
Utah Division of Air Quality

2023 Annual Report



UTAH DEPARTMENT *of*
ENVIRONMENTAL QUALITY
**AIR
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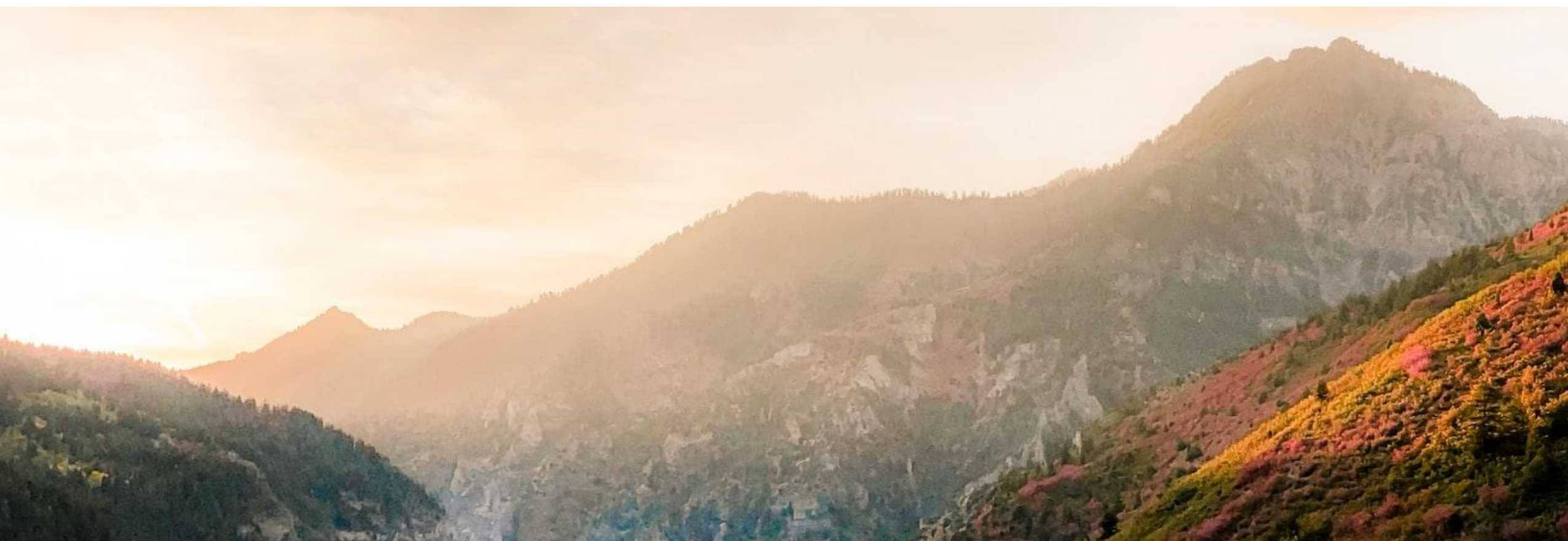
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Introduction

The mission of the Utah Division of Air Quality (the Division) is to safeguard and improve Utah's air through balanced regulation. The purpose of the Division is to achieve and maintain levels of air quality which will protect human health and safety, and to the greatest degree practicable, prevent injury to plant and animal life and property, foster the comfort and convenience of the people, promote the economic and social development of this state, and facilitate the enjoyment of the natural attractions of this state. It is the responsibility of the Division to ensure that the air in Utah meets health and visibility standards established under the federal Clean Air Act (CAA). To fulfill this responsibility, the Division is required by the federal government to ensure compliance with the U.S. Environmental Protection Agency's (EPA) National Ambient Air Quality Standards (NAAQS) statewide and visibility standards at national parks. The Division enacts rules pertaining to air quality standards, develops plans to meet the federal standards when necessary, administers emissions reductions incentive programs, issues pre-construction and operating permits to stationary sources, and ensures compliance with state and federal air quality rules, statutes, and regulations.

The Division allocates a large portion of its resources to implementing the CAA. The Utah Air Conservation Act (Utah Code §19-2) delegates rulemaking power to the Utah Air Quality Board (Board) to promulgate rules pertaining to air quality issues. The Division staff supports the Board in its policy-making role. The Board is comprised of nine members representing local government, environmental groups, the public, industry, and the Executive Director of the Department of Environmental Quality. The Board members have diverse interests, are knowledgeable in air pollution matters, and are appointed by the Governor with consent of the senate. The Director of the Division is the Board's Executive Secretary.



The Utah air quality rules define the Utah air quality program. Implementation of the rules requires the Division's interaction with industry, other government agencies, and the public. The state air quality program is responsible for the implementation of the federal standards under the CAA, as well as state rules for pollution sources not regulated by the CAA.

2023 Synopsis

The overall story of Utah's battle with wintertime air pollution is a story of success. Air quality along the Wasatch Front during winter months shows a clear trend of continued improvement over the past two decades despite a period of unprecedented growth in population and economic activity in the state. All nonattainment areas have now met the 2006 federal standard for fine particulate matter (PM_{2.5}) and significant progress is being made toward limiting the formation of ground-level ozone.

Despite these and other successes, in coming years Utah faces a growing list of challenges that threaten to unravel the progress that has been made. Summertime ozone is now the primary air quality concern along the Wasatch Front as concentrations are continually above the health standard. Utah is one of the fastest growing states and much of this growth is concentrated in urban centers along the Wasatch Front, producing an outsized negative impact on air quality in those areas. Changes in precipitation patterns associated with climate change will also negatively impact Utah's air quality. Persistent drought throughout the Western United States continues to produce large wildfire events with increasing frequency that significantly degrade air quality for Utah residents.

Receding water levels in the Great Salt Lake are exposing areas of lakebed contaminated with arsenic and other hazardous materials that are susceptible to transport into populated areas through dust storms. In addition, it is likely that the federal standards for PM_{2.5} and ozone will be reduced in coming years, making it ever more challenging to meet and maintain compliance. Thus, despite a history of successes improving wintertime air quality, the state is at a tipping point with regard to ozone. Future success will require a similar level of sustained and coordinated commitment to make summertime air clean and healthy for generations to come.

The following is a brief list of notable air quality highlights from 2023:

Meeting National Ambient Air Quality Standards

- The Northern Wasatch Front (NWF) ozone Nonattainment Area (NAA) includes Davis and Salt Lake counties, as well as portions of Tooele and Weber counties. The state

of Utah submitted a moderate State Implementation Plan (SIP) for the area in October 2023 to the EPA. However, monitoring data from 2021 - 2023 shows that the area will not attain the standard by the moderate attainment date, and the area will be reclassified from moderate to serious nonattainment in early 2025. With the reclassification comes a requirement to submit another SIP revision that details how the area will continue to reduce emissions, and implement additional statutory requirements under the new designation as the area works towards meeting the health-based standard. The Division has already begun the process of planning and preparing the serious SIP that will be submitted to the EPA in January of 2026. The Division will also develop and submit a retrospective 179B(b) demonstration for the NWF NAA, allowing the state to further examine and comment on the contributions of international emissions on the area's ability to attain the standard.

- The Southern Wasatch Front Ozone Nonattainment Area (SWF NAA) includes Utah County. Monitored data collected during the summers of 2018, 2019, and 2020 show that the area attained the ozone standard of 0.070 ppm by the attainment date of August 3rd, 2021. As a result, the SWF NAA remains classified as a marginal NAA and the state is not required to develop and submit a State Implementation Plan for this area. A maintenance plan and redesignation request will be submitted in the future when resources are available.
- The Uinta Basin Ozone Nonattainment Area (UB NAA) includes portions of Uintah and Duchesne counties. The area is classified as a marginal nonattainment area due to unusual wintertime ozone issues caused by emissions from oil and gas extraction in the area. The area remains classified as marginal having submitted two one-year extensions to the attainment date with monitored data that shows that the area attained the standard. Ozone levels were very high in the basin in 2023 and may impact EPA's approval of the attainment date extensions.
- In November of 2020, the EPA proposed to redesignate the Salt Lake City and Provo PM_{2.5} nonattainment areas to attainment. EPA received adverse comments on the proposal. EPA and the Division continue working through how to address the adverse comments so that the areas can be redesignated by the deadline of December 2025.

