well as by the climate and topographic influences discussed above. The primary determinant of concentrations of non-reactive pollutants, such as carbon monoxide (CO) and suspended particulate matter, is proximity to major sources. Ambient CO levels usually closely follow the spatial and temporal distributions of vehicular traffic. The primary pollutants of concern includes ozone, carbon monoxide, nitrogen dioxide, suspended particles, lead, Toxic Air



Aerial View of Palmdale

As a result of its location and extreme heat of the Mojave Desert, Palmdale's air quality is greatly impacted by transport air pollution which is sourced from the poor air quality areas of the Los Angeles Basin and San Joaquin Valley. In Southern California, pollutants are transported from upwind areas to the inland areas, including Palmdale. The pollutant transport pattern degrades the local air quality within the City of Palmdale and the surrounding jurisdictions.

Contaminants (TAC), and sulfur. See the Air Quality section in the Existing Conditions Report for a description of each pollutant of concern.



Retired Boeing 747

Existing Ambient Air Quality

As mentioned above, the USEPA and CARB have established ambient air quality standards for major pollutants, including O₃, CO, NO₂, SO₂, Pb, PM₁₀, and PM_{2.5}. Standards have been set at levels intended to be protective of public health. California standards are more restrictive than federal standards for each of these pollutants except for lead and the eight-hour average for CO.

Attainment Status

Local air districts and CARB monitor ambient air quality to ensure that air quality standards are met and develop strategies to meet the standards when they are not met. As part of this effort, the local air district must sample local air quality via regional monitoring stations. These air quality monitoring stations measure pollutant ground-level concentrations at multiple locations. Depending on whether

the state and federal standards are met, the local air basin is classified as in “attainment” or “non-attainment.” Some areas are unclassified, which means no monitoring data are available, but the area is considered to be in attainment.

Table 15.1 summarizes the California Ambient Air Quality Standards (CAAQS) and the National Ambient Air Quality Standards (NAAQS) for each criteria pollutant as well as the attainment status of the MDAB. As shown in the table, the MDAB is in non-attainment for the State and Federal standards for ozone. Table 15.1 also shows how the reported local levels for Palmdale in terms of ozone, PM₁₀, PM_{2.5} and nitrogen dioxide are in line with State and National standards.

Table 15.1

Ambient Air Quality Measurements and Basin Attainment Status

Pollutant	Averaging Time	Local Measurements (2020)	California Standard (CAAQS)	MDAB Attainment Status for California Standard	Federal Standard (NAAQS)	MDAB Attainment Status for Federal Standard
Ozone	1-hour 8-hour	0.099 ppm 0.084 ppm	0.09 ppm 0.07 ppm	Non-Attainment	n/a 0.075 ppm	Non-Attainment
Carbon Monoxide	1-hour 8-hour	** **	20.0 ppm 9.0 ppm	Attainment	35.0 ppm 9.0 ppm	Attainment/ Unclassified
Nitrogen Dioxide	1-hour Annual	0.052 **	0.18 ppm 0.03 ppm	Attainment/ Unclassified	100 ppb 0.053 ppm	Attainment/ Unclassified
Sulfur Dioxide	Annual 24-hour 1-hour	** ** **	** 0.04 ppm 0.25 ppm	Attainment	0.03 ppm 0.14 ppm 75 ppb	Attainment/ Unclassified
PM ₁₀	Annual 24-hour	** 192.3 µg/m ³	20 µg/m ³ 50 µg/m ³	Non-Attainment	n/a 150 µg/m ³	Non-Attainment
PM _{2.5}	Annual 24-hour	** 74.7 µg/m ³	12 µg/m ³ n/a	Non-Attainment	150 µg/m ³ n/a	Attainment/ Unclassified
Lead	30-Day Quarter 3- Month avg	** ** **	1.5 µg/m ³ ** **	Attainment	n/a n/a 1.5 µg/m ³	Attainment/ Unclassified

Source: California Air Resource Board (CARB 2022); Mojave Desert Air Quality Management District (MDAQMD 2022).

