Air Quality Control Commission Annual Report to the Public 2023-2024

COLORADO

Air Quality Control Commission

Department of Public Health & Environment

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Cover Photo Credit: Elizabeth Scherer, "Mary Carter Greenway Trail," winner of the 2024 Air Pollution Control Division Photo Contest.

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For more information about the Commission or to receive full URL addresses for hyperlinked information within this report, visit https://cdphe.colorado.gov/aqcc-about-the-commission or contact cdphe.aqcc@state.co.us or 303-692-3476.

Message from the Chair

The Air Quality Control Commission is the busiest it has ever been in five decades. With the leadership of Governor Polis and the Colorado General Assembly, together we have taken the urgency of the climate crisis seriously and enacted new rules to protect and improve air quality. Over the past year, we adopted aggressive, first-of-a-kind regulations tackling the state's most challenging air pollution issues. We have done this with your input, knowing that slowing the pace of climate change and improving air quality requires collaboration with all our dedicated partners.

2023-2024 was a hallmark year for adopting bold regulations. As an example, we took an ambitious first step to regulate greenhouse gas emissions from 18 of Colorado's highest-emitting manufacturers. This was a challenging rulemaking, but the final rule (GEMM2) addresses our mandate to reduce greenhouse gas emissions from manufacturing 20% by 2030. This rule also includes provisions to protect disproportionately impacted communities by requiring nearby facilities to prioritize measures that reduce the greatest amount of co-pollutants. We know the GEMM2 rule will continue to evolve, and the Commission is committed to protecting communities without creating unreasonable economic impacts.

We also established new energy performance standards for large buildings. These standards will reduce greenhouse gases and result in cost savings for owners and tenants. Since buildings are one of Colorado's top five sources of greenhouse gas emissions, the rule will help Colorado meet its statutory greenhouse gas reduction target of 50% by 2030. New local, state, and federal grants and tax incentives are available to the 8,000 commercial, multifamily, and public buildings covered by this rule, which is estimated to result in $6.4 billion in economic benefits to the state.

And we did not stop there. In the past year, the Commission has:

- accelerated the transition to zero-emission vehicles;
- reduced ozone-forming pollution from lawn and garden equipment and oil and gas pre-production operations;
- adopted emissions intensity verification, monitoring, and recordkeeping requirements for the oil and gas industry; and
- begun to address the Governor's executive order to ratchet down on nitrogen oxide emissions from the oil and gas sector.

But there's still more to do. Our long-term calendar is full, with a focus on the following initiatives for the next 12 months:

- improving our rulemaking process and promoting more diverse stakeholder engagement by revising the Commission's procedural rules;
- expanding greenhouse gas reporting requirements to municipal solid waste landfills;
- adopting a new greenhouse gas resolution to help ensure state goals are met;
- reducing greenhouse gas emissions from midstream fuel combustion equipment in the oil and gas industry; and
- protecting the public from toxic air contamination (in response to HB22-1244) by identifying up to five priority air toxic contaminants and expanding air toxics reporting requirements.

Air quality, ecosystems, and human societies are interdependent. This is why we want individuals and organizations with diverse knowledge and perspectives to participate in the work of the Commission. On behalf of all the Commissioners, thank you to the many people who already contribute to our ongoing efforts to address the climate crisis and improve air quality for all Coloradoans. I hope you find this report useful and informative and that it helps you understand our many successes, and ongoing challenges, in protecting Colorado's air quality.

Patrick Cummins
Colorado Air Quality Control Commission Chair

Introduction

Colorado Air Quality Control Commission

Colorado Revised Statute (C.R.S.), 25-7-105(5) directs the Air Quality Control Commission (AQCC) to prepare and make available to the public a report prior to its annual joint October meeting with the state board of health. This report focuses on information for state fiscal year July 1, 2023 through June 30, 2024. Colorado's first annual air quality report on file dates back to 1965, making this the 57th report. For decades, the report served as the main written source of annual air quality information for the public. Now, a vast amount of additional air quality data and information is available to anyone with access to the internet, and audio and web conference meeting options have increased opportunities for stakeholder participation.

The AQCC is a governor-appointed, nine-member body, confirmed by the Senate, and authorized by the Colorado General Assembly to oversee Colorado's air quality program according to the Colorado Air Pollution Prevention and Control Act. The AQCC, among other responsibilities, develops and adopts a regulatory program to protect and improve air quality in Colorado. The AQCC oversees the implementation of the air quality programs, and is responsible for hearing appeals of the Air Pollution Control Division's implementation of its programs. Rules adopted by the AQCC regulate air pollutant emissions from:

- stationary industrial sources, including oil and gas operations;
- gasoline cars and light-duty trucks;
- diesel vehicles;
- demolition of asbestos-containing structures;
- wood stoves;
- ozone-depleting compounds;
- commercial and agricultural activities that produce odors;
- structures containing lead-based paint;
- open burning and the use of prescribed fire;
- consumer products and architectural industrial coatings use;
- greenhouse gas reporting and emission reduction requirements; and
- handheld and push lawn and garden equipment.

Commission meetings are typically conducted on the third Wednesday and Thursday of each month and may extend into the next day. The AQCC usually meets in Denver, but also holds meetings in other locations around the state in a hybrid and virtual format. The AQCC encourages the public to attend meetings and provide input during public comment opportunities.

Commissioner:	Resident of:	Term expires:
Randy Ahrens	Broomfield	January 31, 2026
Gary Arnold	Englewood	January 31, 2026
Patrick Cummins - Chair	Durango	January 31, 2025
Bill Gonzalez - Secretary	Denver	January 31, 2026
Elise Jones	Boulder	January 31, 2025
Martha Rudolph	Denver	January 31, 2027
Curtis Rueter	Westminster	January 31, 2027
Jon Slutsky - Vice Chair	Fort Collins	January 31, 2026
Gregg Thomas	Denver	January 31, 2027

Commission Staff

Jojo La, Administrator and Technical Secretary

Tom Roan, Special Advisor

Theresa Martin, Program Manager

Payeton Childers, Policy Advisor

Major Initiatives

Greenhouse Gas Emissions Reductions

In 2023, SB23-16 was signed into law increasing the statewide greenhouse gas (GHG) reduction goals to a 65% reduction by 2035, a 75% reduction by 2040, a 90% reduction by 2045, and a 100% reduction by 2050, when compared to 2005 levels. The Air Quality Control Commission and the Air Pollution Control Division (APCD) took the following actions this year to further Colorado's progress towards these goals.

- In August 2023, the AQCC approved the Building Performance Standards Rule. It applies to commercial, multifamily, and public buildings 50,000 square feet or larger. Affected building owners must continue to report how much energy they use every year to the Colorado Energy Office, using a free online tool. Owners of buildings that did not already meet standards need to find ways to reduce how much energy they use or make changes to the energy sources to help meet the statutory greenhouse gas reduction targets for 2026 and 2030.

- The AQCC adopted the Greenhouse Gas Emissions and Energy Management for Manufacturing 2 rule (GEMM 2) on October 20, 2023. Per the rule, GEMM 2 covers facilities with manufacturing operations that emit 25,000 or more metric tons of GHGs per year. GEMM 2 builds on GEMM 1, which covers four Colorado trade-exposed industry facilities that emit over 25,000 metric tons of GHGs per year. House Bill 19-1261 defines an energy-intensive, trade-exposed manufacturing source as an entity that principally manufactures iron, steel, aluminum, pulp, paper, or cement and that is engaged in the manufacture of goods through one or more emissions-intensive trade-exposed processes, as determined by the AQCC. Trade-exposed industries are in highly competitive markets with price-sensitive customers.

- Pursuant to the AQCC's regulatory directives regarding GHG reduction credit trading in its Recovered Methane Protocol rulemaking and GEMM rulemakings, the APCD Climate Program recently completed development of the Recovered Methane Credit Trading Platform and is completing the GEMM credit trading platform for its December 1, 2024, release. The recovered methane system currently has two registered participants and has received its first credit application from a domestic wastewater treatment facility.

Transportation Emissions Reductions

Transportation is one of the largest contributors to ozone formation and GHG emissions in Colorado. To continue reducing emissions from this sector, the APCD took the following actions this year.

- Colorado is operating under the Advanced Clean Cars I Low Emission Vehicles (LEV) and Zero Emission Vehicles (ZEV) Program. Staff is working on verifying compliance for the LEV program for model year 2023. The ZEV Program for model year 2023 reporting was due by August 31, 2024.

- Advanced Clean Trucks Large Entity Reporting outreach webinars were held with approximately 150 fleets attending. More targeted industry outreach will be done prior to the November 30th reporting deadline.

- Clean Fleet Enterprise (CFE) and Electric School Bus Grant programs issued over 30 grants for over $30M in vehicle grant requests. For the second round of CFE funding, the state received 37 applications for over $27M in funding requested. The CFE voted to fund 23 projects for up to $20.5 million under the grant program.

- The CFE awarded $3.1 million to Uber and Lyft in the first round of the Clean Fleet Enterprise Transportation Network Company (TNC) Grant Program. The grant funding will provide incentive programs for TNC drivers to complete rides in battery electric and fuel cell vehicles.

Environmental Justice

“Environmental justice recognizes that all people have a right to breathe clean air, drink clean water, participate freely in decisions that affect their environment, live free of dangerous levels of toxic pollution, experience equal protection of environmental policies, and share the benefits of a prosperous and vibrant pollution-free economy." – The Colorado Environmental Justice Act.

In May 2024, the Commission updated Regulation Number 3 to include:

- Clarifying and enhancing permitting rules about environmental justice summaries and disproportionately impacted community air monitoring; all permit applicants must submit an environmental justice summary with their application. The summaries will cover environmental health data about the community where the air pollution source operates. The APCD will include these summaries in the public notice for the permit. As part of their summary, permit applicants must report any community engagement to the APCD. The APCD may require community outreach in some cases.

- Directing fees collected for the Disproportionately Impacted Community Monitoring Program from the Air Quality Enterprise to the APCD via the stationary source fund; and

- Removing emergency affirmative defense provisions from Part C for Title V Operating Permits to correspond with revisions to federal regulations.

Ozone Reduction Efforts

The Denver Metro/North Front Range nonattainment area is working to reduce ground-level ozone concentrations to come back into compliance with federal standards for ozone. To support these efforts, the AQCC took the following actions this year:

- In December 2023, the AQCC approved the State's severe State Implementation Plan (SIP) to meet the 2008 federal ozone standard. The SIP will also help the State make progress towards meeting the Environmental Protection Agencies 2015 National Ambient Air Quality Standard for ozone. The AQCC approved additional regulations to reduce emissions of nitrogen oxides, an ozone-forming pollutant, from the upstream oil and gas sector in the nonattainment area and stationary engines statewide.
- In February 2024, the AQCC adopted Regulation Number 29 to reduce air pollution from gasoline-powered lawn and garden equipment. The rule restricts the use of handheld and push gasoline-powered lawn and garden equipment for local, state, and federal governments during summer months.

Criteria Air Pollutants

This section includes a summary of air pollution trends for criteria pollutants in Colorado, pollution standards, and health effects. The Clean Air Act (CAA) requires the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for six common air pollutants (also known as "criteria air pollutants"). EPA sets, reviews, and revises standards, determines whether areas meet the standards, and works with areas to attain and maintain the standards. The Air Pollution Control Division (APCD) maintains a statewide monitoring network for all criteria pollutants as required by the CAA. Increasingly, the APCD is conducting additional monitoring to better assess various air quality challenges in Colorado, including special studies for criteria and hazardous air pollutants, deployment of a fleet of mobile monitoring units, hazardous air pollutant monitoring, and regional monitoring of methane and other hydrocarbon emissions from the oil and gas sector. Monitors are placed in areas where emissions sources and modeling suggest that air quality could be most impacted. For additional details on all the criteria pollutants and Colorado air monitoring sites and data, see our monitoring and data website and the 2024 Network Monitoring Plan.

Ground-Level Ozone

A highly reactive form of oxygen, ozone is not emitted directly from a source, but is formed from the reaction of volatile organic compounds (VOCs) and nitrogen oxides (NO_x) with sunlight. Ground-level ozone (photochemical smog) should not be confused with stratospheric ozone – the protective ozone layer located in the upper atmosphere. High concentrations of ground-level ozone can impair lung function; may induce respiratory symptoms in people with asthma, emphysema, or reduced lung function; can reduce immune system capacity; and it can irritate a person's eyes and throat.

EPA Standards

There are two relevant federal standards for ground-level ozone.

- 2008 Standard - the 4th highest daily maximum 8-hour concentration, averaged over three years, is equal to or below 0.075 ppm (parts per million).
- 2015 Standard - the 4th highest daily maximum 8-hour concentration, averaged over three years, is equal to or below 0.070 ppm (parts per million).

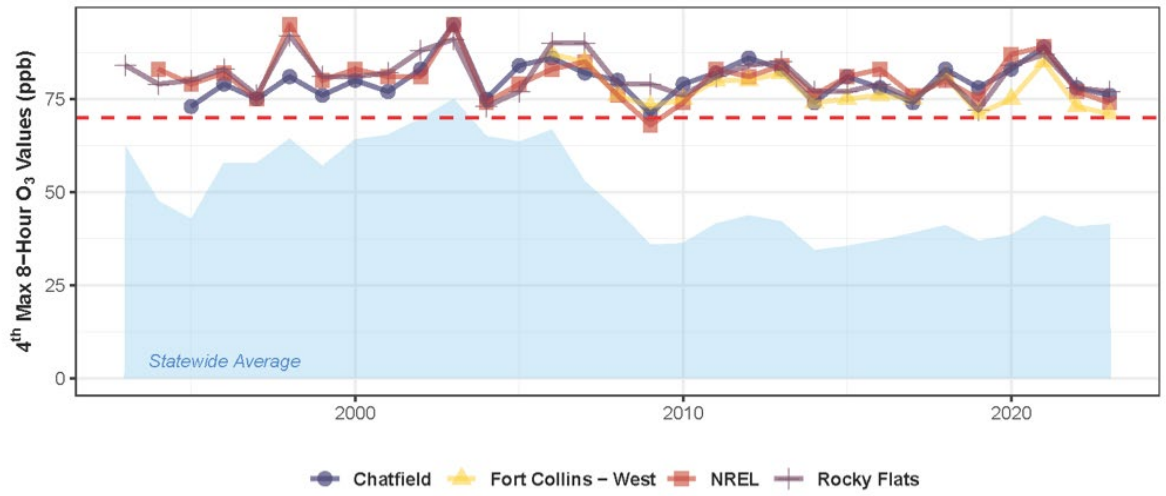
Affected Areas

Most of Colorado is in attainment with EPA standards for ozone, however the Denver-Metro/North Front Range area (containing nine counties: Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson, parts of Larimer, and Weld) is designated as a "severe" nonattainment area under the 2008 standard, and a "serious" area under the 2015 standard.