Monitoring

- The Legislature appropriated \$3,236,000 to the Division during the 2022 general session for Photochemical Assessment Monitoring Systems to be purchased and installed throughout the ozone nonattainment areas on the Wasatch Front. Three sites, including Hawthorne, Red Butte, and a temporary site at the Technical Center

are fully operational. The Division continues work on the Erda and Bountiful sites. The information from these new monitors will help the Division understand how and what precursors are interacting in the atmosphere to cause ozone production. Eventually, this information could be used to tailor pollution control strategies and improve photochemical modeling for regulatory purposes.

- The Division also received funding from the Legislature to install ambient air monitoring systems in Wasatch and Summit counties. A site has been identified in Wasatch County and the Division is working towards equipment installation. Site procurement in Summit County is ongoing as the Division works with property owners and the utilities company.

Permitting

- The Division issued 128 permits during 2023, with an average of 138 days to issue the permit from application
- Title V permitting drafted the first Utah refinery permit this year, completing the process through public comment and preparing it for EPA 45 day review. The Utah refinery permits have been on hold since 1995 due to EPA SIP conflict issues, which were finally resolved in August 2023.
- Title V permitting completed all but one renewal this year leaving only a single permit in “extended beyond permit date” status. This rate of completed renewals is unmatched in the nation.

Compliance

- 980 site inspections were conducted in 2023. 644 stack test and continuous emission monitoring reports were reviewed. 169 compliance actions were taken that resulted in 22 warning letters, 19 no-further-action letters, and 28 settlement agreements with a total assessed penalty amount of \$499,801.
- The Division and EPA continued joint enforcement actions associated with oil and gas facilities in the Uinta Basin. No additional consent decrees were finalized this year, but significant progress has been made toward closing out the ongoing sites in the coming year. A new joint enforcement action associated with engine compliance in the Uintah Basin was initiated in December of this year as well.

Air Quality Research Projects

- The Division is supporting a study called the Utah Summer Ozone Study (USOS). The study is being conducted by the National Oceanic and Atmospheric Administration (NOAA). NOAA will leverage a mobile laboratory van and a fully-instrumented Twin Otter aircraft to collect measurements of ozone precursors around the Salt Lake Valley. This study is critical in understanding ozone pollution in the Salt Lake Valley. It is expected that results from this study will improve the Division's regulatory modeling efforts and better inform policy and rulemaking.
- The Division continues to work on a number of EPA-funded projects including the enhancement of particulate matter (PM_{2.5}, PM₁₀) monitoring in underserved areas of the Wasatch Front. The Division will also measure volatile organic compounds (VOCs) in local communities. Additionally, EPA funding for these projects will also help benefit other state efforts to improve indoor air quality (Utah DHHS) and Radon testing (Utah DEQ/DWMRC).
- The Division has completed its EPA-funded ethylene oxide (EtO) monitoring project and a final report has recently been submitted to the EPA. The Division also took this opportunity to help the Environmental Council of the States (ECOS) develop state-of-science guidance regarding EtO emissions and monitoring.

Air Quality Incentive Programs

Newly established in 2023 is the Division of Air Quality's Grants/Incentives Section. The new section oversees a variety of funding opportunities that are available to individuals, businesses, and government organizations for voluntarily reducing emissions. Programs include incentives for reducing emissions from on- and off-road vehicles and equipment, yard care equipment, wood stoves, oil and gas production, and encourage the adoption of transformative zero-emission technologies. Funding for the programs come from a range of sources, including federal funding opportunities, state appropriations, and settlement monies. This year's project highlights include:

- The Division submitted a \$2.1 million application to the U.S. Department of Energy (USDOE) for the Mitigating Emissions from Marginal Conventional Wells funding to plug and abandon marginal conventional wells in the Uinta Basin. The USDOE informed the Division that an increased award of \$2.7 million will be granted to the agency in 2024.
- DEQ became a Coalition Partner of the Office of Energy Development's \$100 million Solar for All Utah grant application to EPA. Additional Coalition Partners include Utah Clean Energy, the University of Utah, Salt Lake County, and Salt Lake City. The program will offer residential and community solar exclusively to low-income

residents in urban, rural, and Tribal areas. EPA anticipates selecting grantees in Spring 2024.

- The Uintah School District was awarded nearly \$1.5 million through the DEQ's Environmental Mitigation Fund (EMF) to replace ten diesel school buses with electric. The award supplement's EPA's award to the district of \$3.75 million. Both awards provide 100% funding to the district for ten electric school buses and the electric charging infrastructure.
- Vernal City received a \$230,000 award from the EMF for the Discovery Elementary Trail that is an identified alternative transportation corridor that will address pedestrian and bike pinch points and reduce unnecessary vehicle trips and idling near Discovery Elementary.

Greenhouse Gas Reduction Planning

A new greenhouse gas reduction planning initiative became available to states and tribes in 2023. The Inflation Reduction Act of 2022 (IRA) established funding for state greenhouse gas planning and implementation efforts known as the Climate Pollution Reduction Grants (CPRG) program.

- This funding initiative includes two phases:
 - Phase I provides \$3 million for states to write a priority emission reduction plan in the near-term and a long-term comprehensive emission reduction plan.
 - Phase II will provide \$4.6 billion nationwide in competitive implementation grant funding.
- On March 31, 2023, Governor Cox submitted a Notice of Intent to Participate in the Climate Pollution Reduction Grant to EPA that identified UDEQ as the lead organization.
- The Division launched Utah's Beehive Emission Reduction Plan with a kickoff meeting on August 24, 2023. All interested stakeholders may participate and submit emission reduction ideas. The priority plan will be submitted to EPA by March 1, 2024 and will detail emission reduction measures for Utah. Phase II grant applications are due to EPA on April 1, 2024 and the projects submitted must be part of the priority plan.

2023 Legislative Reports

General Session 2023 House Bill 220: Emissions Reduction Amendments

HB 220 directs the Division to:

- Complete an air emissions inventory of point sources that emit halogens by December 31, 2024.
- Complete a best available control technology emissions reduction plan to reduce compounds of halogens with an implementation date of December 31, 2026.
- Provide recommendations for a state standard limiting halogen emissions. These items are to be published on the Division's website. The legislation also directs the Division to report on the status of the above to the Natural Resources, Agriculture, and Environment (NRAE) Interim Committee during the November 2023 and 2024 meetings.

The legislation's applicability is limited to Box Elder, Davis, Salt Lake, Weber, Tooele, and Utah counties. The legislation also directs the Division to report to the Natural Resources, Agriculture, and Environment (NRAE) Interim Committee during the November 2023 and 2024 meetings. More information, including the interim report, can be found [here](#).