Note: Ambient air pollutant concentrations in Palmdale are monitored in the City of Lancaster. Local monitoring occurs on an annual basis. Attainment status determination is based on historical monitoring and undergoes approval by CARB and EPA after continuous attainment is shown.

ppm = parts per million
µg/m³ = micrograms per cubic meter
ppb = parts per billion

n/a = not applicable
** = Data not available, not reported by local monitoring stations

Source Categories

CARB provides emissions estimates from various sources, including stationary, areawide, and mobile sources. Areawide emissions tend to be released from smaller operations and therefore are commonly found and not location specific. Examples of areawide emissions include the use of consumer products, fireplaces, road dust, and farming operations. Stationary source emissions are attributed to large operations emitted at one concentrated location. Examples of stationary sources include pollutants generated by industrial and manufacturing activities. Mobile source emissions are those emissions from on- and off-road motor vehicles that generate tailpipe and evaporative emissions. Examples of mobile sources include cars, buses, trucks, ships, trains, aircraft, and various other vehicles. According to the statewide emissions inventory and estimates, mobile sources are the largest contributor to annual CO and NOx emissions in California.

As mentioned previously, the AVAQMD is considered to be in nonattainment for Ozone and PM10. Most ozone in the atmosphere is formed as a result of the interaction of ultraviolet light, reactive organic gases (ROG), and oxides of nitrogen (NOX). NOX emissions in California are primarily sourced from mobile sources, especially vehicles. The primary roadways in the Antelope Valley are SR-14 and State Route 138. Both arterials carry a substantial amount of daily commute traffic from the region into the Greater Los Angeles Basin. In addition, Air Force Plant 42 has historically been a source of ozone emissions, a result of aircraft operations and aerospace development and manufacturing. Particulate matter exposure has been associated with distance of residences to freeways. Roadway dust is a primary source of PM10 for communities across California.

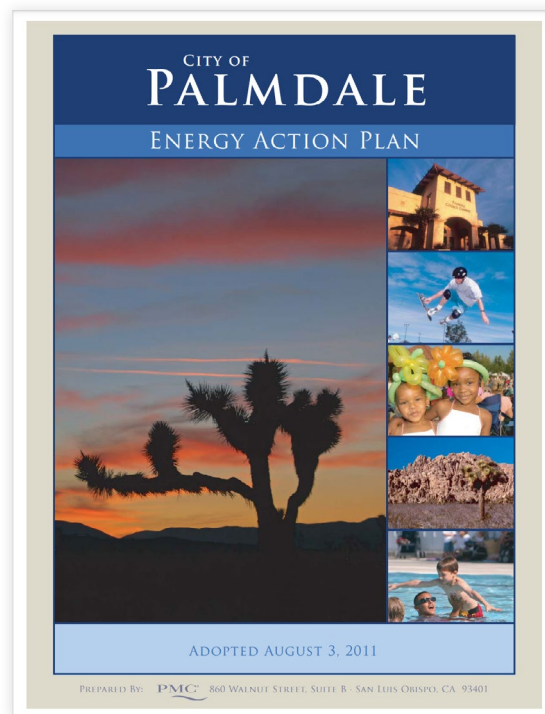
Greenhouse Gas Emissions

The Sustainability, Climate and Resilience Element focuses on the reduction of greenhouse gas (GHG) emissions in the community. The City of Palmdale developed an Energy Action Plan in 2011. The Plan utilizes a GHG emissions inventory for the year 2005 as a baseline for the developed reduction targets. In 2017, the city emitted approximately 1,042,284 metric tons of carbon dioxide equivalent (MTCO₂e) within City limits. Transportation related emissions are the largest contributor to community emissions, accounting for 59%, followed by residential energy use, accounting for 19%, and nonresidential energy use, accounting for 16% of emissions.⁷⁶

Palmdale has set the following GHG reduction targets consistent with State policy:

- 40% below 1990 levels by 2030 (SB 32)
- Carbon neutrality by 2045 (EO B-55-18)

⁷⁶ Nonresidential energy use data for 2017 is not fully complete because of privacy and aggregation laws that prevent the utilities from providing information for certain customer types. Nonresidential gas and electricity use is likely higher, which would increase total greenhouse gas emissions.



Desired Outcomes, Indicators, and Targets

The following desired outcomes and metrics were identified to help the City of Palmdale track progress toward maintaining and enhancing air quality. This process follows the City of Palmdale’s General Plan Vision and Guiding Principles document which was informed by the General Plan Advisory Committee (GPAC), the Planning Commission and City Council.

Top Key Outcomes

OUTCOME: Meet state and federal standards for all criteria air pollutants⁷⁷.