Methods of Control

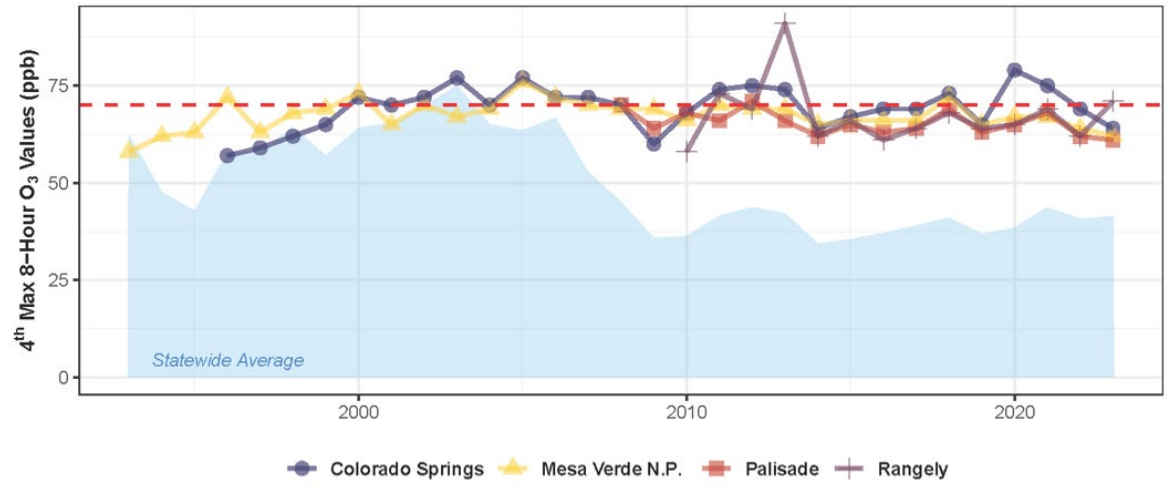
The APCD has implemented the following methods of control for ground-level ozone: automobile inspection and maintenance; new vehicle emission control equipment; gasoline transfer controls; low volatility gasoline; substitution of non-reactive hydrocarbons solvent control and pollution prevention programs; stationary source controls including oil and gas equipment; volatile organic compound (VOC) content of consumer products and architectural coatings; summertime ozone advisory program; power plant retirements; and lawn and garden equipment requirements.

Figure 1: Fourth maximum 8-hour ozone values at sites within the nonattainment area



The four sites (Chatfield, Fort Collins - West, National Renewable Energy Lab, and Rocky Flats) shown in Figure 1 are consistently above both the 2015 and 2008 standards. In recent years the statewide average, shown in the shaded area, has fallen below the 2008 standard but the North Front Range sites have not.

Figure 2: Fourth maximum 8-hour ozone values at sites outside the nonattainment area



Ozone sites outside of the North Front Range (Colorado Springs, Mesa Verde National Park, Palisade, and Rangely) have fourth-highest 8-hour ozone measurements consistently around the 2015 standard.

Particulate Matter

Particulate matter is tiny particles of solid or semi-solid material found in the atmosphere, often referred to as dust. It is measured in total suspended particles (TSP), and classified by size: PM_{10} (particles smaller than 10 microns in diameter) and $PM_{2.5}$ (particles smaller than 2.5 microns in diameter). We observe high PM_{10} when high winds cause blowing dust. High $PM_{2.5}$ can occur due to wintertime air inversions. An air inversion occurs when warm air becomes trapped under cold air. Particulate matter can reduce lung function, aggravate respiratory conditions, and may increase long-term cancer risk or developing of respiratory problems.

EPA Standards

There are two relevant standards for $PM_{2.5}$:

- Annual standard - the three-year average must not exceed 9 $\mu g/m^3$ (micrograms per cubic meter).
- 24-hour standard - the three-year average of the annual 98th percentile cannot exceed 35 $\mu g/m^3$.

There is one standard for PM_{10}: 24-hour standard - the 150 $\mu g/m^3$ limit cannot be exceeded more than once per year on average over three years.

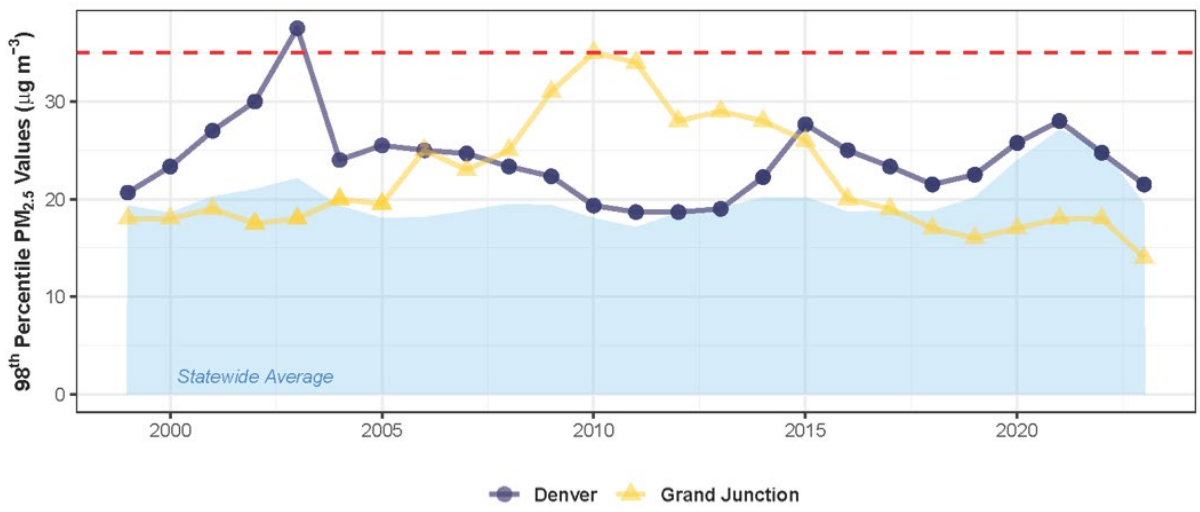
Affected Areas

All of Colorado is in attainment for both levels of particulate matter. However, Aspen, Cañon City, the Denver Metro Area, Lamar, Pagosa Springs, Steamboat Springs, and Telluride are in maintenance for PM_{10} Standards. Maintenance is the 20-year period that follows a state reaching attainment with an ambient air quality standard set by the Environmental Protection Agency (EPA); a state must show continued attainment throughout this period through continued good or improving air quality and policy implementation.

Methods of Control

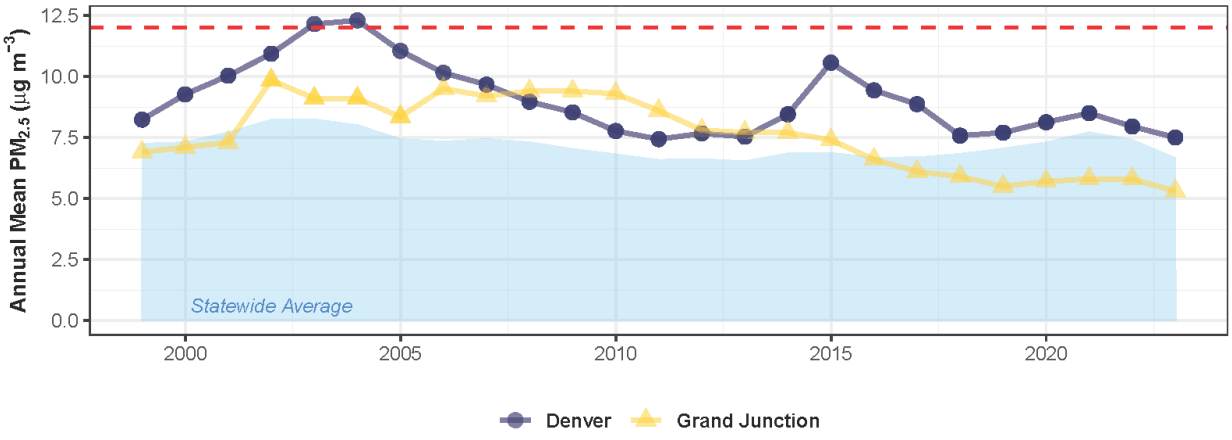
The APCD has implemented the following methods of control for particulate matter: Diesel Emissions Control Program; street sanding and street sweeping improvements; transportation planning; Basic and Enhanced Automobile Inspection and Maintenance Programs; new vehicle emission control equipment; travel reduction programs; residential burning controls; stationary source controls and pollution prevention programs; High Pollution Advisory Program; and power plant retirement.

Figure 3: 98th Percentile $PM_{2.5}$ values in Denver and Grand Junction



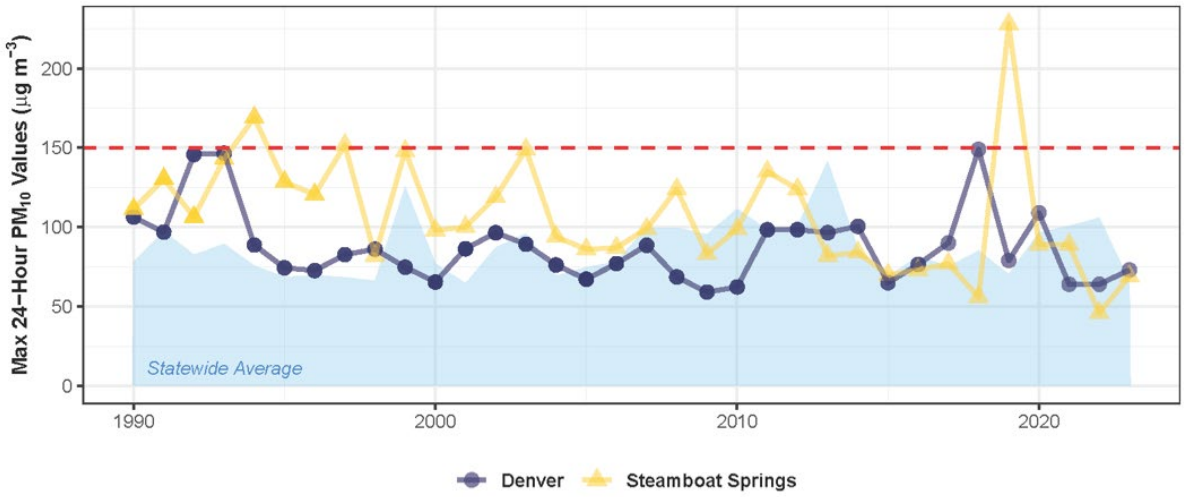
$PM_{2.5}$ concentrations have been below the standard for 20 years.

Figure 4: Mean $PM_{2.5}$ values in Denver and Grand Junction



The graph above shows the old $PM_{2.5}$ standard set by the EPA. The standard was updated in 2024 to 9 µg/m^3. The last three years of monitored data demonstrate compliance with the new standard.

Figure 5: Maximum 24-hour PM_{10} values in Denver and Steamboat Springs



PM_{10} concentrations in Denver and Steamboats Springs have been well below the standard for more than 20 years with occasional exceptions due to natural events.

Nitrogen Dioxide

Nitrogen dioxide (NO_2) is a gas contributing to ozone production. It is a by-product of oxides of nitrogen emitted from combustion sources, such as power plants and motor vehicles. Nitrogen dioxide can increase respiratory problems, cause mild symptomatic effects in asthmatic individuals and increase susceptibility to respiratory infections.

EPA Standards

There are two relevant federal standards for NO_2.

- One-hour standard: the three-year average of 98th percentile daily maximum values cannot exceed 100 ppb (parts per billion).
- Annual average standard: the average observed for one year cannot exceed 53 ppb.

Affected Areas

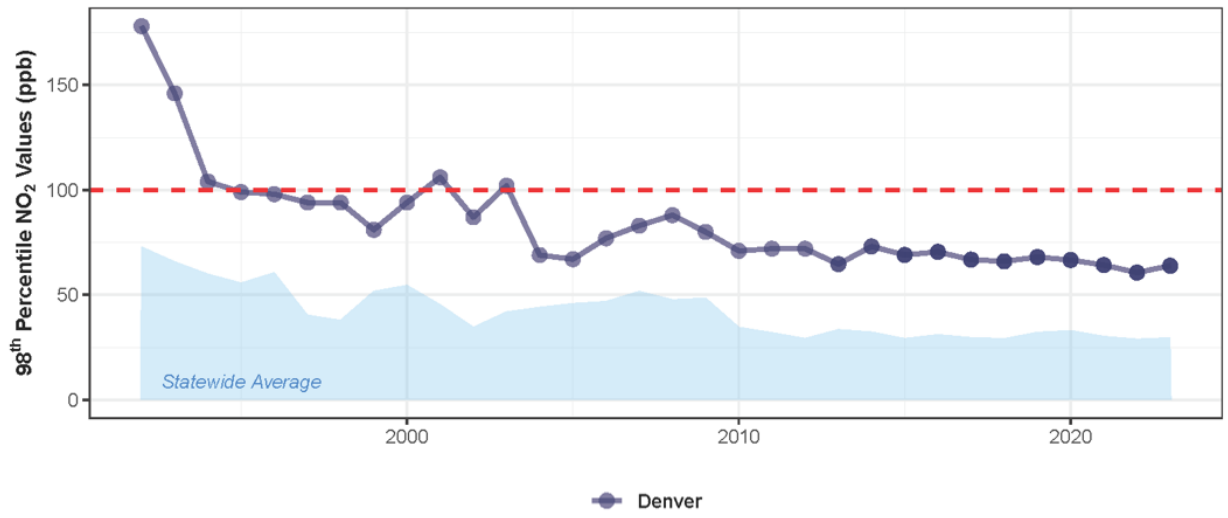
All of Colorado has met the standards.

Methods of Control

AQCC regulations control emissions of oxides of nitrogen from stationary sources, including engines, cement plants and power plants.

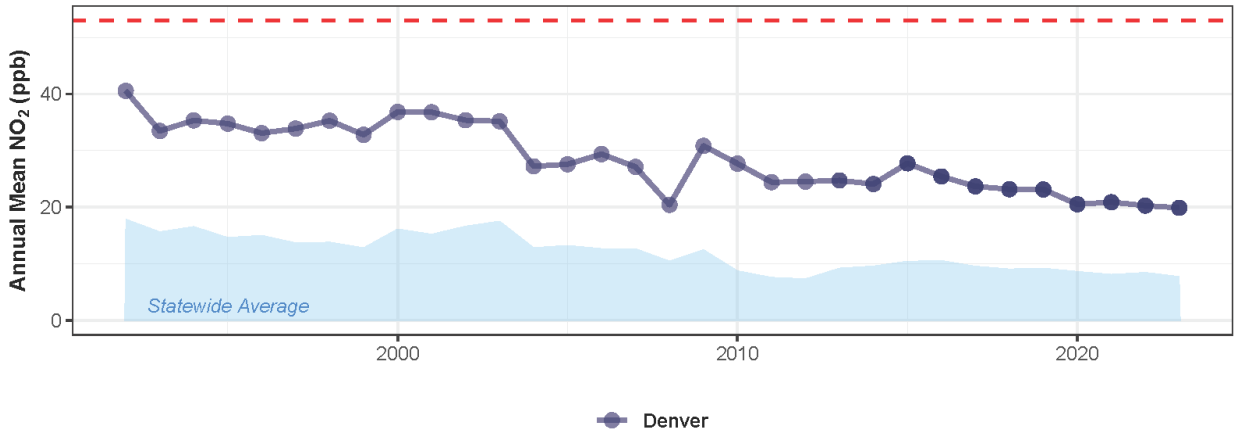
Other strategies include motor vehicle emissions control equipment, and power plant retirements.