General Session 2022 Senate Bill 136: Air Quality Policy Amendments

S.B. 136 directs the Division to conduct studies and provide recommendations that inform the development of a Utah-specific diesel emissions reduction framework. The final report was submitted to the NRAE Interim Committee, the Economic Development and Workforce Services Interim Committee, and the Transportation Interim Committee. The report was submitted to the committees in November 2023 and included a diesel emissions reduction

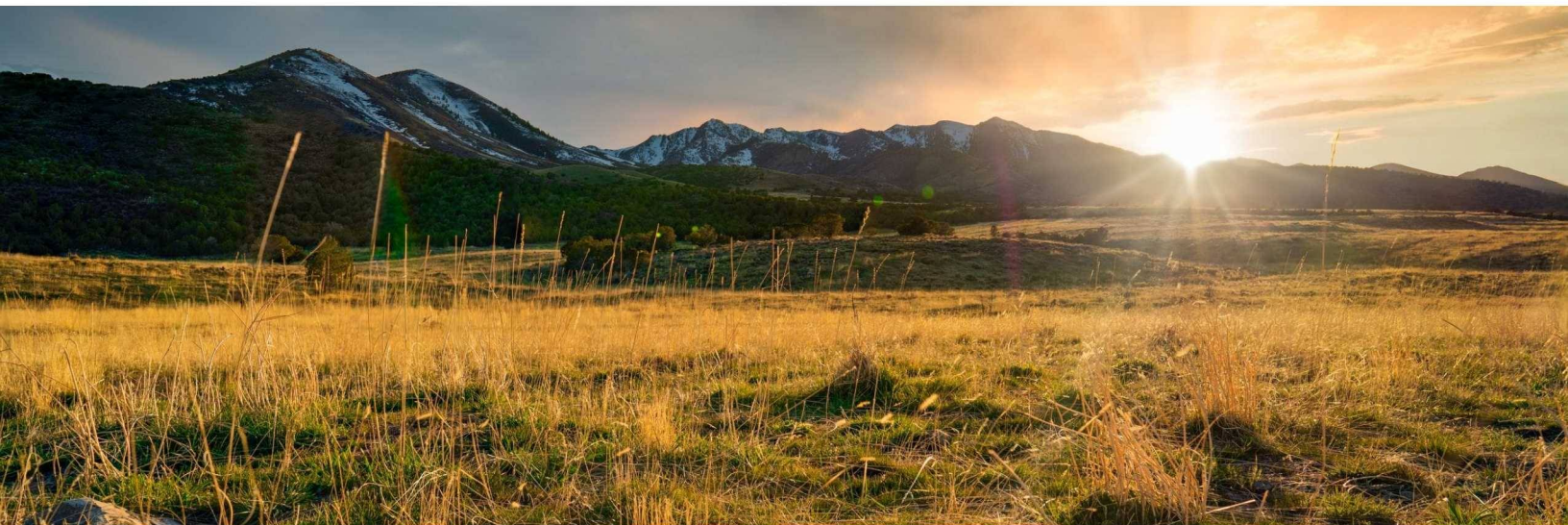
program study and recommendations for a Utah Diesel Emissions Reduction Framework. The report can be found [here](#).

Air Quality Standards

The CAA requires the EPA to set NAAQS for pollutants considered harmful to public health and the environment. The CAA establishes two types of air quality standards: primary and secondary. Primary standards are set to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards are set to protect public welfare, including protection from decreased visibility and damage to animals, crops, vegetation, and buildings.

Standards are composed of a numerical value and a form (Table 2). The form may be a statistical value, such as the 98th percentile calculation, or a rolling average over a designated period of time that is then compared against the numerical value.

The EPA has established health-based NAAQS for six pollutants known as criteria pollutants. The six criteria pollutants are carbon monoxide, nitrogen dioxide, ozone, particulate matter, sulfur dioxide, and lead. Each criteria pollutant is addressed in greater detail later in this report. Table 1 provides a brief description of each criteria pollutant and Table 2 provides a brief description of each criteria pollutant's primary and secondary standard. The EPA establishes the primary health standards after considering both the concentration level and the duration of exposure that can cause adverse health effects. Pollutant concentrations that exceed the NAAQS are considered unhealthy for some portion of the population. At concentrations between 1.0 and 1.5 times the standard, the general public is not expected to be adversely affected by the pollutant; however, the most sensitive portion of the population may be affected. At levels above 1.5 times the standard, even healthy people may experience adverse effects.



The Division monitors each criteria pollutant in the ambient air, as well as meteorological conditions and several non-criteria pollutants for special studies at various monitoring sites throughout the state.

Table 1: EPA Designated Criteria Pollutants

EPA Designated Criteria Pollutants			
Name	Sources	Health Effects	Welfare Effects
Carbon Monoxide (CO), a clear, colorless, odorless gas.	Burning of gasoline, wood, natural gas, coal, oil, etc.	Reduces the ability of blood to transport oxygen to body cells and tissues. May be particularly hazardous to people who have heart or circulatory (blood vessel) problems and people who have damaged lungs or airways.	
Nitrogen Dioxide (NO ₂) (one component of NO _x) smog-forming chemical.	Burning of gasoline, natural gas, coal, oil, and other fuels; Cars are also an important source of NO ₂	Can cause lung damage, illnesses of airways, and lungs (respiratory system).	An ingredient of acid rain (acid aerosols) which can damage trees, lakes, flora, and fauna. Acid aerosols can also reduce visibility.
Ozone (O ₃) (ground-level ozone is the principal component of smog)	Chemical reaction of pollutants; Volatile Organic Compounds (VOCs), and NO _x	Can cause breathing problems, reduced lung function, asthma, irritated eyes, stuffy nose, and reduced resistance to colds and other infections. It may also speed up aging of lung tissue.	Can damage plants and trees; smog can cause reduced visibility.
Particulate Matter (PM ₁₀ , PM _{2.5}) dust, smoke, soot.	Burning of gasoline, natural gas, coal, oil, and other fuels; industrial plants; agriculture (plowing or burning fields); unpaved roads, mining, construction activities. Particles are also formed from the reaction of VOCs, NO _x , SO _x , and other pollutants in the air.	Can cause nose and throat irritation, lung damage, bronchitis, and early death.	Main source of haze that reduces visibility.

Sulfur Dioxide (SO ₂)	Burning of coal and oil (including diesel and gasoline); industrial processes.	Can cause breathing problems and may cause permanent damage to lungs.	Ingredients of acid rain (acid aerosols) which can damage trees, lakes, flora, and fauna. Acid aerosols can also reduce visibility.
Lead (Pb)	Paint (houses, cars), smelters (metal refineries); manufacturing of lead storage batteries; note: burning leaded gasoline was the primary source of lead pollution in the U.S. until the federal government mandated unleaded gasoline.	Damages the nervous systems, including the brain, and causes digestive system damage. Children are at higher risk. Some lead-containing chemicals cause cancer in animals.	Can harm wildlife.

Table 2: Ambient Air Quality Standards

Ambient Air Quality Standards				
Pollutant	Averaging Time	Primary / Secondary	Standard	Form
Ozone (O ₃)	8 Hour	Primary and Secondary	0.070 ppm	Annual Fourth-highest daily maximum 8-hr concentration, averaged over three years
Respirable Particulate Matter (PM ₁₀)	24 Hour	Primary and Secondary	150 µg/m ³	Not to be exceeded more than once per year on average over three years
Fine Particulate Matter (PM _{2.5})	24 Hour	Primary and Secondary	35 µg/m ³	98 th percentile, averaged over three years
	Annual	Primary	12 µg/m ³	Annual mean, averaged over three years
		Secondary	15 µg/m ³	Annual mean, averaged over three years
Carbon Monoxide (CO)	1 Hour	Primary	35 ppm	Not to be exceeded more than once per year
	8 Hour	Primary	9 ppm	Not to be exceeded more than once per year
Nitrogen Dioxide (NO ₂)	1 Hour	Primary and Secondary	100 ppb	98 th percentile of 1-hour daily maximum concentrations, averaged over three years
	Annual	Primary and Secondary	53 ppm	Annual mean
Sulfur Dioxide (SO ₂)	1 Hour	Primary	75 ppb	98 th percentile of 1-hour daily maximum concentrations, averaged over three years
	3 Hour	Secondary	0.5 ppm	Not to be exceeded more than once per year

Lead (Pb)	Rolling 3 month average	Primary and Secondary	0.15 $\mu\text{g}/\text{m}^3$	Not to be exceeded
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Utah's Ambient Air Quality Monitoring Network

The Air Quality Monitoring Network currently operates monitors at 24 locations statewide. Two of the monitoring sites have been established to fulfill the Utah Senate Bill 144, which directs the Department of Environmental Quality to establish and maintain monitoring facilities to measure the environmental impact from the Inland Port development project. These sites are the Lake Park Site (LP) and the Prison Site (ZZ).