KPI:

- Regional air quality

TARGET:

- Achieve state and federal air quality standards for all criteria pollutants.

OUTCOME: Reduce VMT per capita, VMT per employee, and improve air quality through land use decisions that reduce travel distances and increase use of alternative transportation modes.

KPI:

- VMT

TARGET:

- Achieve VMT per capita below the current Citywide per capita average for new development in accordance with the Office of Planning Research (OPR) recommendation.

KPI:

- Transit ridership

TARGET:

- Increased transit ridership.



KPI = Key Performance Indicator

⁷⁷. Note that the City only constitutes a portion of the local air basin so the City lacks complete control over this outcome.

⁷⁸. “BYD Articulated Bus” by Nate Pitkin, licensed under CC BY-SA 4.0

Goals and Policies

The following section includes goals and policies for the Air Quality Element, followed by implementation actions. Some air quality policies are woven throughout the General Plan, including in the Circulation and Mobility, Equitable and Healthy Communities, Sustainability, Climate Action and Resilience Elements, among others.

CIRCULATION

Goal AQ-1

Minimize local air pollution caused by motor vehicles.

AQ 1-1 Reduced work-related trips.

Reduce the number and length of work-related trips through such means as providing a balance of jobs and housing in the community, promoting alternate work schedules, telecommuting, teleconferencing, company-sponsored ride-share and alternative fuel vehicle programs, use of commuter trains and other alternative modes of transportation to the workplace, creation of additional park and ride facilities, and improving the fiber optic network and connectivity.

AQ 1-2 Reduced Non-Work Trips.

Reduce motor vehicle non-work trips through such means as location of residences in proximity to shopping and recreation/entertainment destinations, transit system improvements, and promoting merchant transportation incentives, and distance learning.

AQ 1-3 Improve Traffic Flow. Reduce vehicle emissions by maintaining and improving traffic flow per the Mobility Element.

AQ 1-4 High Occupancy Vehicle Lanes. Coordinate with Caltrans to promote high occupancy vehicle lanes on SR-14.

AQ 1-5 Reduced Tailpipe Emissions.

As technology allows, reduce tailpipe emissions from City vehicles by replacing them with alternative fuel vehicles and encourage reduction of emissions from private vehicles through such means as reducing parking requirements and providing preferential parking for alternative fuel vehicles and bicycles.

AQ 1-6 Airport Emissions Control.

To the extent practicable, reduce emissions from the future Palmdale Regional Airport by purchasing renewable energy, installing airport renewable energy systems, reducing energy consumption, monitoring the efficiency of heating, ventilation, and colling systems, and purchasing low or zero emission vehicles and ground support equipment.

AQ 1-7 Expand Dial-A-Ride.

Expand services of the existing dial-a-ride program, resulting in reduced need for automobiles and parking by seniors and those with disabilities.

AQ 1-8 Environmentally Review

New Development. Use the environmental review process for new development applications to assess and, as necessary, mitigate the impacts of new development related to increased vehicle miles traveled.

AQ 1-9 Encourage transit and bike use. Provide incentives to residents who bike or use public transportation such as free or discounted public transit or employer-provided subsidies or reimbursements for residents willing to bike or use public transit.

AQ 1-10 Truck routes. Restrict freight to certain routes and times by adopting rules and regulations that prohibit the use of trucks in certain areas within Palmdale.

PARTICULATE MANAGEMENT

Goal AQ-2

Minimize particulates less than 10 microns in size (PM10) and minimizes activities that generate dust.

AQ 2-1 Vegetative Stabilization. Reduce roadway dust by requiring paving or vegetative stabilization of unpaved roads and parking lots.

AQ 2-2 Construction Site Requirements. Require measures at construction sites to prevent deposition of soil onto public right-of-way.

AQ 2-3 Natural Contours. Encourage developers to maintain natural contours to the greatest degree possible, to eliminate the need for extensive land clearing, blasting, ground excavation, grading and cut and fill operations.

AQ 2-4 Erosion and Dust Control Measures. Require erosion and dust control measures for new construction, including covering soil with straw mats or use of chemical soil and dust binders during site grading, followed by hydroseeding and watering disturbed construction areas as soon as possible after grading to prevent fugitive dust.

AIR POLLUTION REDUCTION

Goal AQ-3

Reduction and/or elimination of unnecessary sources of air pollution.