Figure 6: 98th percentile NO_2 values in Denver



A major component of ozone production, NO_2 is only measured in the Denver Metro/North Front Range. While concentrations of NO_2 tend to be higher in winter due to inversions in the Denver area and shorter daylight hours, NO_2 has been below the standard for 20 years.

Figure 7: Mean NO_2 values in Denver



Colorado exceeded the annual mean NO_2 standard of 53 ppb in 1977 at the Denver CAMP monitor, but concentrations have shown a gradual decline since this time.

Sulfur Dioxide

A colorless gas with a pungent odor at high concentrations, sulfur dioxide (SO_2) is highly soluble with water and is a major contributor to acid rain. It is emitted primarily from combustion sources such as coal-burning power plants. Sulfur dioxide can aggravate an individual's respiratory tract, impair pulmonary functions and increase the risk of asthma attacks.

EPA and State Standards

There are two relevant standards for SO_2.

- Federal one-hour standard: 75 ppb based on the three-year average of the 99th percentile daily maximum values.
- State standard: three-hour average not to exceed 700 µg/m3 more than once in three months.

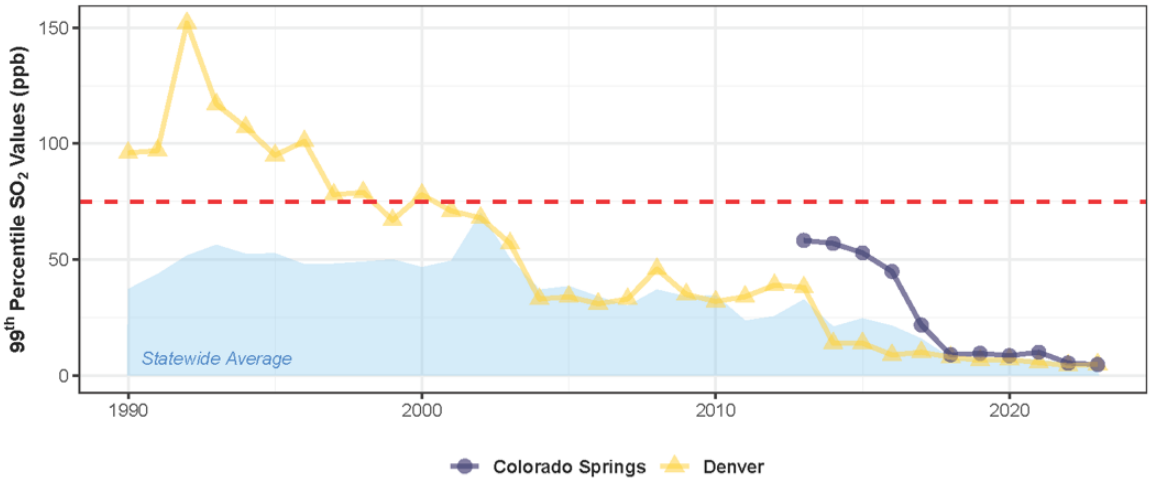
Affected Areas

All of Colorado has met the standards.

Methods of Control

AQCC regulations control sulfur dioxide emissions from industry, new motor vehicle emission control equipment, and power plant retirement.

Figure 8: 98th Percentile SO_2 values in Denver and Colorado Springs



Sulfur dioxide is measured in Metro-Denver and was discontinued in Colorado Springs on January 1, 2024. With the increase of controls on coal-burning power plants, conversions to natural gas, and retirement of coal-burning units, concentrations of sulfur dioxide have significantly decreased in the last 30 years and are currently remaining low.

Carbon Monoxide

Carbon monoxide is a colorless, odorless, and tasteless gas. It results from incomplete combustion of fuels such as gasoline in motor vehicles or wood in fireplaces. Carbon monoxide inhibits the body's ability to transport oxygen around the body. It can reduce a healthy person's ability to perform manual tasks, and it can affect pregnant women, fetuses, anemic individuals, and persons with cardiovascular diseases.

EPA Standards

There are two relevant standards for carbon monoxide.

- 1-hour standard: 35 ppm cannot be exceeded more than once per year.
- 8-hour standard: 9 ppm cannot be exceeded more than once per year.

Affected Areas

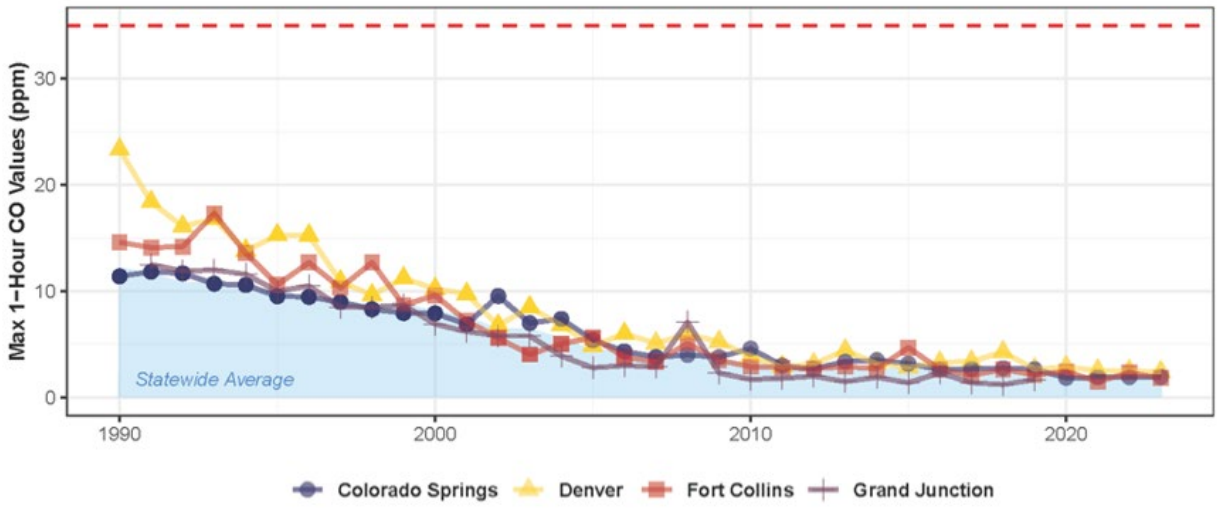
There have been no violations statewide since 1995. As of September 2023 the following areas completed their respective 20-year maintenance period for carbon monoxide: Colorado Springs, the Denver Metropolitan Area, Fort Collins, Greeley, and Longmont.

Methods of Control

The APCD has implemented the following methods of control for carbon monoxide: Enhanced Automobile Inspection and Maintenance; ethanol fuels; transportation planning; travel reduction; residential burning controls; stationary source controls and pollution prevention; High Pollution Advisory Program; and new vehicle emission control equipment.

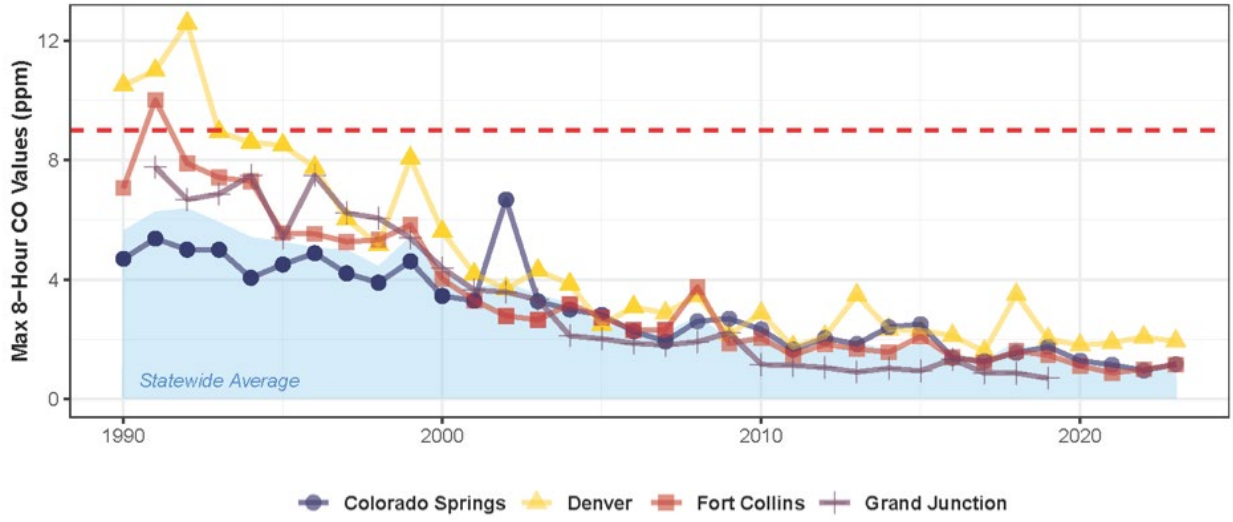
In August of 2024, the Commission adopted State Implementation Plan revisions to repeal Colorado's carbon monoxide maintenance plans, as they were no longer needed, and clarify state-enforceability of carbon monoxide control measures.

Figure 9: 1-hour maximum carbon monoxide observations in Colorado Springs, Denver, Fort Collins, and Grand Junction



The last 34 years of observations have all been well below the 1-hour maximum standard.

Figure 10: 8-hour maximum carbon monoxide observations in Colorado Springs, Denver, Fort Collins, and Grand Junction



Carbon monoxide concentrations across Colorado have been below applicable NAAQS for more than 20 years.

Other Statewide Air Pollutants

Lead

As an air pollutant, lead can be inhaled and comes from small aircraft engines and metal processing. Lead can also be ingested through exposure to lead-based paint. Lead can impair an individual's production of hemoglobin and cause intestinal cramps, peripheral nerve paralysis, anemia, and severe fatigue. Ingestion of lead is especially dangerous to children as it may impact the normal development of a child's brain. Elevated blood lead levels may result in intelligence quotient (IQ) loss, learning and behavior problems, developmental delays, and lifelong mental and physical health issues.

EPA Standards

The federal lead standard is averaged across rolling three-month time periods. During any three months, the lead concentration is not to exceed 0.15 µg/m3.

Lead-based paint is defined as any paint containing more than one milligram of lead per square centimeter of paint.

The primary historical sources of lead air emissions have been from motor vehicles burning leaded gasoline and certain industrial sources. Since the phase-out of leaded gasoline beginning in the 1970s, today's primary sources of lead air emissions in the U.S. are industrial metal processing, lead smelting, and aviation gasoline.

Affected Areas

All of Colorado has met the air standard. Lead-based paint regulations apply to homes built prior to 1978 and child-occupied facilities. Pre-renovation education requirements apply to pre-1978 housing and child-occupied facilities

Methods of Control

The AQCC has implemented the phase-out of phase out and stationary source controls control for air-borne lead.

AQCC Regulation Number 19 establishes requirements for lead-based paint abatement activities and pre-renovation education requirements statewide.

Air Toxics and Hazardous Air Pollutants

Air toxics and hazardous air pollutants are known or suspected of causing cancer or other serious health effects. The list of air toxics and hazardous air pollutants in Colorado includes all federal hazardous air pollutants as well as additional state-only pollutants with potential cancer or non-cancer health effects. This list includes gases (benzene, toluene, etc.), industrial solvents, and heavy metals. Air toxics cause or are suspected of causing cancer, birth defects, and other negative health impacts, in addition to harming the environment.

Federal and State Standards

The National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulate 188 pollutants. These standards are delegated to the states to enforce.

The Colorado Department of Public Health and Environment (CDPHE) listed 289 additional air toxic pollutants in December 2023 to those listed under NESHAP. Thousands of facilities were required to report annual air toxic emissions for calendar year 2023 by June 30, 2024. Various State rulemaking efforts will occur in 2024 through 2026 for a subset of these pollutants that are classified as priority air toxics by the AQCC.

Methods of Control

The APCD has implemented the following methods of control for federal air toxics: Residential burning controls and state/local pollution prevention programs; state mercury reduction requirements; new vehicle emission control equipment; reformulated low-benzene gasoline; and real-time fence monitoring at certain facilities.

State priority air toxics rules are intended to complement the federal NESHAP programs. Control strategy rules must be finalized by April 2026.