The Division's monitoring stations are strategically situated to measure both local and regional levels of air pollutants, including particulate matter (PM), gaseous pollutants, and meteorological variables. Currently, $\text{PM}_{2.5}$ is measured at 23 locations, PM_{10} is monitored at seven locations, O_3 is monitored at 22 locations, NO_x , NO, and NO_2 are measured at 21 locations, CO is monitored at seven locations, and SO_2 at four locations. Fourteen out of 19 $\text{PM}_{2.5}$ monitoring sites use filter-based equipment, additionally; all the sites monitoring $\text{PM}_{2.5}$ and PM_{10} are equipped with continuous monitors. Meteorological parameters, wind speed, wind direction, temperature, relative humidity, and solar radiation are measured at most sampling sites.

Moreover, the network includes stations that participate in the National Core (NCore), Speciation Trends Network (STN), Chemical Speciation Network (CSN), Photochemical Assessment Monitoring Stations (PAMS), National Air Toxics Trends (NATTS), and Near-road station EPA monitoring programs.

Data collected at these stations is primarily used for the following objectives:

- Evaluating population exposure to air pollutants
- Tracking the spatial distribution of air pollutants
- Assessing historical trends in air pollution
- Supporting compliance with ambient air quality standards (primary and secondary)
- Supporting air quality models and research studies
- Informing the general public of air pollution levels via mobile apps and web pages

- Developing State Implementation Plans (SIPs) and legislative air pollution control measures
- Tracking the effectiveness of air pollution control strategies
- Activating control measures during high air pollution episodes, such as restricting wood burning during winter-time inversions
- Monitoring of specific emission sources and air pollutants

Table 3 shows the monitoring station locations and monitored constituents for stations operated in 2023.

Table 3: Utah Monitoring Network Stations

Utah Monitoring Network Stations									
Station	City	Address	CO	NO ₂	O ₃	PM ₁₀	PM _{2.5}	SO ₂	Met.
Air Monitoring Center	SLC	240 N. 1950 W.	X	X	X	X	X	X	
Antelope Island	None	North end of island							X
Badger Island	Tooele	Great Salt Lake							
Bountiful	Bountiful	200 W. 1380 N.		X	X		X		X
Brigham City	Box Elder County	W 1175 S. Brigham City		X	X		X		
Copperview	Midvale	8449 S. Monroe St.	X	X	X		X	X	X
Enoch	Enoch	3840 N. 325 E. Minersville Hwy.		X	X		X		X
Erda	Tooele	2163 West Erda Way		X	X		X		X
Harrisville	Harrisville	425 W. 2250 N.	X	X	X		X		X
Hawthorne	SLC	1675 S. 600 E.	X	X	X	X	X	X	X
Herriman	Riverton	14058 Mirabella Dr.		X	X	X	X		X
Hurricane	Hurricane	150 N. 870 W.		X	X		X		X
Prison Site	SLC	1480 N. 8000 W.		X	X		X		X
Lake Park	West Valley	2782 S. Corporate Park Dr	X	X	X	X	X		X
Lindon	Lindon	30 N. Main St.	X	X	X	X	X		X
Near Road	Murray	4951 S. Galleria Dr.	X	X	X		X		X
Price #2	Price	351 S. Weasel Run Rd.		X	X				X
Red Butte	SLC	Red Butte Canyon Rd. SLC			X		X		
Roosevelt	Roosevelt	290 S. 1000 W.		X	X		X		X

Rose Park	SLC	1354 W. Goodwin Ave.	X	X	X		X	X	X
Saltair	None	6640 W. 1680 N.					X		X
Smithfield	Smithfield	675 W. 220 N.		X	X	X	X		X
Spanish Fork	Spanish Fork	312 W. 2050 N.			X		X		X
Vernal	Vernal	628 N. 1700 W.		X	X		X		X

Photochemical Assessment Monitoring System (PAMS)

The Photochemical Assessment Monitoring System (PAMS) network is an ozone precursor monitoring network operated by state and local agencies. The PAMS program was originally started in the early 1990s to meet the requirements of Section 182(c)(1) of the CAA. Revisions to the PAMS requirements ([40 CFR part 58, Appendix D](#)) were made as part of the 2015 Ozone National Ambient Air Quality Standard (NAAQS) review. The Legislature appropriated \$3,236,000 to the Division during the 2022 general session for additional PAMS to be purchased and installed throughout the ozone nonattainment areas on the Wasatch Front. The Division now operates several PAMS sites located at Red Butte, Erda, Bountiful, Hawthorne, and the DEQ Technical Center as a temporary site. The objective of the PAMS program is to produce an air quality database to be used to evaluate and refine ozone prediction models. In addition, the program will help identify and quantify ozone precursors, establish the temporal patterns, and associated meteorological conditions to assist and refine the control strategies. The Division is measuring the following parameters at the PAMS required site:

- Carbonyls
- Meteorological Parameters
- Speciated VOCs
- NO/NO_x

Criteria Air Pollutants

The CAA has three different designations for areas based on whether they meet the NAAQS for each criteria pollutant. Areas in compliance with the NAAQS are designated as attainment areas. Areas where there is no monitoring data, or insufficient data, are designated as unclassifiable. Lastly, areas that are not in compliance with the NAAQS are designated as nonattainment. A maintenance area is an attainment area that was once

designated as nonattainment for a NAAQS, and has since demonstrated to the EPA that it has attained and will continue to attain that standard for a minimum of ten years.

Most of the state of Utah has been designated as either attainment or unclassifiable for each of the NAAQS, with some criteria pollutants having a nonattainment or maintenance classification as discussed below.

Ozone (O₃)

Ozone is a highly reactive, colorless gas composed of three molecules of oxygen bonded together. Ground level ozone is identical to ozone found in the stratospheric ozone layer located ~15 miles above the earth's surface. However, ozone found at these higher elevations is generally considered good because it does not come into direct contact with human activities and protects human health by shielding the earth from cancer-causing ultraviolet radiation. In contrast, ground-level ozone is regulated by the EPA as a NAAQS due to its harmful effects to human health. Ground level ozone is not directly emitted, but is rather formed in the atmosphere by complex chemical reactions involving VOCs and oxides of nitrogen (NO_x) in the presence of sunlight.



Major sources for both VOCs and NO_x include vehicle exhaust, emissions from industrial facilities, gasoline vapors, chemical solvent use, oil and gas production, wildfires, and biogenic emissions from natural sources such as vegetation.

Exposure to ozone has been linked to a variety of respiratory and pulmonary problems, especially among susceptible populations. These health problems can include increased susceptibility to respiratory illness like pneumonia and bronchitis, chest pain, irritation and damage of lung tissue, irritation of the eyes, and aggravation of preexisting respiratory issues such as asthma or chronic obstructive pulmonary disease.