AQ 3-1 AVAQMD and Proven Technologies. Promote the AVAQMD program to encourage local entities to install public electric vehicle charging stations to offer incentivize residents to purchase electric vehicles (e.g., vehicle buy-back program), and the Carl Moyer program, which aims to improve the local air quality by funding local, cost-effective projects to upgrade heavy-duty equipment (Gross Vehicle Weight Rating greater than 14,000 lbs.) using proven technologies.

AQ 3-2 Eliminate Emissions. Promote the AVAQMD's efforts to eliminate emissions from such sources as excessive car dealership cold starts, excessive curb idling, emissions from advertising vehicles, and emissions from leaf blowers, among others, through assisting with implementation and enforcement of AVAQMD programs and rules.

AQ 3-3 Complete Streets. Design a more effective street system by emphasizing complete streets which accommodate all modes of transportation.

AQ 3-4 Reduce Reactive Organic Gas. Reduce reactive organic gas (ROG) and particulate emissions from building materials and construction methods, by promoting the use of nonsolvent-based, high-solid, or water-based coatings, and requiring compliance with all pertinent AVAQMD rules.

AQ 3-5 Minimize Emissions. Minimize emissions of toxic air contaminants that contribute to climate change and ozone depletion, and that create potential health risks for residents, workers, and visitors.

AQ 3-6 Community Awareness. Promote community awareness of the effects of climate change and ozone depleting gases, as well as methods to minimize the creation of those gases, by preparing and distributing educational materials, and cooperating with AVAQMD in establishing regional programs.

AQ 3-7 Environmentally Review New Development Applications. Through the environmental review process for new development applications, ensure that emissions of toxic air contaminants are minimized and that any significant health effects associated with such contaminants are appropriately mitigated.

AQ 3-8 Green Technology Companies. Encourage non-polluting industry and clean green technology companies to locate in the city.

ENERGY CONSUMPTION

Goal AQ-4

Reduce air pollution caused by energy consumption.

AQ 4-1 EPIC Participation.

Encourage residents and business owners to participate in Energy for Palmdale's Independent Choice (EPIC).

AQ 4-2 Energy Conservation.

Encourage energy conservation from all sectors of the community by promoting and/or requiring the use of energy efficient appliances, processes, and equipment, and promoting energy audits and retrofits of existing structures.

AQ 4-3 Recycling.

Require local government, Palmdale citizens, and local businesses and industries to recycle, as mandated by state law, and to otherwise recycle to the maximum extent possible in accordance with the requirements of the Palmdale Municipal Code.

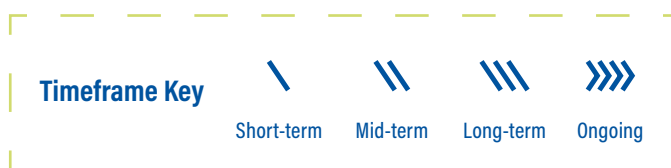
AQ 4-4 Solar Energy.

Require new developments to minimize obstruction of direct sunlight for solar energy systems on adjacent properties.

Implementation Actions

The table below identifies programs, planning efforts, coordination efforts, and other actions that will help implement the General Plan’s Air Quality goals and policies. Programs are consistent with this chapter’s goals and policies.

The table provides a description of each Implementation Action and lists the correlating policies. Each action also identifies a timeframe for implementation with Short-term representing a 1–3-year timeframe, Medium-term is 4-7 years, Long-term is 8+ years and Ongoing represents an action that the City should continue. Additionally, the table includes the City department that should function as the lead for implementing the actions.



Correlating Goal	Description	Timeframe	Responsible Department
AQ-1, AQ-2, AQ-3, AQ-4	Municipal Code Update: Update the Municipal Code to require new multi-family residential buildings and other sensitive land uses in areas with high levels of localized air pollution be designed to achieve good indoor air quality through landscaping, ventilation systems, filtration systems or other measures.	Short-term	Economic and Community Development, Public Works
AQ-1, AQ-3, AQ-4	Air Quality in Residential Areas: Identify locations in the city where residential uses are located in areas with high levels of air quality pollution and develop strategies to improve air quality such as tree planting and requiring use of electric powered lawn equipment.	Short-term	Economic and Community Development
AQ-1, AQ-3, AQ-4	Improve Interior Air Quality: Develop a campaign to provide homeowners with information regarding strategies for improving interior air quality.	Short-term	Economic and Community Development

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