Figure 11: Annual averages of BTEX compounds from 2012 through 2023

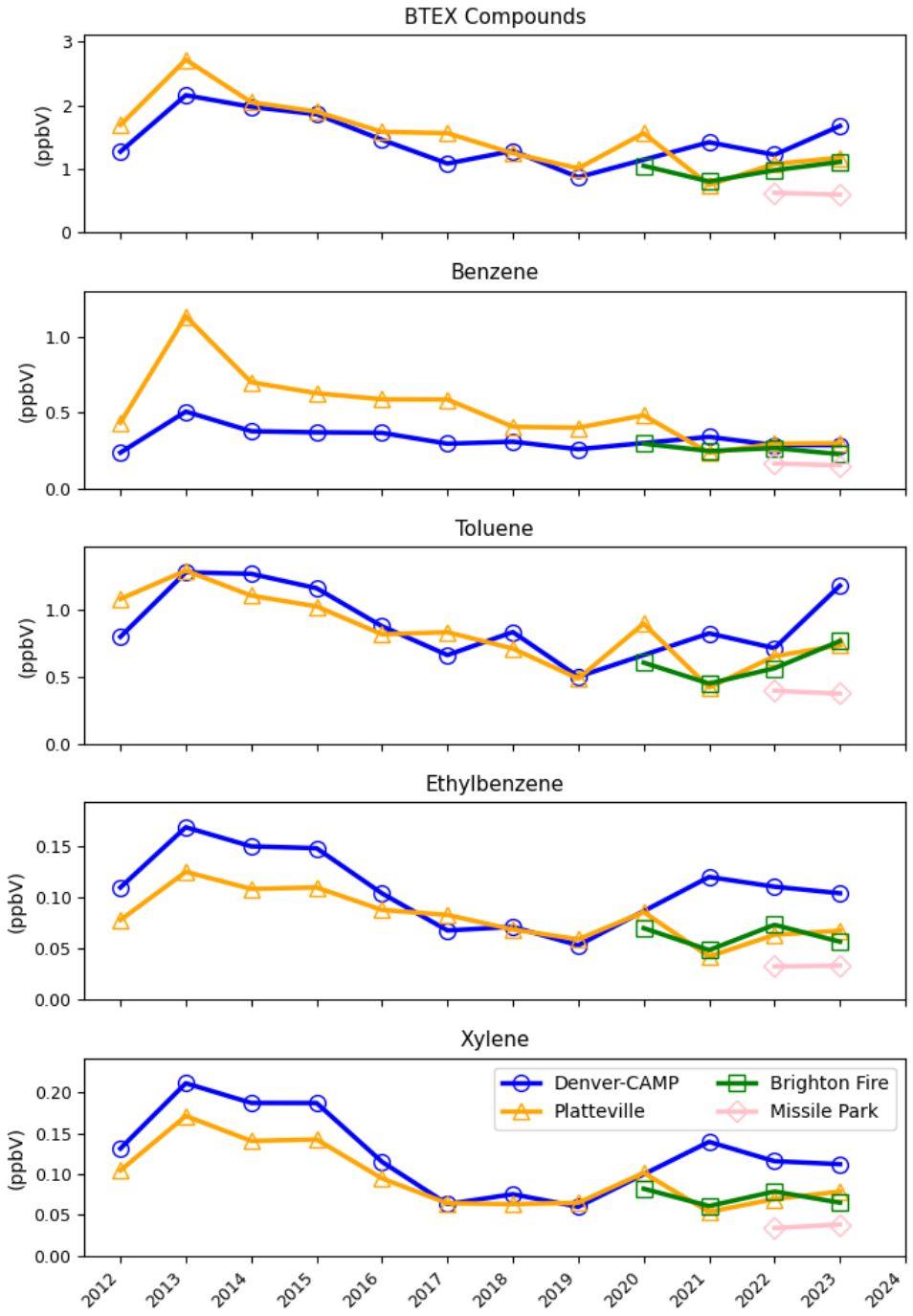


Figure 11 includes charts showing summed BTEX compounds emissions (top) as well as individual charts for benzene, toluene, ethylbenzene, and xylene, at four sites around the Denver Metro/North Front Range. The fourth site, Missile Park, began observations in 2022. All observations are in ppbv or parts per billion volume. In general, air toxics have decreased over the last decade, though in recent years we're seeing some variability across the COOPs sites.

Asbestos

Asbestos is a mineral fiber found in many building materials and automobile brake linings as a flame retardant. Asbestos can cause respiratory problems and increase the risk of lung cancer. It can cause asbestosis – a scarring of the lung tissue which restricts breathing. It is also a known carcinogen and can increase the risk of lung cancer as well as cause intestinal cancers and mesothelioma – a cancer of the lining of the plural cavity.

EPA and State Standards

Buildings where asbestos-containing materials have been installed are the primary concern, particularly during renovation or demolition activities. Materials containing greater than 1% asbestos are regulated. The state standard for airborne asbestos fibers is set at 0.01 fibers per cubic centimeter or 70 structures per square millimeter, depending on the analytical method.

Methods of Control

AQCC Regulation Number 8, Part B controls asbestos activities including certification, inspection, and abatement requirements statewide.

Ozone-Depleting Compounds

These are manufactured gases that destroy stratospheric-ozone once they reach the stratospheric-ozone layer. They have been used in refrigerants, foam blowing agents, industrial solvents, and aerosol spray propellants. Exposure to ozone-depleting compounds in an unventilated area can cause respiratory problems. Destruction of the ozone layer may also increase rates of skin cancer and cataracts from harmful sun exposure.

Federal Standards

Clean Air Act (CAA) Sections 608 and 609 establish requirements for leak repair and the handling of ozone-depleting compounds in motor vehicle and stationary source applications.

Methods of Control

AQCC Regulation Number 15 establishes registration, notification, reporting, and emissions control requirements statewide.

Hydrofluorocarbons

Hydrofluorocarbons (HFCs) are man-made, fluorinated gases primarily used for cooling, refrigeration, foam, aerosol propellant, fire extinguisher agents, and cleaning solvents. HFCs are potent GHGs that contribute to the increased GHG effect, increase of the average temperature on Earth, which leads to climate change. Exposure to high concentrations of HFCs may severely affect the heart and cause respiratory problems.

Federal Standards

CAA Sections 608 and 609 establish requirements for leak repair and handling of HFCs in motor vehicle and stationary source applications.

Methods of Control

AQCC Regulation Number 22 establishes requirements for the phase-out of HFCs in manufacturing and end-use products in Colorado.

Greenhouse Gases

Greenhouse Gases (GHGs) warm the earth by absorbing energy and slowing the rate at which energy escapes to space, acting like a blanket insulating the Earth and causing climate change. Both natural and human emissions of GHGs absorb the sun's heat and trap that heat in the atmosphere. The main GHGs are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases. Carbon dioxide enters the atmosphere through burning of fossil fuels, solid waste, trees and other biological materials, and as a result of some chemical reactions (e.g., manufacturing of cement). Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic materials, such as the decay of waste in municipal solid waste landfills. Nitrous oxide is emitted during agricultural and industrial activities, combustion of fossil fuels and solid waste, as well as during treatment of wastewater. Fluorinated gases, like HFCs, perfluorocarbons (PFCs), sulfur hexafluoride (SF6), and nitrogen trifluoride (NF_3), are synthetic, powerful GHGs that are emitted from a variety of commercial uses, consumer products, and industrial processes. Fluorinated gases are sometimes used as substitutes for stratospheric ozone-depleting substances. These gases are typically emitted in smaller quantities, but they are more potent GHGs.

State Reduction Requirements

Statewide reduction requirements for the emissions of GHGs have been set by the State Legislature, the most recent of which passed in 2023 as SB23-016: Greenhouse Gas Emission Reduction Measures.

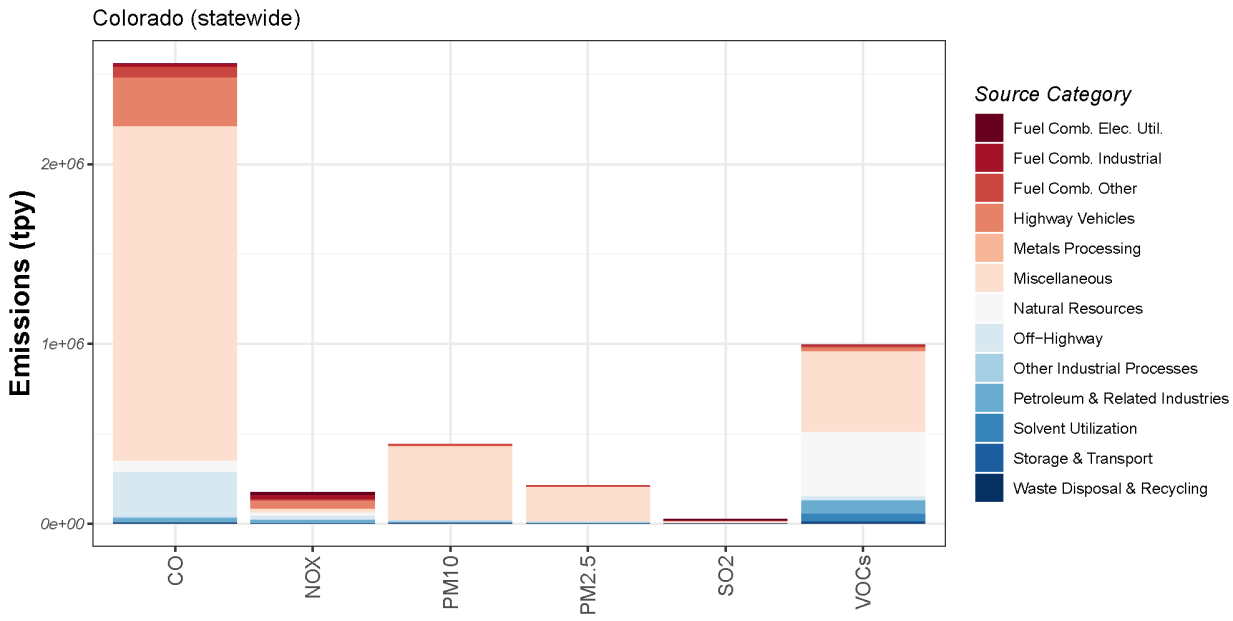
Methods of Control

The AQCC has adopted a variety of regulations that manage some aspect of GHG emissions reductions in Colorado. Regulation Number 3 was updated in 2024 to establish fees for GHG emissions. Regulation Number 7 establishes a methane emissions intensity verification protocol for the oil and gas industry. Regulation Number 20 sets standards for clean cars and clean trucks in Colorado. Regulation Number 22 sets a standard for GHG reporting, a schedule for the phase-out of HFCs, and creates protocols for recovered methane. Regulation Number 27 set Phase 1 and Phase 2 of Greenhouse Gas Emissions and Energy Management for the Manufacturing Sector and establishes a credit trading program.

Statewide Air Quality

Statewide air pollution sources and control measures are listed in this section. The figure below includes statewide emission estimates.

Figure 82: Statewide criteria emissions by source



At over 2.5 million tons per year, carbon monoxide is the highest criteria pollutant in the state. The largest proportion of carbon monoxide comes from miscellaneous sources, with a significant portion coming from industrial processes and highway vehicles. SO_2 is the lowest, followed by NO_x, $PM_{2.5}$, PM_{10}, and VOCs in the middle at around 1 million tons per year.

Air Pollution Sources

- Motor Vehicle.
- Dust - road and wind-born.
- Industrial sources.
    - Oil and gas.
    - Brewing.
    - Asphalt and cement.
    - Sand and gravel.
    - Consumer Products.

- Construction activities and equipment.
- Lawn and garden equipment.
- Agricultural activities and equipment.
- Wildfires and prescribed burns.

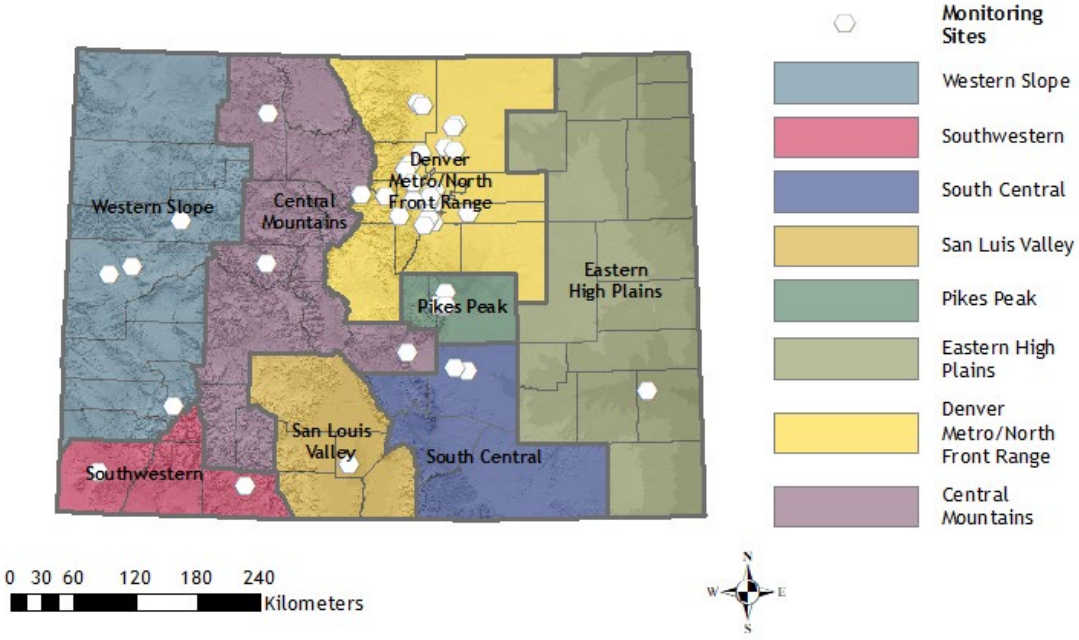
Air Pollution Control Measures

- Automobile emissions inspection and maintenance program.
- Regulations to accelerate the adoption of low and zero emitting passenger vehicles and heavy-duty trucks.
- Street sweeping.
- Emission standards for consumer products and architectural and industrial maintenance coatings.
- Statewide oil and gas emission controls.
- Permitting program limiting emissions from industrial sources.
- Permitting program requiring the use of reasonably available control technology at pollution sources in cumulatively impacted communities.
- Lime spray dryers to reduce sulfur oxide emissions from power plants.
- Baghouses to reduce PM emissions from power plants.
- Non-selective catalytic reduction to reduce NO_x at cement plants.
- Low NO_x burners, fuel switching to natural gas and unit shutdowns at power plants.
- Restrictions on lawn and garden equipment used by government entities.
- Building performance standards.

Regional Air Quality

Areas of the state differ greatly from one another in landscape, weather, population, motor vehicle traffic, amount of industry, and potential of wood smoke from residential fires, wildfires, and controlled burns. This section of the report shows the eight air quality planning regions of Colorado to more clearly address each region's specific air quality conditions and activities.

Figure 9: State Air Quality Planning Regions



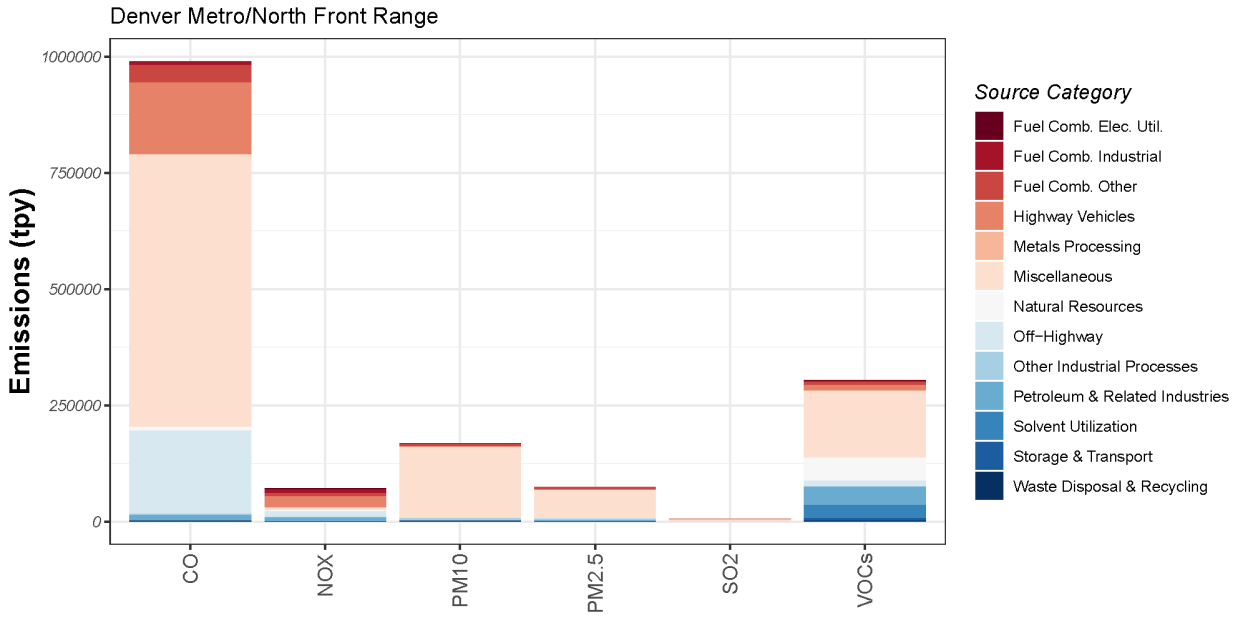
- Denver-Metro/North Front Range Region.
- Eastern High Plains Region.
- South Central Region.
- Pikes Peak Region.
- San Luis Valley Region.
- Southwest Region.
- Western Slope Region.
- Central Mountains Region.