Ozone production is a year-round phenomenon, with the highest concentrations generally observed during the summer months when strong incoming solar radiation, high temperatures, and stagnant meteorological conditions combine to drive the associated chemical reactions. However, it has been found that under very unique circumstances, high ozone levels can occur during the wintertime. In the Uinta Basin of Utah, wintertime ozone is associated with the confluence of temperature inversions, snow cover, significant VOC and NO_x emissions associated with oil and gas production, and solar radiation (sunlight). Research is ongoing to better understand the chemical processes that lead to wintertime ozone production. The maximum daily eight-hour monitored values for the Ouray monitor in the Uinta Basin and the Hawthorne monitor on the Wasatch Front

illustrate the timing of high values in each area. Figure 1 shows that the Uinta Basin often experiences a greater increase in ozone in the winter months than summer months, whereas higher values on the Wasatch Front are typically only observed in the summer.

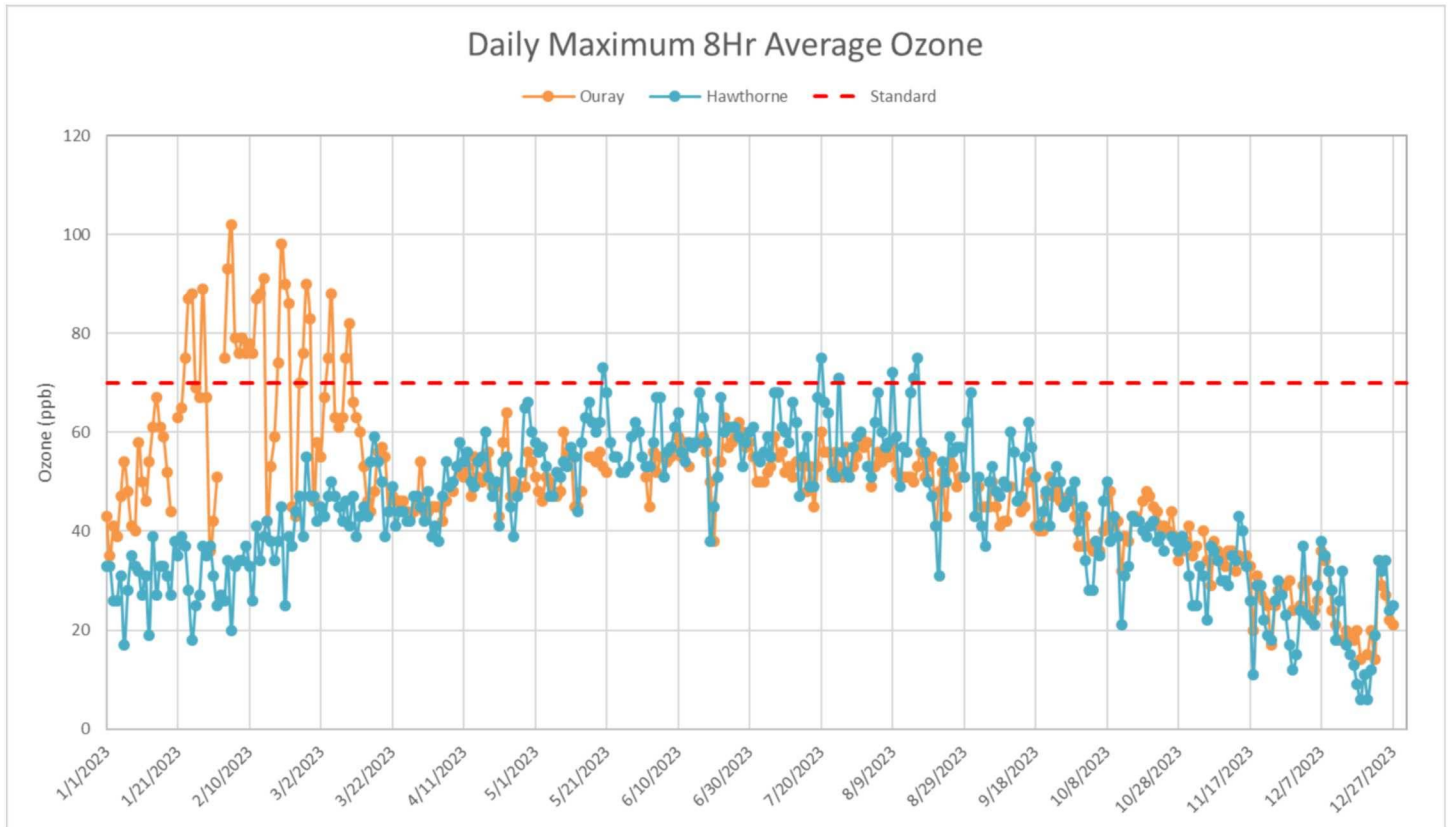


Figure 1: Daily Maximum 8-hour Ozone measurements at Hawthorne and Ouray

NAAQS Standards and Monitored Data

In October of 2015, the EPA strengthened the primary and secondary ozone NAAQS from 0.075 ppm to 0.070 ppm, based on a three-year average of the annual 4th highest daily eight-hour average concentration. The standard was reviewed again in 2020, and the EPA chose to retain the standard at 0.070 ppm. In August 2018, the EPA designated portions of the Wasatch Front, Utah County, and the Uinta Basin as nonattainment areas for ozone.

Figures 2-5 show the annual 4th highest 8-hour ozone concentrations at monitoring locations throughout the state, in the Uinta Basin, and along the Wasatch Front. In each of these figures, dashed lines indicate the NAAQS standard, with the red dashed line indicating the current NAAQS of 0.070 ppm.

In 2023, the Division's monitors showed sites that exceeded the 2015 standard more than four times, and thus recorded a violation of the standard at six of the 13 monitoring sites located in counties along the Wasatch Front. 2023 saw a similar number of exceedances as

seen in 2022, in part due to relatively few instances of days impacted by wildfire smoke. While the area continues to violate the NAAQS, the relatively good years of 2022 and 2023 combine to result in an anticipated improved design value (DV), or the value which determines if an area is attaining the standard. The area's new DV is expected to decrease from 0.079 ppm to 0.077 ppm, representing a 2 ppb improvement.

The Uinta Basin experienced a strong and persistent atmospheric inversion in the winter of 2023, which led to multiple exceedances of the 0.070 ppm standard at all monitoring sites located within the basin. As a result, the Uinta Basin experienced a much worse year for air quality than that observed in 2022.