Denver-Metro/North Front Range

The Denver Metro / North Front Range (DM/NFR) Region includes Adams, Arapahoe, Boulder, Broomfield, Clear Creek, Denver, Douglas, Elbert, Gilpin, Jefferson, Larimer, Park, and Weld counties. It includes the largest population area of the state, with 3.2 million people living in the seven-county Denver-metro area and nearly 700,000 living in the northern Colorado area of Larimer and Weld counties. According to the U.S. Census Bureau, the population in this area increased by 17.8% between 2010 and 2020.[1] This area includes Rocky Mountain National Park and several wilderness areas.

The region is in compliance with all National Ambient Air Quality Standards (NAAQS), except for the 2008 and 2015 standards for ozone. Information on ozone trends and SIP planning is included in the major pollutants and major initiatives sections of this report.

Figure 9: Denver Metro / North Front Range criteria emissions by source



The DM/NFR sees nearly 1 million tons per year in carbon monoxide, 260,000 tons per year of volatile organic compounds (VOCs), and 60,000 tons per year of PM_{10}. All other criteria pollutants are under 50,000 tons per year.

[1] U.S. Census, County Population Totals: 2010-2020, https://www.census.gov/programs-surveys/popest/technical-documentation/research/evaluation-estimates/2020-evaluation-estimates/2010s-counties-total.html

DM/NFR Unique Initiatives

In order to improve air quality and reduce harmful emissions from mobile sources in the DM/NFR area, the APCD and the Colorado Department of Revenue jointly administered the Automobile Inspection and Readjustment (AIR) Program. Mobile source emissions constitute one of the larger categories of controllable emissions that contribute to summertime ozone concentrations in the nonattainment area. The AIR Program detects and requires repair of excessively emitting gasoline-powered vehicles, and is facilitated by an inspection and maintenance network that consists of 18 Air Care Colorado inspection stations and roadside remote sensing devices throughout the DM/NFR. In 2023, the AIR Program inspected 1,108,220 vehicles, reducing 7.4 tons per day of ozone precursor emissions.

Rocky Mountain National Park has been and continues to be impacted by nitrogen deposition, causing changes to the alpine plant and aquatic environments. A nitrogen reduction plan is in place and progress is being tracked by the National Park Service, the APCD, EPA, and the AQCC. The draft 2022 Milestone Report was published in August 2024, providing an update on the current status and future strategy of the initiative. The final report will be published by the end of 2024 after the public comment period has been completed. In 2024, the Memorandum of Understanding for Interagency Collaboration to Address Air Quality Issues Affecting Rocky Mountain National Park (MOU) was renewed by the four agencies for the next five-year milestone period. In the next term of the MOU, the agencies will assess the original Nitrogen Deposition Reduction Plan. For more information on this voluntary initiative, see the Rocky Mountain National Park Initiative website.

Air Pollution Sources

These sources are in addition to statewide sources.

- Petroleum refining.
- Asphalt production.
- Cement manufacturing.
- Area-wide remediation at Rocky Mountain Arsenal.
- Natural gas power plants.

Air Pollution Control Measures

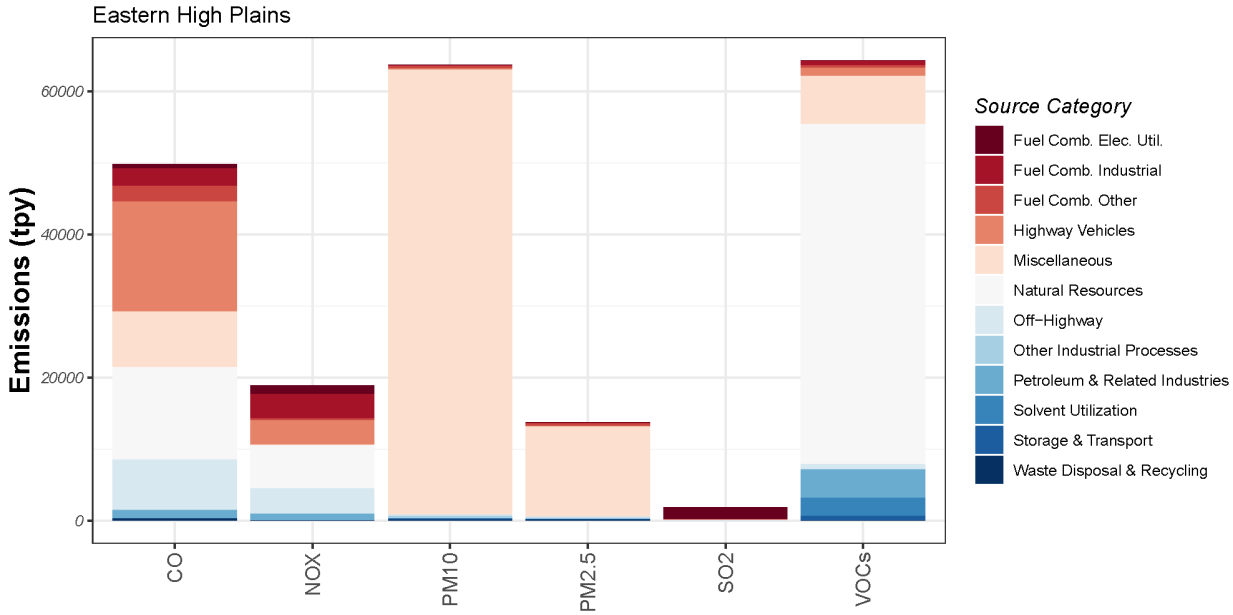
These control measures are specific to DM/NFR.

- Use of low NO_x burners, fuel switching to natural gas, and unit shutdowns at power plants. Rawhide power plant, Unit 1 will be retired by December 31, 2029.
- Application of best available emissions control technology to reduce GHG emissions at CEMEX Construction Materials South.

Eastern High Plains

The Eastern High Plains region makes up 40% of Colorado's land area and encompasses the counties on the plains of eastern Colorado. The area is semi-arid and often windy. According to the 2020 U.S. Census, the area's population was 133,432 people, a 2.7 decrease from 2010. Its major population centers, Sterling, Fort Morgan, Limon, La Junta, and Lamar, have developed around towns historically dedicated to farming, ranching, and trade. The agricultural activities include both irrigated and dryland farming. All of the area complies with federal air quality standards.

Figure 10: Eastern High Plains criteria emissions by source



The highest annual emissions in the Eastern High Plains are seen for PM_{10} and VOCs around 62,500 tons per year with carbon monoxide around 50,000 tons per year. NO_x and $PM_{2.5}$ are under 20,000 with SO_2 at the lowest under 3,000 tons per year.

Air Pollution Sources

These sources are in addition to statewide sources.

- Odors from confined animal feeding operations.
- Pawnee Power Plant near Brush.
- Western Sugar beet sugar processing in Fort Morgan.
- Cargill Meat packing plant in Fort Morgan.

Air Pollution Control Measures

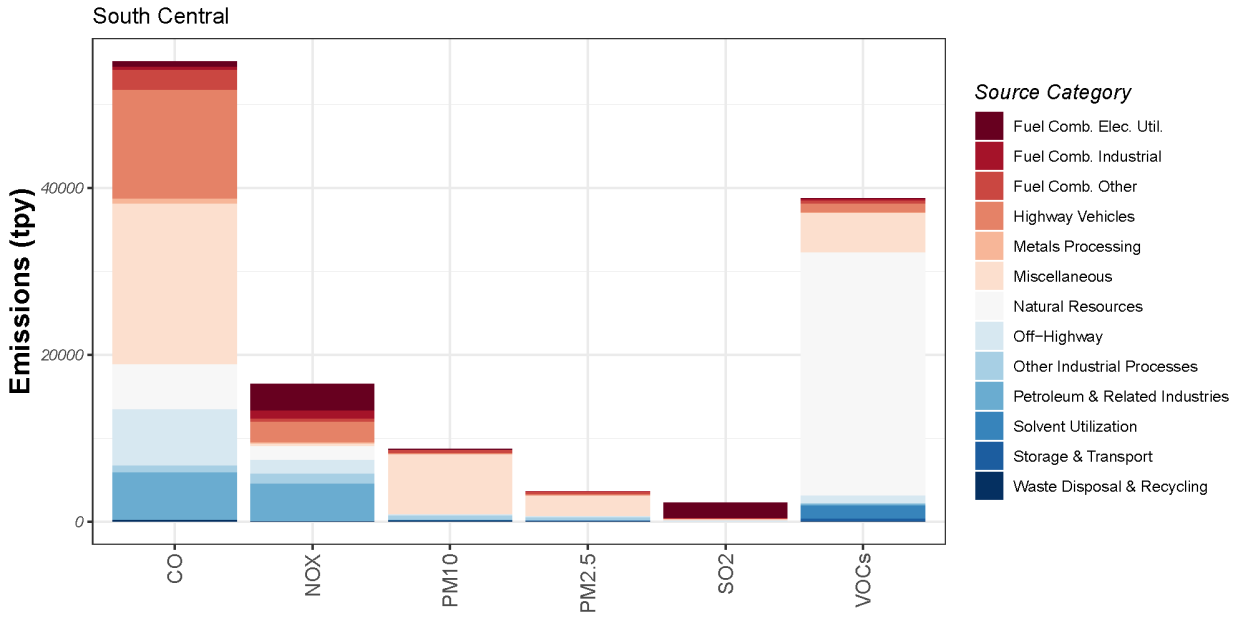
These control measures are specific to the Eastern High plains.

- Mitigation plan for high wind events involving PM_{10} in Prowers County includes dust control measures and public outreach on dust mitigation.
- State odor control regulation for hog farms.
- Lime spray dryer, low NO_x burners, and selective catalytic reduction at Pawnee Power Plant. Unit 1 will be converted to natural gas fuel by December 31, 2025.
- Low NO_x burners, packed scrubber, and flare device, along with other permit conditions to limit emissions at the Cargill meat packing plant.

South Central

The South Central Region comprises Pueblo, Huerfano, Las Animas, and Custer counties. The population in this region is 196,309 according to 2020 U.S. Census Bureau estimates, an increase of 5.6% from 2010. Urban centers include Pueblo, Trinidad and Walsenburg. The region has rolling semi-arid plains to the east and mountains to the west. All of the area complies with federal air quality standards. Ozone monitoring will begin at a new site in the city of Pueblo in 2025. Site selection is underway by the APCD.

Figure 11: South Central criteria emissions by source



Carbon monoxide is the highest emitted pollutant at 55,000 tons per year in this region. VOCs are the second most emitted at 40,000 tons per year – note that the largest emitters of VOCs in this region are natural resources. 18,000 tons of NO_x were emitted last year, with a significant portion coming from electricity production and industrial sources. All remaining criteria pollutants are well below 10,000 tons per year each.

Air Pollution Sources

These sources are specific to the South Central region, but statewide sources also affect the region.

- The Comanche Power Plant near Pueblo.
- EVRAZ Rocky Mountain Steel Mills in Pueblo.
- GCC Rio Grande Cement Plant near Pueblo.
- Collins Aerospace (Goodrich Carbon Products).
- Large natural gas compressor stations in Las Animas County.

Air Pollution Control Measures

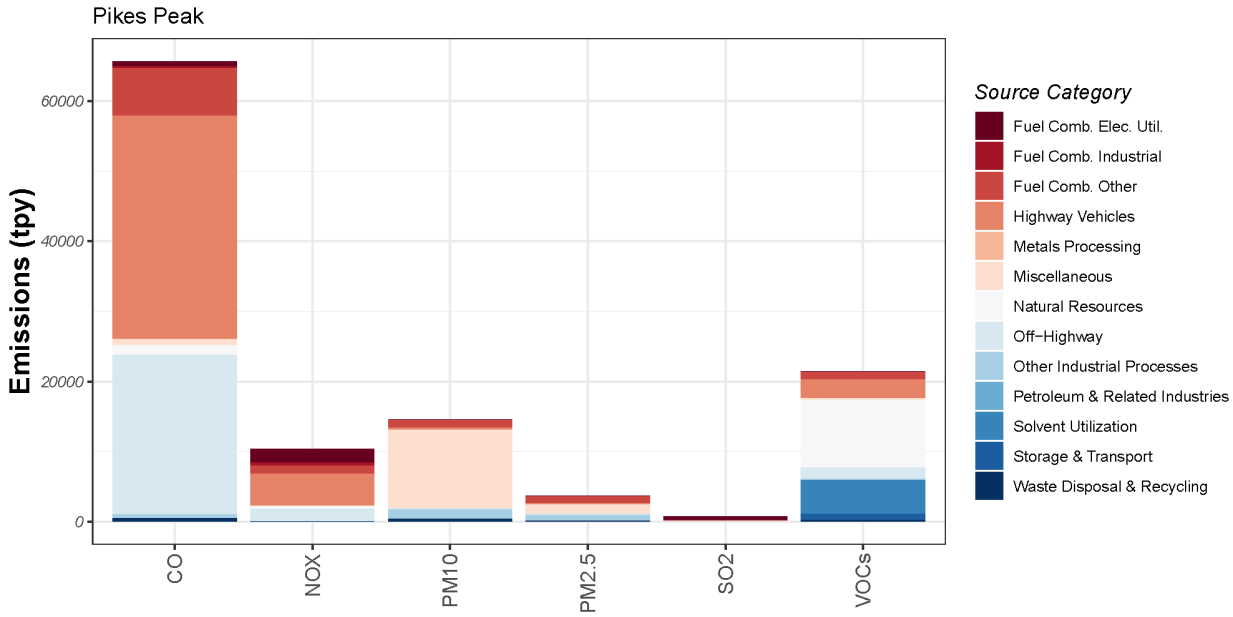
These control measures are in addition to those controlling statewide sources.