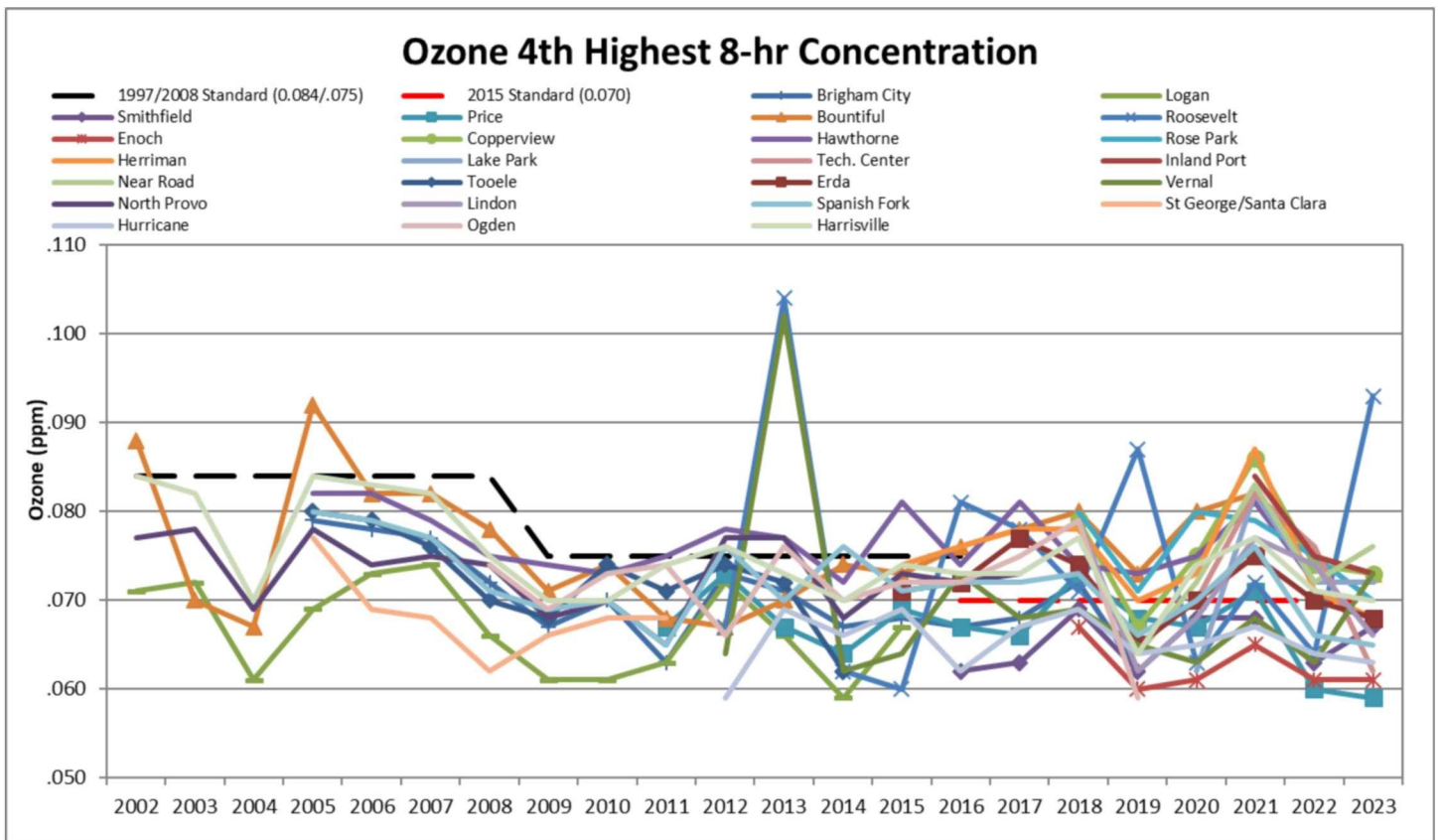


Figure 2: 4th Highest Daily Maximum 8-hour Average Ozone

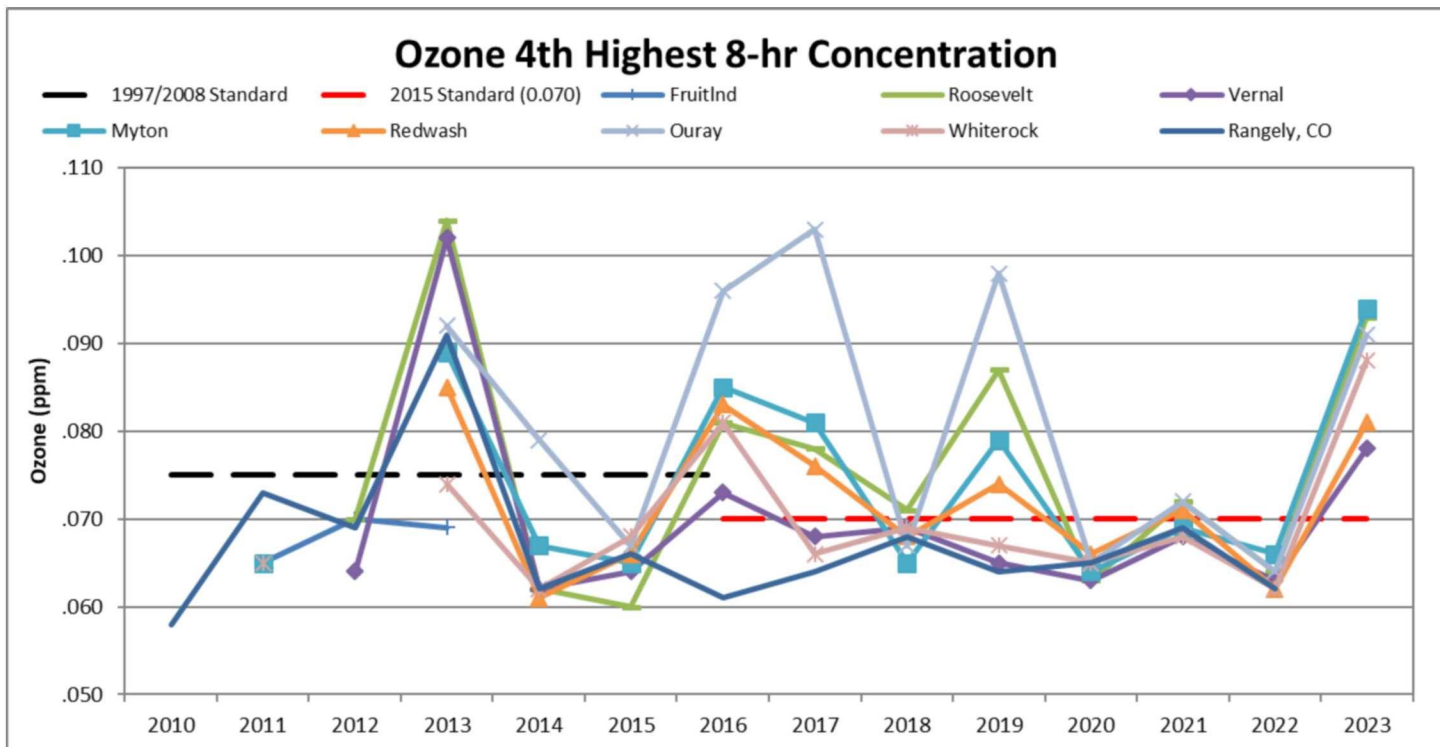


Figure 3: 4th Highest Daily Maximum 8-hour Average Ozone Uinta Basin

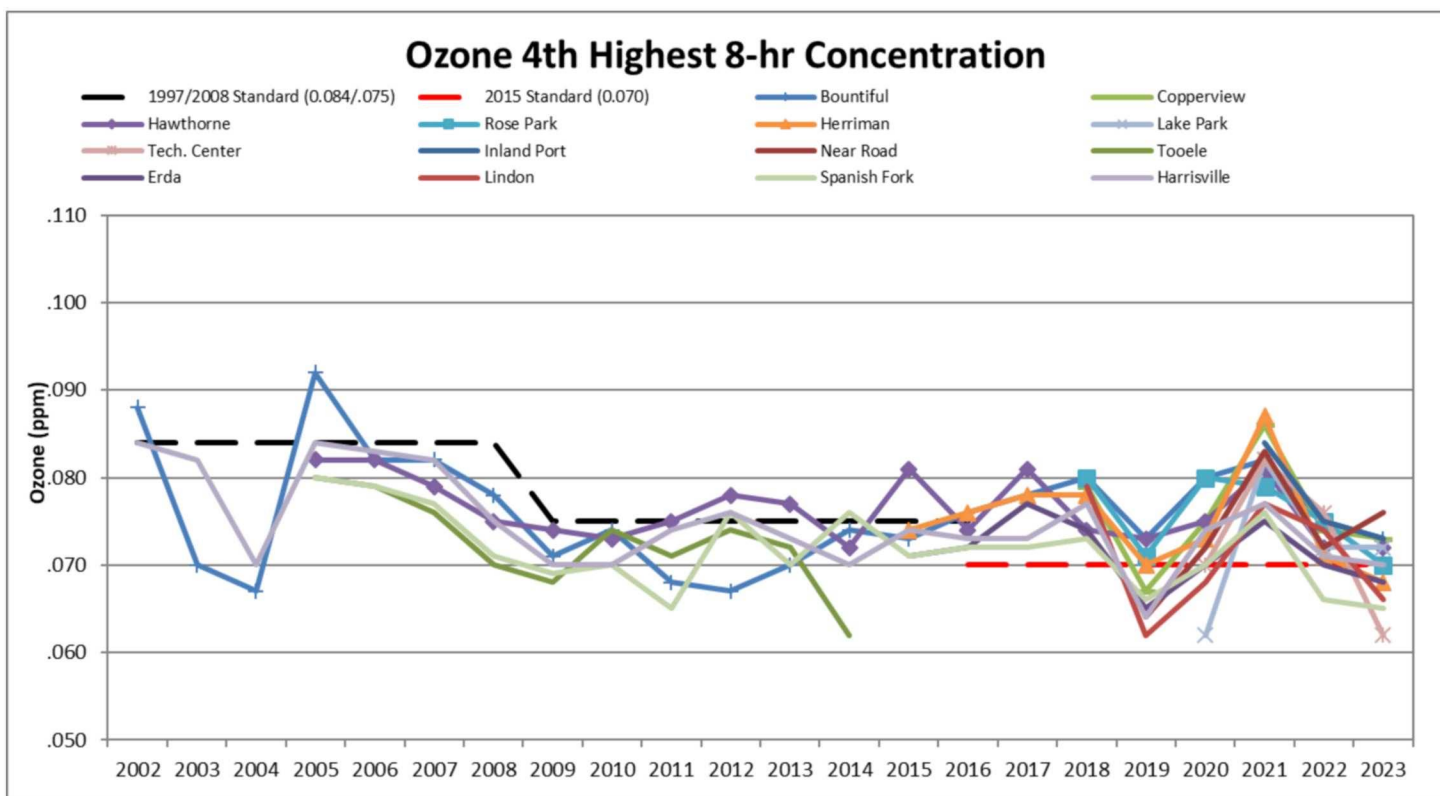


Figure 4: 4th Highest Daily Maximum 8-hour Average Ozone Wasatch Front

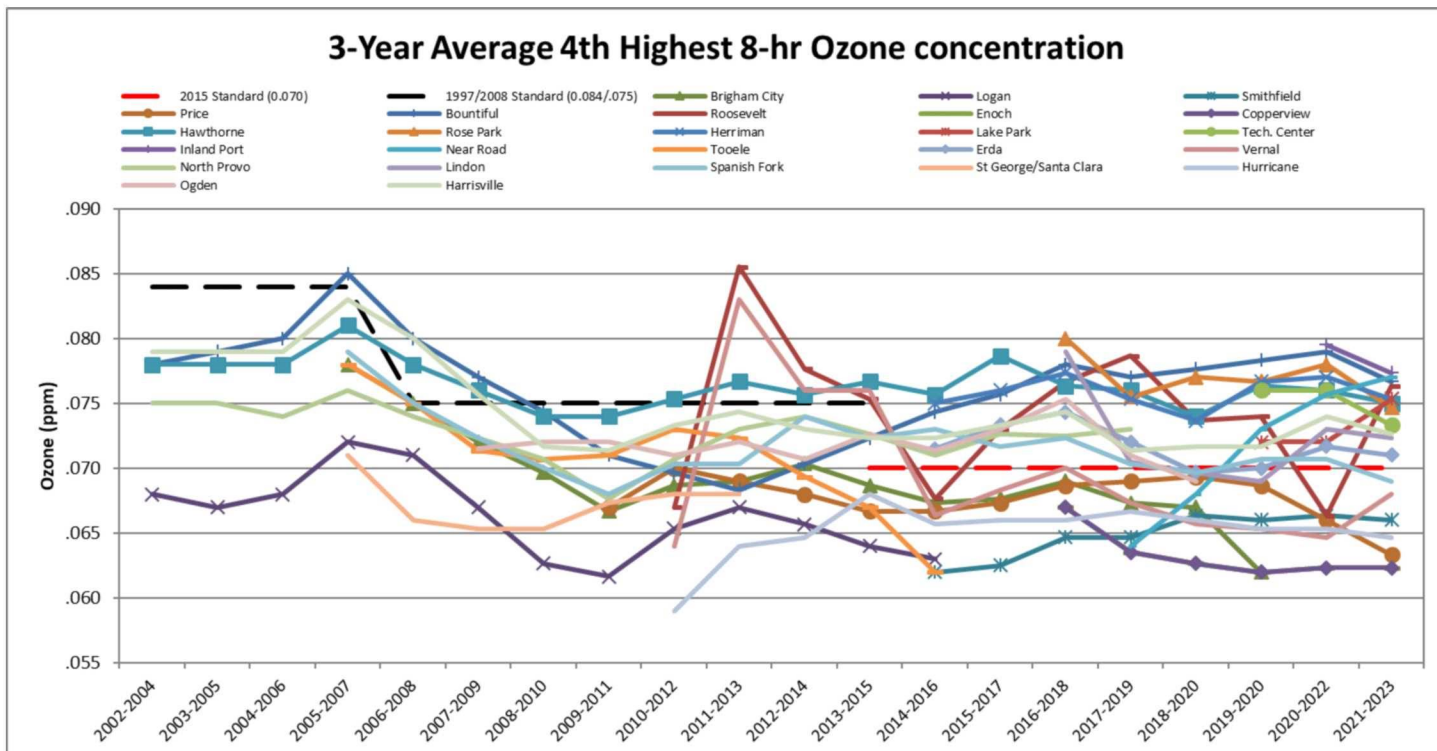


Figure 5: Three Year Average of the 4th Highest Daily Maximum 8-hour Average Ozone

Ozone Updates

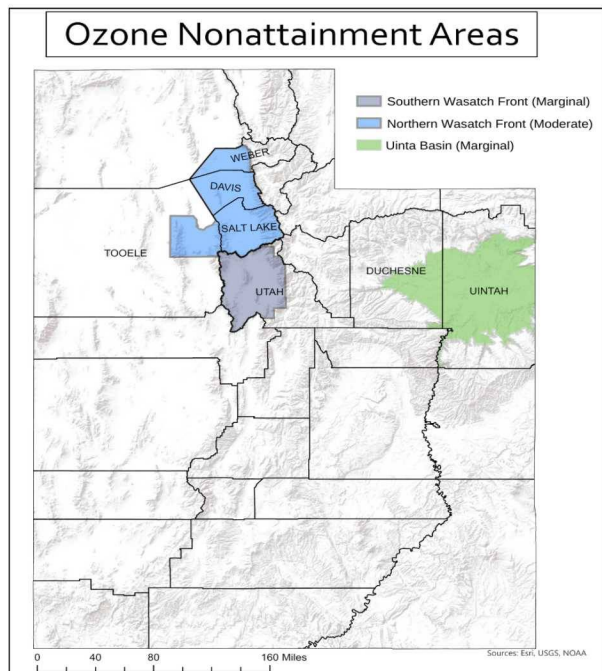


Figure 6: Ozone Nonattainment Areas

On August 3, 2018 the EPA designated three regions of Utah as marginal Nonattainment Areas (NAA) for the 2015 NAAQS at 0.070 ppm. These areas include the Northern and Southern Wasatch Front, as well as the Uinta Basin (83 FR 25776).

Northern Wasatch Front Ozone Nonattainment Area

The Northern Wasatch Front (NWF) nonattainment area (NAA) includes all of Salt Lake and Davis counties, as well as portions of Tooele and Weber counties (Figure 6). After its initial designation as a marginal area, the NWF NAA failed to attain the standard by the attainment date of August 3rd, 2021 and was subsequently redesignated to a moderate NAA on November 7th, 2022 (87 FR 60897).