- Selective catalytic reduction, low NO_x burners, lime spray dryers, and activated carbon mercury controls at Comanche Power Plant to reduce NO_x, sulfur dioxide, and mercury emissions. Unit 2 will be retired no later than December 31, 2025.
- Selective non-catalytic reduction and fabric filter baghouses at the GCC Rio Grande Cement Plant.
- Low-NO_x burners, fuel restrictions, fugitive dust control plan, compliance actions, monitoring, and mercury reduction program at EVRAZ Rocky Mountain Steel Mills.
- VOC controls on natural gas compressor stations.
- Application of best available emissions control technology to reduce GHG emissions at EVRAZ Steel Mill and GCC Rio Grande.

Pikes Peak

The Pikes Peak Region includes El Paso and Teller counties. According to 2020 U.S. Census Bureau estimates, the Pikes Peak region had a population of approximately 753,839, an increase of 15.8% from 2010. Eastern El Paso County is rural prairie, while the western part of the region is mountainous. All of the area complies with federal air quality standards.

Figure 12: Pikes Peak criteria emissions by source



As with many other regions, carbon monoxide is the pollutant with the highest annual emissions, around 65,000 tons per year, a large majority of which come from vehicle traffic. VOCs were emitted at a rate of over 20,000 tons per year, about half of which come from natural resources. NO_x, particulate matter, and SO_2 are all below 15,000 tons per year.

Air Pollution Sources

As in other urbanized areas in Colorado, pollutants in the Pikes Peak Region originate primarily from stationary and mobile sources.

- The Ray Nixon power plant.
- Fountain Valley Electric Generating Station.

Air Pollution Control Measures

These control measures are in addition to other statewide measures.

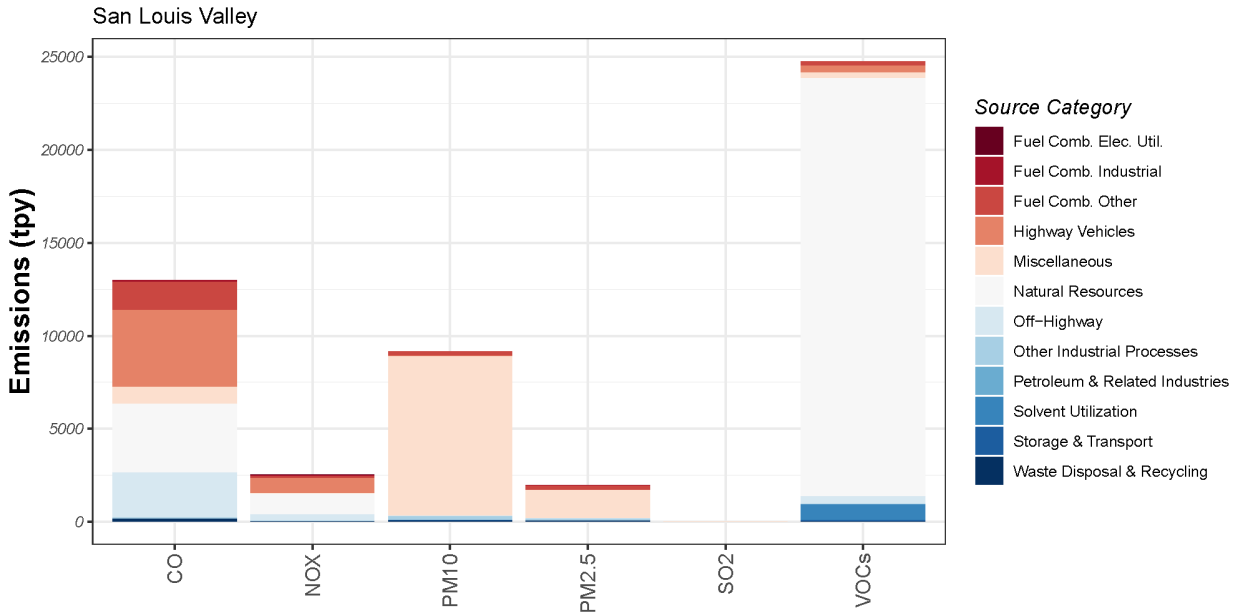
- Dust control plans.
- Flue gas desulfurization systems and low NO_x burners at power plants to control sulfur dioxide and NO_x emissions. Ray Nixon Power Plant, Unit 1 will be retired no later than December 31, 2029.

While the area is attaining both ozone standards, the APCD is closely watching ozone levels in comparison to the 2015 Ozone NAAQS of 0.070 ppm. Many residents are concerned with potential health impacts from ozone and SO_2. The APCD continues to work with the Pikes Peak Area Council of Government (PPACG) Air Quality Technical Committee in raising public awareness and taking precautionary measures to reduce ozone levels. The Ozone Trends - Other Areas graph, included in the Major Pollutants - Ground-Level Ozone section of this report, shows ozone trends at the Colorado Springs U.S. Air Force Academy site.

San Luis Valley

Colorado's San Luis Valley Region is in the south central portion of Colorado and includes a broad alpine valley situated between the Sangre de Cristo Mountains on the northeast and the San Juan Mountains of the Continental Divide to the west. The valley is some 71 miles wide and 122 miles long, extending south into New Mexico. The average elevation is 7,500 feet. The air quality planning region consists of Saguache, Rio Grande, Alamosa, Conejos, and Costilla counties. Principal towns include Alamosa, Monte Vista, and Del Norte. According to 2020 U.S. Census Bureau estimates, the population is 46,478, an increase of 2.1% between 2010 and 2020. Agriculture and tourism are the primary economic activities. The valley is semiarid and crops of potatoes, head lettuce, and barley are typically irrigated. The valley is home to Great Sand Dunes National Park. All of the area complies with federal air quality standards.

Figure 13: San Louis Valley criteria emissions by source



In the San Luis Valley, VOCs were emitted the most at 25,000 tons per year, with the largest portion coming from natural resources. The area also sees around 13,000 tons per year of carbon monoxide and 9,000 tons per year of PM_{10}.

Air Pollution Sources

The largest local issue in air pollution is blowing dust, from the sand dunes, but also contains other sources that affect the region and state.

Air Pollution Control Measures

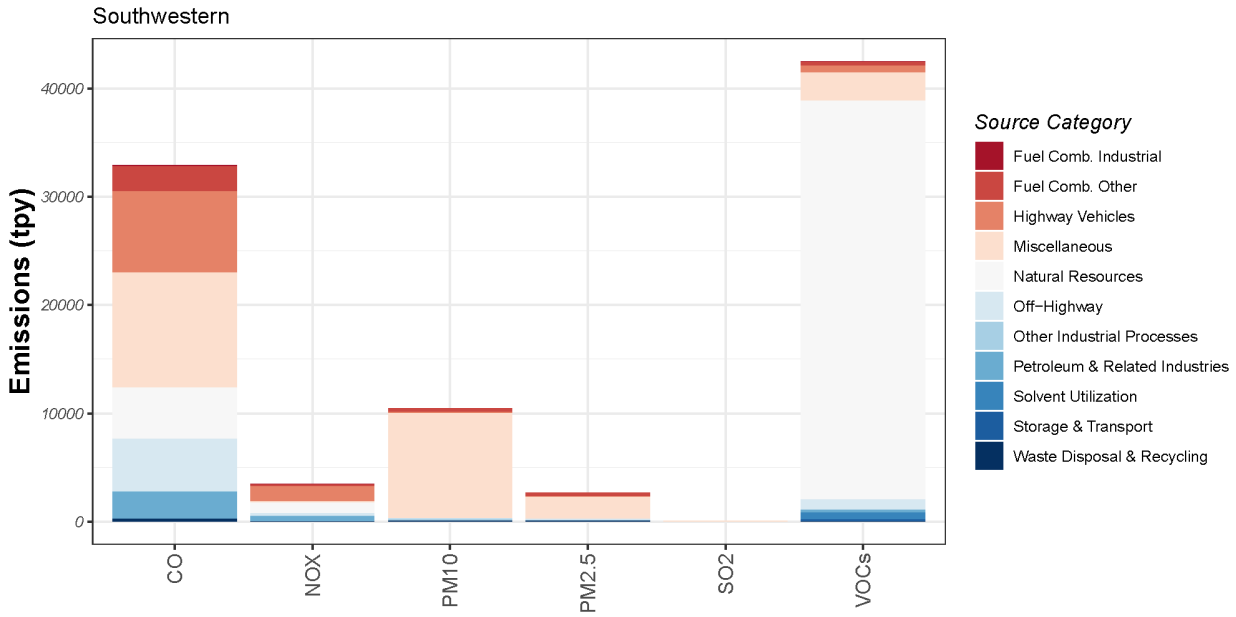
These control measures are in addition to other statewide measures.

- The Alamosa Mitigation Plan for high wind events involving PM_{10} includes dust control measures and public outreach on dust mitigation.
- Statewide emission standards for consumer products and architectural and industrial maintenance coatings.

Southwest

The Southwest Region includes the Four Corners area of Montezuma, La Plata, Archuleta, and San Juan counties. According to the U.S. Census Bureau, the population of this region was about 97,916 in 2020, an increase of 9.1% from 2010. The landscape includes mountains, plateaus, high valleys, and canyons. Durango and Cortez are the largest towns, and lands of the Southern Ute and Ute Mountain Ute tribes make up large parts of this region. The region is home to Mesa Verde National Park, and tourism, agriculture, and energy development are dominant economic activities. While all of the area complies with federal air quality standards, increased development including power plants, oil and gas wells, and population growth are contributing to air quality concerns. Ozone levels in the region are close to exceeding the 2015 0.070 ppm ozone standard. An overall haze can sometimes be seen in the skies, which impacts visibility. Citizens have concerns for the ecosystem due to deposition of mercury and nitrogen from cities, oil and gas production, and wildfires, in addition to health impacts from other pollutants. Responsible regulatory agencies are addressing these issues in order to effectively manage air quality. These agencies believe input from residents of the area is important in developing and implementing an effective management plan.

Figure 14: Southwest criteria emissions by source



The highest emissions rate is for VOCs at over 40,000 tons per year, a large portion of which is from natural resources. Carbon monoxide comprises the second greatest emissions of any criteria pollutant in the region, at over 30,000 tons per year.

Air Pollution Sources

These sources are in addition to statewide concerns.

- Two coal-fired power plants in New Mexico.
- Gas field development in Colorado, Southern Ute Indian Reservation, and New Mexico.
- Durango & Silverton Narrow Gauge Railroad tourist train.

Air Pollution Control Measures

The main air pollution control measures in this region include:

- Smoke management program.
- The Durango & Silverton Narrow Gauge Railroad phased out its last coal-burning engine in 2024.
- Tribal permitting and control of emission sources.
- Future closure and emissions reductions from controls at New Mexico power plants.

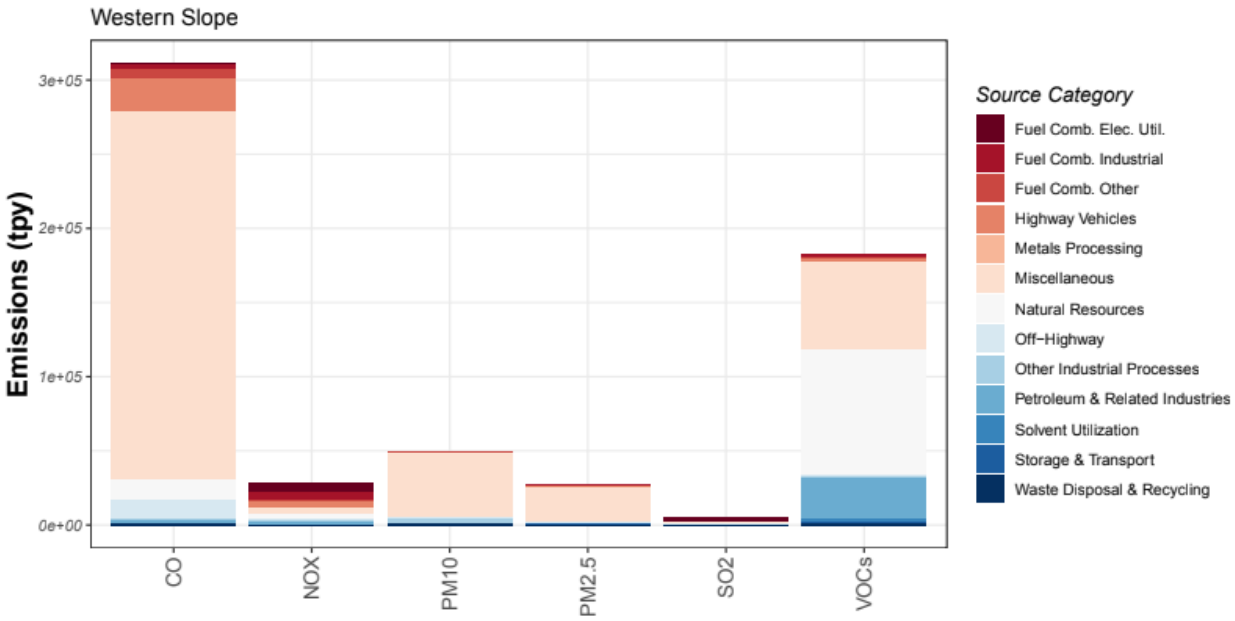
- The PM_{10} Maintenance Plan for Pagosa Springs, which includes: street sweeping and sanding controls, use of chemical deicers, and paving of dirt roads.
- The Four Corners Air Quality Group, a forum for individuals interested in air quality to meet, learn about current conditions, review progress on mitigation of air quality impacts, and generally contribute to clean air in the Four Corners area. New Mexico and Colorado convene this group annually in the Four Corners Area.

Western Slope

The Western Slope Region includes nine counties on the far western border of Colorado; Moffat, Rio Blanco, Garfield, Mesa, Delta, Montrose, Ouray, San Miguel, and Dolores. A mix of mountains on the east, and mesas, plateaus, valleys, and canyons to the west form the landscape of this region. Grand Junction is the largest urban area, and other cities include Telluride, Montrose, Delta, Rifle, Glenwood Springs, Meeker, Rangely, and Craig. Between 2010 and 2020, the population of this area saw a 5.3% increase, bringing the population to 325,046, according to the 2020 U.S. Census Bureau estimates. Primary industries include ranching, agriculture, mining, energy development, and tourism. Dinosaur and Colorado National Monuments are located here.

All of the Western Slope Region presently complies with federal air quality standards. Although elevated ozone concentrations were recorded in Rangely in the past, current three year averages have stayed below the 2008 ozone standard, keeping Rangely from a nonattainment designation. The Grand Junction area experiences elevated wintertime $PM_{2.5}$ concentrations due to inversions, though the area has not violated the federal standard.

Figure 15: Western Slope criteria emissions by source



The Western Slope sees just over 300,000 tons per year of carbon monoxide emitted. There are over 175,000 emissions per year emitted of VOCs, a large proportion of which are from natural resources. PM_{10} and $PM_{2.5}$ are 100,000 and 50,000 tons per year respectively mostly coming from miscellaneous sources. NO_x is also around 50,000 tons per year mostly coming from various fuel sources. SO_2 is emitted at a rate of around 10,000 tons per year, coming mostly from various fuel sources.

Air Pollution Sources

These sources are in addition to other statewide concerns.

- Craig coal-fired power plant.
- Coal mines in Delta, Rio Blanco and Moffat counties.
- Windblown dust.

Air Pollution Control Measures

Local control measures assist statewide measures in improving local and state air quality.

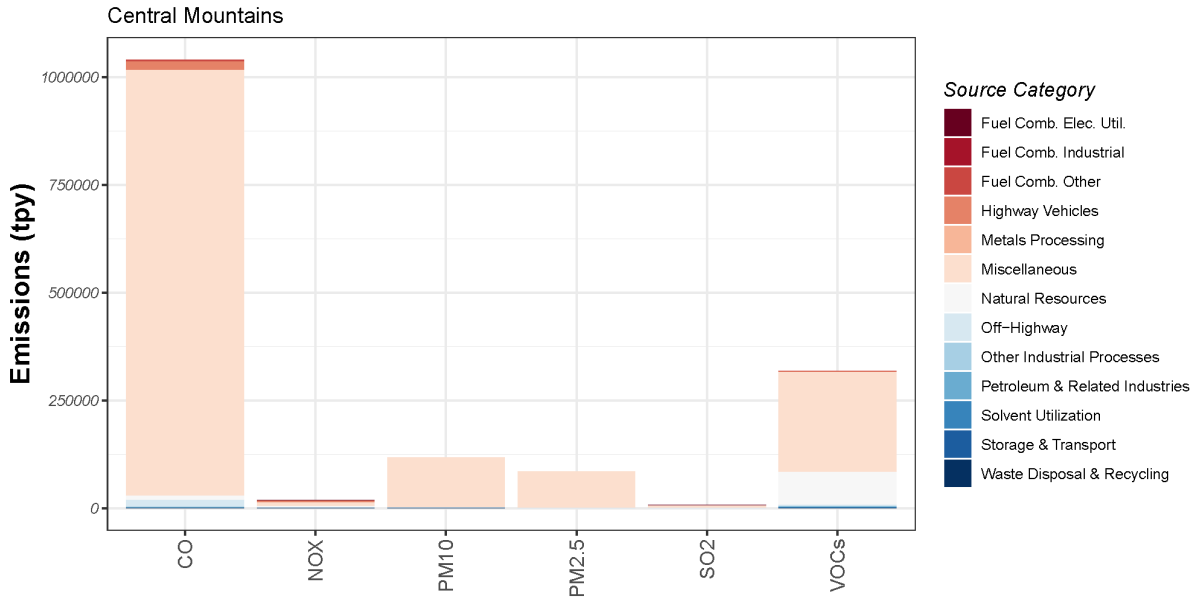
- Future closure and emissions reductions from controls at the Craig power plant. Unit 1 will be retired no later than December 31, 2025, Unit 2 will be retired no later than September 30, 2028, and Unit 3 will be retired no later than December 31, 2028.
- Colowyo coal mine is set to retire no later than December 31, 2030.

- Smoke Management Program for prescribed fire.
- Fugitive dust control plans.
- The PM_{10} Control Plan for Telluride includes: wood-burning control measures, street sweeping and sanding controls, use of chemical deicers, and paving of dirt roads.
- For Rangely, oil and gas emissions control measures are being developed for production areas across the Utah state line, which are the major influence on elevated ozone concentrations in the area.

Central Mountains

The Central Mountains Region consists of 12 counties in the central area of the state. The Continental Divide passes through much of this region. Mountains and mountain valleys are the dominant landscape. Leadville, Steamboat Springs, Cañon City, Salida, Buena Vista, and Aspen represent the larger urban areas. The population of this region saw a 7.1% increase from 2010 to 2020, and is about 241,886, according to 2020 U.S. Census. Skiing, tourism, ranching, mining, and correctional facilities are the primary industries of this region. Black Canyon of the Gunnison National Park is located in this region, along with several wilderness areas. All of the Central Mountain Region complies with federal air quality standards.

Figure 20: Central Mountains criteria emissions by source



The highest emitted pollutant in the Central Mountain Region is carbon monoxide at just over 1 million tons per year. VOCs are the next highest at around 300,000 tons per year. Both types of particulate matter come in around 100,000 tons per year, followed by NO_x and SO_2 below 25,000 tons per year. All of these pollutants are largely from miscellaneous sources.

Air Pollution Sources

These sources are specific to the Central Mountains.

- Holcim Portland cement plant in Fremont County.
- Hayden power plant.
- Climax Molybdenum Mine.
- Coal mines in Gunnison County.

Air Pollution Control Measures

These pollution control measures are in addition to other statewide measures.

- At coal-power plants in this region: dry limestone scrubbers to reduce sulfur dioxide emissions, fabric filter baghouse to control particulate emissions, selective catalytic reduction at the Hayden plant to control NO_x emissions. Hayden Unit 1 will be retired no later than December 31, 2028, and Unit 2 will be retired no later than December 31, 2027.
- At the Holcim Portland cement plant: fabric filter baghouses, selective non-catalytic reduction emissions for NO_x reduction, and wet limestone scrubbers for sulfur dioxide reduction.
- A smoke management program for large controlled burns.
- PM_{10} control plans include: wood-burning controls for Aspen, Cañon City, and Steamboat Springs; street sanding and sweeping controls in Aspen and Steamboat Springs; and traffic reduction measures in Aspen. Any industries located in these cities now or in the future must also comply with emission controls as part of state regulations.
- Application of best available emissions control technology to reduce GHG emissions at Holcim Portland Cement plant.

Stationary Source Permit Information

Each year, the Air Pollution Control Division (APCD) receives Air Pollutant Emission Notices (APENs) from over 1,500 different entities across the state. An APEN is used to report emissions, apply for permits, and modify existing permits. The APCD issues construction permits to authorize the construction of new facilities and the modification of existing facilities, and to allow their continued operation after they are built or modified. In some cases, the APCD determines the proposed activities are exempt from construction permitting requirements. For the largest industrial sources, the APCD also issues separate operating permits (sometimes referred to as Title V permits). These operating permits are issued after a facility is built and operating and incorporates all the air quality requirements that apply to the facility, along with enhanced monitoring, recordkeeping and reporting obligations.

Figure 19 summarizes the number of permits issued and the hours billed by the Division for permits from July 2023 through June 2024.

Figure 16: APCD staff time dedicated to stationary source permits

Actions	Construction Permits	Title V Permits
Total number of permits issued	1,015 construction permit actions[2]	63 Title V permit actions[3]
Total number of hours billed for permits	17,249 hours	15,201 hours[4]
Average number of hours billed per permit	17.0 hours per permit[5]	241 hours per permit action[5]
Number of general permits issued	2,284 general permits	None

[2] Number of permits issued and hours billed per permit represents 1,752 APEN submittals/actions. An issued permit can include terms and conditions for a single APEN (typically representing a single piece of equipment) or multiple APENs.

[3] Number of permit actions issued and includes all permit types: Initial, Renewal, Significant, Minor, and Administrative. Some permit actions are combined (e.g. Minor Modification issued along with Renewal), thus the actual number of permit issuances will be lower than this amount.

[4] This represents the total number of hours billed during this time period. Title V permits are billed on a quarterly basis, thus the hours may not be associated with a permit issued during this time period, or may include time billed for hours worked outside the time period.

[5] Total hours billed divided by total number of permits issued.

Enforcement Report

The Compliance and Enforcement and Oil and Gas Programs regulate stationary sources, including oil and gas, open burning, dust, and odors. The enforcement process can vary for each case, depending on the circumstances and time frame at issue. The APCD uses both formal and informal enforcement to address issues of noncompliance. Upon discovery of a violation in which enforcement action is recommended, the APCD will draft and send a Compliance Advisory (CA) or Notice of Violation (NOV) to notify the source of these noncompliance issues. The CA/NOV includes a statement that the company should contact the APCD to discuss the noncompliance issues. Upon discussing the issue internally and with the company, program staff will decide whether to dismiss the violation, issue a warning letter, proceed with settlement discussions or proceed with a unilateral Compliance Order (Order). Most of the cases are settled prior to issuance of an Order. Program staff work with alleged violators to ensure that the appropriate controls, included in the applicable regulation, are followed.

The Indoor Environment Program (IEP) regulates companies involved in the abatement of asbestos and lead-based paint. Building owners and schools may be affected by asbestos and lead paint control rules. In regulating schools, the Asbestos Unit inspects schools and school districts and might issue Notices of Noncompliance (NONs) which require the school to take certain steps to come into compliance. If the school comes into compliance within the stated time period, the APCD does not require the school to pay a civil penalty. For violations in other types of facilities, the IEP may issue a warning letter, dismisses the action, or attempt to reach an Early Settlement Agreement. For more complex cases, the IEP may issue a Notice of Alleged Violation (NOAV) at the onset of an enforcement action, if the IEP decides it is necessary. After an NOAV conference is held, the IEP will issue a Compliance Determination Letter. The IEP works with alleged violators to ensure that the appropriate control procedures, under the requirements in Regulation Number 8, Part B, or Regulation Number 19 are followed. The IEP may also take enforcement action against a person not in compliance with the requirements for the safe handling and disposal of CFCs.

The following table summarizes enforcement actions of the APCD. A full enforcement report is available at the Stationary sources enforcement action reports website.

Table 2: Enforcement Summary July 2023 - June 2024

Actions	Stationary Sources: Oil & Gas Sources	Stationary Sources: Non-Oil & Gas Sources	Indoor Environment Program: Asbestos	Indoor Environment Program CFCs	Indoor Environment Program: Lead-based Paint
Warning Letters	79	12	6	0	30
Compliance Advisories	134	70	n/a	n/a	n/a
Notices of Violation	4	0	n/a	n/a	n/a
Notice of Alleged Violation (NOAV)	n/a	n/a	22	0	1
Notices of Noncompliance (schools only)	n/a	n/a	13	n/a	n/a
Close Out Letters (schools only)	n/a	n/a	n/a	n/a	n/a
Compliance Orders	0	0	n/a	n/a	n/a
Compliance Orders on Consent	58	29	n/a	n/a	n/a
Early Settlement Agreements	71	39	4	0	1
Compliance Determination	n/a	n/a	56	0	0
Dismissal	n/a	n/a	1	1	0
AQCC Hearings	0	0	0	0	0

Enforcement Report Glossary of Terms

Close Out Letter (COL): Issued to a school or district after an inspection if they are in compliance or come into compliance to close the case.

Compliance Advisory (CA): The term Compliance Advisory or CA refers to a document through which the Division formally notifies a Source of alleged violations, per § 25-7-115, C.R.S.

Compliance Order (CO): If the Division determines that a violation or noncompliance did occur after a conference with the source, it may issue a compliance order. The order includes the final determinations of the Division regarding the violation or noncompliance, a summary of the proceedings at the conference, and an evaluation of the evidence considered by the Division in reaching its final determination of law.

Compliance Order on Consent (COC): A settlement agreement or express terms, mutually agreed upon in writing, between the recipient of an informal notice of noncompliance, compliance advisory or notice of violation, and the Division, resolving the discovered noncompliance issues.

Early Settlement Agreement (ESA): A settlement offer used for certain initiated enforcement actions that is made by the Division and agreed upon by the recipient in order to resolve a discovered noncompliance issue.

Notice of Alleged Violation (NOAV): The terms Notice of Alleged Violation or NOAV refer to a document through which the Division formally notifies a Source of alleged violations, per § 25-7-115, C.R.S.

Notice of Noncompliance (NON): Issued to a school and requires the school to take certain steps to come into compliance with state and federal regulations. If the school comes into compliance within the stated time period, the Division does not require the school to pay a civil penalty.

Notice of Violation (NOV): The terms Notice of Violation or NOV refer to a document through which the Division formally notifies a Source of alleged violations, per § 25-7-115, C.R.S.

Warning Letter: A written notification to a source that the Division has documented a violation that further recurrence could result in enforcement action being taken, but that no further enforcement action will result directly from the instant violation.

Contributing Agencies and Organizations

Air Pollution Control Division Programs

The Air Pollution Control Division is responsible for implementing the air quality management programs adopted by the Air Quality Control Commission and acts as staff to the AQCC in the regulatory development process. The APCD is housed within the Colorado Department of Public Health and Environment.

The APCD is growing in complexity and overall operational size due to the approval of the Fiscal Year 2023 budget Decision Item in April of 2022, which added 106 FTE staff to be phased-in during FY23 and FY24, as well as the passage of a number of significant bills to be implemented, including 21-1266 (Environmental Justice Act), 21-260 (Transportation Sustainability), 21-1286 (Building Efficiency Standards), 21-1189 (Regulating Air Toxics), 21-264 (Natural Gas Utility), 22-1244 (Air Toxics), 22-179 (Deter Tampering Motor Vehicle Emission Control Systems), 24-229 (Ozone Measures), and 24-1338 (Cumulative Impacts and Environmental Justice). To effectively implement the multiple initiatives, the APCD is undergoing a transformation that required some restructuring and the development of new work teams. Since April 2022, the APCD has hired 285 staff to fill newly authorized positions and existing or newly vacant positions. The pace of hiring will continue to be high throughout FY24. As a result, the APCD has grown from 170 staff to 370 staff.

The APCD is now organized into four sections: Business Operations, Regulatory Affairs, Stationary Sources, and a fourth section that includes the Air Quality Policy, Community and Partnership Program, Mobile Sources Program, and Technical Services Program/Air Toxics and Ozone Precursors Program. Within Regulatory Affairs and Stationary Sources there are now 12 specialized programs and teams. A description of each of the programs follows.

Air Quality Policy

The Air Quality Policy Team manages the breadth and complexity of the APCD's air quality policy work. The team oversees, coordinates, and manages policy efforts involving elected officials such as the Colorado legislature, the federal delegation, and city councils. This team directly advises leadership regarding a wide spectrum of policy-related work, which will typically give rise to legislative proposals or act on new legislative directives. This team coordinates implementing the APCD's vision in a manner that achieves cross-program alignment, and a systematic and coordinated approach to long term programmatic and division policy goals.

Air Toxic and Ozone Precursor Program

The Air Toxics and Ozone Precursor Section (ATOPS) Program provides technical ambient air monitoring expertise for both mobile and stationary air toxics, ozone precursors, and special projects monitoring. Ambient air monitoring data produced from this program is used to support and inform a wide variety of stakeholder's interests and decision-making needs.

Climate Change Program

The Climate Change Program's primary work includes: developing and implementing GHG reduction measures the AQCC adopts; overseeing the state's GHG reporting program and statewide GHG inventory; and providing technical assistance on GHG reductions, such as the verification of GHG reduction plans of utilities under the Public Utility Commission's jurisdiction.

Community and Partnership Program

This Community and Partnerships Program manages and coordinates the APCD's communications, community engagement, environmental justice, and oil & gas liaison programs and services. This program integrates and aligns activities and services to ensure coordination and collaboration within the CDPHE, APCD, and with external partners.

Compliance and Enforcement Program

The Compliance and Enforcement Program aligns the inspection and enforcement functions of the Division. The Compliance Monitoring Section inspects sources to determine their compliance with regulations and permit conditions. The Enforcement Section addresses alleged violations of emissions control regulations. Sources found to be out of compliance with either regulations or their permit conditions may be subject to enforcement actions and prescriptive remedies designed to help them come back into compliance.

Indoor Environment Program

The Indoor Environment Program (IEP) provides technical assistance on indoor air pollutants. The program regulates the use of ozone-depleting compounds (chlorofluorocarbons or CFCs) and the abatement of asbestos and lead-based paint. The IEP certifies abatement personnel who work with asbestos or lead-based paint, reviews and issues permits for abatement and demolition activities, and conducts regular inspections to ensure compliance. The program responds to complaints from the public and assists with large-scale destruction of structures from wildfires or flooding. The IEP also reviews school asbestos management plans and conducts inspections of schools for compliance with applicable state and federal regulations. Finally, the IEP provides information to the public on general indoor air quality issues.

Mobile Sources Program

The Mobile Sources Program (MSP) is responsible for developing and administering regulatory requirements to reduce emissions from gasoline and diesel vehicles. The staff jointly administers the Automobile Inspection and Readjustment (AIR) Program for gasoline vehicles in the Denver-Metropolitan and North Front Range Areas with the Colorado Department of Revenue. As part of the program, MSP is effectively using a remote sensing technology to screen out about 25% of resident vehicles older than seven years from inspection at an emissions test facility. MSP administers two separate diesel opacity inspection programs, one designed for large fleets and the other for individual diesel vehicles. MSP operates emissions technical centers to support both the gasoline and diesel programs to provide customer assistance to motorists failing emissions inspections. The center's technicians are recognized experts in their field and contribute to ensuring that the motor vehicle repair industry has access to the latest technical information on vehicle emissions repair procedures and technology.

MSP is involved in innovative research and policy development designed to create new programs and strategies. These programs and strategies include efforts to address vehicle tampering, repair high-emitting vehicles owned by low income motorists, low/zero emissions vehicle regulations, and electrification efforts and grant programs with an emphasis on school buses.

Office of Innovation in Planning

The Office of Innovation in Planning (OIP) is part of the Regulatory Affairs Program within the Colorado Air Pollution Control Division. The purposes of OIP are to support the Division's air quality planning and strategic development activities, conduct air quality assessment work, and serve as a bridge between different programs within the Division that conduct air quality planning and assessment. Currently, the Office of Innovation in Planning (OIP) is leading the effort to create a GHG reduction program for the oil and gas industry, as required by HB19-1261 and HB21-1266, as well as the AQCC's GHG resolution. In the future, OIP will provide technical and policy support and project management for innovative new programs within the Division.

Oil and Gas Program

The Oil and Gas Program is directly responsible for the permitting and compliance oversight of the oil and gas industry. This program also supports a variety of other initiatives such as oil and gas-related rulemakings, Oil and Gas Health Information and Response, and the Energy and Carbon Management Commission.

Permitting Program

The Permitting Program handles all other stationary source permitting activities including Title V (some of Colorado's largest sources of air pollution), non-oil and gas minor source permitting, and a variety of industrial sources such as mining operations, landfills, bakeries, crematoria.

Planning and Policy Program

The Planning and Policy Program is responsible for a cross-section of air quality planning, policy, rulemaking, compliance assistance, education, and community outreach tasks. Included among this program's responsibilities are regulatory duties such as developing plans to return areas with poor air quality to compliance with federal standards; developing regulations to support those plans; developing programs in response to state goals identified through legislation (for example: mitigating the impact of poor air quality on disproportionately impacted communities and addressing air toxics); ensuring transportation plans are consistent with air quality requirements; and developing policy. This program is also responsible for community work including providing stakeholder and community outreach; assisting small businesses in complying with air quality regulations; identifying pollution prevention opportunities; providing public information; reviewing environmental assessments; and providing air quality education in schools. The Planning and Policy Program coordinates the APCD's efforts addressing air toxics, climate change, ozone planning, regional haze plan development, and the Rocky Mountain National Park Initiative, and administers Colorado's Volkswagen Diesel Emissions Settlement and Diesel Emission Reduction Act funds.

Technical Services Program

The Technical Services Program is responsible for the collection and analysis of ambient air quality data throughout the state. Particulate and gaseous monitors are operated in many Colorado communities to keep track of air quality trends, population exposure to pollutants, and compliance with air quality standards. The program also is responsible for providing complex air quality modeling analysis to determine the impacts various sources of air pollution will have on air quality. Air quality forecasting is conducted statewide throughout the year for potential exceedances of standards, with a focus on winter high pollution season, summer ozone season, and impacts from wildfires and blowing dust. The program also manages smoke through a burn permit process and by working with fire managers to review and approve plans for controlled burns.

Other Colorado Department of Public Health and Environment Programs

Air Quality Enterprise

The Air Quality Enterprise is housed within CDPHE's Administration Division and supported by APCD staff. The purpose of the enterprise is to conduct science-based, unbiased air-quality monitoring and provide emissions mitigation services.

Clean Fleet Enterprise

The Clean Fleet Enterprise is housed within CDPHE's Administration Division and supported by APCD staff. The purpose of the enterprise is to incentivize and support the use of electric motor vehicles and other clean fleet technologies by owners and operators of motor vehicle fleets in Colorado.

Federal Government

The United States Environmental Protection Agency

The U.S. Environmental Protection Agency (EPA) has established a regulatory framework for states to follow under the Clean Air Act (CAA). The AQCC's air quality management program incorporates the requirements of the federal CAA and any regulations or standards generated by the EPA as directed by the CAA. The EPA provides Colorado with policy directives and guidance, oversight, and funding to assist with meeting federal requirements.

Federal Land Managers

Federal lands in Colorado are managed by various branches of the federal government, including the Bureau of Land Management, U.S. Forest Service, and National Park Service. Major activities on these lands that impact air quality may come under review through the National Environmental Policy Act (NEPA). Examples of major activities include highway transportation projects, military base expansions and activities, oil and gas development, and mining activities. Federal agencies must prepare environmental analyses for federal actions that affect the local environment. Colorado is typically a cooperating agency in reviewing these actions, and the public has a role in commenting on such actions through the NEPA process. Alternatives are typically evaluated in the process before a final decision is made allowing the implementation of projects on federal lands.

Tribal Governments

Tribes in Colorado have authority to protect and improve air quality on tribal lands. Colorado has established an effective, collaborative relationship with the Southern Ute Indian Tribe as the Tribe works to develop and implement a comprehensive air quality management program. The Tribe was delegated authority to implement the Federal Minor Source Review (MNSR) Program on June 11, 2024. The Tribe also actively monitors air quality at a number of sites on their lands. An intergovernmental agreement signed in 1999 between the Tribe and Colorado created the Southern Ute Indian Tribe/State of Colorado Environmental Commission. It is dedicated to overseeing the development and implementation of a comprehensive and effective program for the protection of air quality throughout the Southern Ute Indian Reservation. The other tribe in Colorado, the Ute Mountain Ute, has not established an air quality program on its lands. The EPA implements and enforces federal air quality measures on this reservation.

Local Government

Many air quality programs are implemented at the county and municipal level. In some cases, the state contracts with counties to implement state air quality programs. Find your local public health agency.

Local Planning Agencies

Local planning agencies exist in several metropolitan areas. The agencies have a variety of functions, including air quality and transportation planning.

Regional Air Quality Control Council (RAQC)

North Front Range Metropolitan Planning Organization (NFRMPO)

Denver Regional Council of Governments (DRCOG)

Pikes Peak Area Council of Governments (PPACG)

The Public

Everyone has an important part to play in improving air quality. See the links below to stay informed about air quality conditions and for a few suggested ways you can make a difference in your own community.

Improving Indoor Air Quality

Mow Down Pollution Lawn Mower Exchange Program

Simple Steps. Better Air.

Colorado Air Quality Advisory Information and Email List Signup

Air Pollution Control Division Regulatory and Public Notice Email List Signup

Summary of Regulations

The following is a summary of the Air Quality Control Commission's (AQCC) air quality regulations.

Common Provisions

The Common Provisions Regulation sets forth requirements and definitions that pertain or may pertain to other AQCC regulations.

Procedural Rules

The Procedural Rules includes rules that the AQCC follows for its regular monthly meetings, public hearings, rulemaking hearings, and adjudicatory hearings.

Air Quality Standards Regulation

The Air Quality Standards, Designations and Emission Budgets establishes ambient air quality standards for Colorado and dictates monitoring procedures and data handling protocols. It also defines nonattainment area boundaries for locations in the state which historically have violated federal and state air quality standards. In addition, the regulation contains the state's urban visibility standard and sets emission budgets for nonattainment areas.

State Implementation Plan Specific Regulation

The State Implementation Plan, Specific Regulations for Nonattainment-Attainment/Maintenance Areas (Local Elements) defines specific requirements concerning air quality control strategies and contingency measures for nonattainment areas in the state.

Particles, Smoke, Carbon Monoxide, and Sulfur Oxides

Regulation Number 1 sets forth emission limitations, equipment requirements, and work practices (abatement and control measures) intended to control the emissions of particles, smoke, and sulfur oxides from new and existing stationary sources. Control measures specified in this regulation are designed to limit emissions into the atmosphere and thereby minimize the ambient concentrations of particles and sulfur oxides.

Odor Control

Regulation Number 2 sets standards for allowable odor contaminants for different land-use areas in the state and outlines control measures that can be taken to bring violators into compliance.

Air Pollution Emission Notices and Permits

Regulation Number 3 requires air pollution sources to file Air Pollution Emission Notices (APENs). It also requires that new or modified sources of air pollution – with certain exemptions – obtain preconstruction permits. Very large facilities also are required to obtain operating permits.

Wood Burning Controls

Regulation Number 4 requires new stove and fireplace inserts to meet federal certification standards in specified areas of the state.

New Source Performance Standards

Regulation Number 6 sets standards of performance for specific new stationary sources in Colorado. The regulation is designed to bring new sources into compliance with the EPA's New Source Performance Standards. In addition, the regulation sets standards for new industries that are unique to Colorado for which the EPA has not yet set standards.

Volatile Organic Compounds Control

Regulation Number 7 controls the emissions of VOCs, primarily in the Denver-Metro Area. It sets standards and mandates controls for specific types of volatile organic compound sources.

Hazardous Air Pollutants Control

Regulation Number 8 sets forth specific work practices, emission control requirements, and standards for hazardous air pollutants and asbestos.

Open Burning, Prescribed Fire, and Permitting

Regulation Number 9 applies to all open burning activities throughout the state to control smoke and emissions from open fires. The regulation sets forth requirements for permitting including prescribed fires, controlled burns, and significant users of prescribed fires.

Transportation Conformity

Regulation Number 10 defines the criteria the AQCC uses to evaluate the consistency between state air quality standards/objectives, transportation planning, and major construction activities across the state, as defined in state implementation plans.

Motor Vehicle Inspection Program

Regulation Number 11 requires automobile emission inspection and maintenance programs to be implemented in specified areas of the state for gasoline-powered on-road vehicles. These programs apply to businesses, industry, and the general public.

Diesel Vehicle Inspection Program

Regulation Number 12 defines the state's vehicle emission inspection and maintenance program for diesel-powered, on-road vehicles.

Chlorofluorocarbons

Regulation Number 15 identifies the requirements to control emissions of stratospheric ozone-depleting compounds from both stationary and mobile sources.

Street Sanding and Sweeping

Regulation Number 16 sets specification standards for street sanding material and street sweeping practices in the Automobile Inspection and Readjustment program area, and the Denver-Metro PM_{10} nonattainment area.

Acid Rain Control

Regulation Number 18 sets forth the requirement for implementing Colorado's acid rain program. This program is adopted by reference from the federal program found in 40 C.F.R., Part 72 as in effect on Jan. 6, 1994.

Lead Based Paint

To ensure appropriate engineering controls are used, Regulation Number 19 defines the requirements for certifying lead abatement professionals and for permitting lead paint abatement projects in pre-1978 housing and child occupied facilities.

Low and Zero Emission Vehicle Standards

Regulation Number 20 includes Low-Emissions Vehicle (LEV) standards for 2022 model year and later passenger cars and light- and medium-duty trucks, and Zero-Emissions Vehicle (ZEV) standards for 2023 model year and later passenger cars and light-duty trucks.

Control of Volatile Organic Compounds from Consumer Products and Architectural and Industrial Maintenance Coatings

Regulation Number 21 reduces emissions of volatile organic compounds (VOCs) from consumer products and architectural and industrial maintenance coatings.

Greenhouse Gas Reporting and Emission Reduction

Regulation Number 22 includes requirements for the reporting of certain greenhouse gas (GHG) emissions and the phase-out of hydrofluorocarbons (HFCs) in manufacturing and end-use in products.

Regional Haze Limits

Regulation Number 23 includes Best Available Retrofit Technology (BART) and Reasonable Progress (RP) requirements to reduce emissions of visibility impairing pollutants.

Control of Emissions from Volatile Organic Compounds and Petroleum Liquids Storage and Petroleum Processing and Refining

Regulation Number 24 reduces emissions of VOCs from petroleum liquids storage, processing, and refining. These requirements were previously included in Regulation Number 7, Part B.

Control of Emissions from Surface Coating, Solvents, Asphalt, Graphic Arts and Printing, and Pharmaceuticals

Regulation Number 25 reduces emissions from certain activities involving surface coating, solvents, asphalt, graphic arts and printing, and pharmaceuticals. These requirements were previously included in Regulation Number 7, Part C.

Control of Emissions from Engines and Major Stationary Sources

Regulation Number 26 includes emission control requirements for certain engines and major stationary sources. These requirements were previously included in Regulation Number 7, Part E.

Greenhouse Gas Emissions and Energy Management for the Manufacturing Sector

Regulation Number 27 includes audit and emission reduction requirements for certain industrial and manufacturing facilities. These requirements were previously included in Regulation Number 22.

Building Benchmarking and Performance Standard

Regulation Number 28 includes GHG emissions attributable to buildings to include building performance standards for covered buildings, waivers and extensions, and data benchmarking and reporting requirements.

Emissions Reduction Requirements for Lawn and Garden Equipment

Regulation Number 29 sets use-restrictions for certain lawn and garden products used in Colorado by federal, state, and local government agencies to reduce air pollutant emissions from push and handheld lawn and garden equipment.