As a moderate area, the Division was required to develop and submit a State Implementation Plan (SIP) showing how the state aimed to reduce ozone forming emissions and meet the standard. This moderate SIP revision was

approved by the Utah Air Quality Board on September 12, 2023, and was submitted to the EPA later that same month. This document outlines the state's efforts to meet all CAA requirements for a moderate NAA. Given the substantial emission reductions associated with previous PM_{2.5} SIP submissions, a significant challenge facing the moderate, and future SIP development, is identifying and implementing reduction in anthropogenic VOC emissions. As a result, efforts to identify and implement VOC emission reduction strategies are ongoing throughout the NAA.

Ozone monitoring data collected throughout the summer of 2023 continue to show exceedances of the NAAQS in three of the four NWF counties, with the area experiencing a similar number of exceedances as observed during the 2022 season. As the DV for the 2015 ozone standard is based on a three year average, data collected during the summers of 2021, 2022, and 2023 indicate that the area will not attain the standard by the moderate attainment date of August 3rd, 2024, and the area will be further reclassified to serious nonattainment status. This reclassification will require the submission of an additional SIP with more emission reductions. However, it is important to note that the number and amplitude of exceedances observed in the NWF NAA in 2023 represent an improvement over previous years, especially relative to 2021 which was an exceptionally bad year for impacts associated with wildfire emissions. As a result of the fewer, and less extreme, exceedances seen throughout the NWF, the area's DV is expected to decrease from 0.079 to 0.077 ppm once data for the area is certified.

Given that the NWF NAA will not attain the standard by the moderate attainment date, and will be reclassified to serious nonattainment status in early 2024, the Division has already begun the process of developing a serious SIP. This SIP revision is anticipated to be presented to the Utah Air Quality Board in approximately July of 2025 for a proposal for public comment. The Division then anticipates proposing the SIP revision for final adoption in approximately November of 2025, with a submission to the EPA in January of 2026. Additional ongoing SIP efforts include additional development of an area-specific photochemical model and further refined emission inventories.

Due to the complexities of ozone formation, and challenges associated with addressing ozone in the Intermountain West, the Division plans to continue to focus much of its upcoming research efforts to better understand ozone along the Wasatch Front. These efforts include a better understanding of how wildfire and biogenic emissions impact ozone formation, the important role of halogen emissions in local ozone formation, as well as an intensive field campaign planned for the summer of 2024.

In addition to the improvements in photochemical modeling, intensive scientific field campaign, and the development of a serious SIP highlighted above, the Division anticipates developing and submitting to the EPA a CAA section 179B(b), international

contributions demonstration, for the NWF NAA. In this demonstration, the Division will aim to demonstrate how anthropogenic emissions from international sources interfere with the NAA's ability to attain the standard, and contribute to exceeding the standard. It is anticipated that this demonstration will be submitted to the EPA for review in fall of 2024, prior to the issuance of a national determination of attainment by attainment date, and therefore before the area is classified as a serious NAA.

Southern Wasatch Front Ozone Nonattainment Area

The Southern Wasatch Front (SWF) NAA includes the populated regions of Utah County along the Wasatch Front. Monitored data collected during the summers of 2018, 2019, and 2020 show that the area attained the NAAQS of 0.070 ppm by the attainment date of August 3rd, 2021. As a result, the SWF NAA remains classified as a marginal NAA and the state is not required to develop and submit a SIP for this area. However, given the proximity to the NWF and the rate of population growth associated with this area, emission reduction strategies being developed for the NWF NAA SIP could be extended to include the SWF.

Uinta Basin Ozone Nonattainment Area

The Uinta Basin NAA was designated nonattainment in August 2018 and is a unique ozone NAA in many ways. It has a designation area based upon elevation including areas in Uintah and Duchesne County below 6,250 feet above sea level. It is a rural area with a small population, however the geography and weather conditions combined with the presence of significant oil and gas production emissions of VOCs and NO_x, creates occasional high levels of ozone exceeding the standard. These ozone events occur in the winter months during a cold air inversion trapping emissions in the basin with snow on the ground reflecting the UV radiation from the sun creating the radiant energy needed to combine VOC and NO_x to ozone.

Reductions in oil and gas production in 2020 and potentially different weather patterns due to climate change resulted in less incidents of ozone exceedances and allowed the Division to request two one-year extensions to the original attainment date of August 3, 2021. The first one-year extension was granted however EPA has yet to make a decision on the second request leaving the UB NAA with some regulatory uncertainty. The delay in EPA's decision may have to do with recent increased oil production in the UB NAA and the area experiencing several exceedances of the ozone standard during the winter of 2023.

Though the regulatory status of the UB NAA continues to be uncertain, both EPA and the Division continue to address emissions sources to ensure healthy air quality in the area and support the growth of the oil and gas industry. The EPA Federal Implementation Plan for oil and gas sources in the Uintah and Ouray Indian Reservation was issued November 2022,

with a compliance date of February 2023 for existing sources. Additionally on December 3, 2023 EPA issued final rules for oil and natural gas sources strengthening VOC requirements and setting standards to control methane emissions. These will be fully implemented for new sources by the end of 2024 and will require a state plan to implement these rules for existing sources by 2029. These actions will reduce emissions that contribute to both ozone formation and climate change, with a parity of requirements for both state, federal, and tribal jurisdictions. The Division continues to focus on pumpjack engines and storage tanks for UB specific emission reductions. Additionally, there are upcoming potential federal grant opportunities associated with green house gas reductions to assist in emission reductions from the oil and gas industry.

Particulate Matter (PM)

Regulated particulate matter is a complex mixture of extremely small particles of solid or semisolid material suspended in the atmosphere and is divided into two categories: PM₁₀ and PM_{2.5}. PM₁₀ is a particulate less than ten micrometers in diameter, which is about one-seventh the width of a strand of human hair. The coarse fraction of PM₁₀, which is larger than 2.5 microns, is typically made up of “fugitive dust” such as sand and dirt blown by winds from roadways, fields, mining, and construction sites, and contains large amounts of silicate (sand-like) material. PM_{2.5}, or fine particulate, is a subset of PM₁₀ that measures 2.5 microns in diameter or less. Primary PM_{2.5} is directly emitted into the atmosphere from combustion sources such as black carbon from cars and trucks, and soot from fireplaces and woodstoves. These particles are so small that they can become embedded in human lung tissue, exacerbating respiratory diseases and cardiovascular problems. Other negative effects are reduced visibility and accelerated deterioration of buildings. The majority of Utah’s PM_{2.5} is called secondary aerosol, meaning that it is not emitted directly as a particle, but is produced when gasses such as sulfur dioxide (SO₂), NO_x, and VOCs react with other gasses in the atmosphere, such as ammonia, to become tiny particles.

Wintertime temperature inversions not only provide ideal conditions for the creation of secondary aerosols, they also act to trap air in valleys long enough for concentrations of PM_{2.5} to build up to levels that can be unhealthy. The smallest of particles that make up PM_{2.5} are major contributors to visibility impairment in both urban and rural areas. Along the Wasatch Front, the effects can be seen as the thick, brownish haze that lingers in our northern valleys, particularly in the winter. The Division currently operates PM₁₀ and PM_{2.5} monitors throughout the state to assess the ambient air quality with respect to the standards for both PM₁₀ and PM_{2.5}.

NAAQS Standards and Monitored Data

PM₁₀

The EPA established the 24-hour air quality standard for PM₁₀ in July 1987 as 150 µg/m³, and the standard has been retained after reviews in 1997, 2006, 2012, and 2020. The standard is met when the probability of exceeding the standard is no greater than once per year for a three-year averaging period. In other words, four estimated exceedances within a three-year period would constitute a violation. Salt Lake County and Utah County had been designated nonattainment for PM₁₀ shortly after the standard was promulgated. Ogden City was also designated as a nonattainment area due to one year of high concentrations (1992), but was determined to be attaining the standard in January 2013.

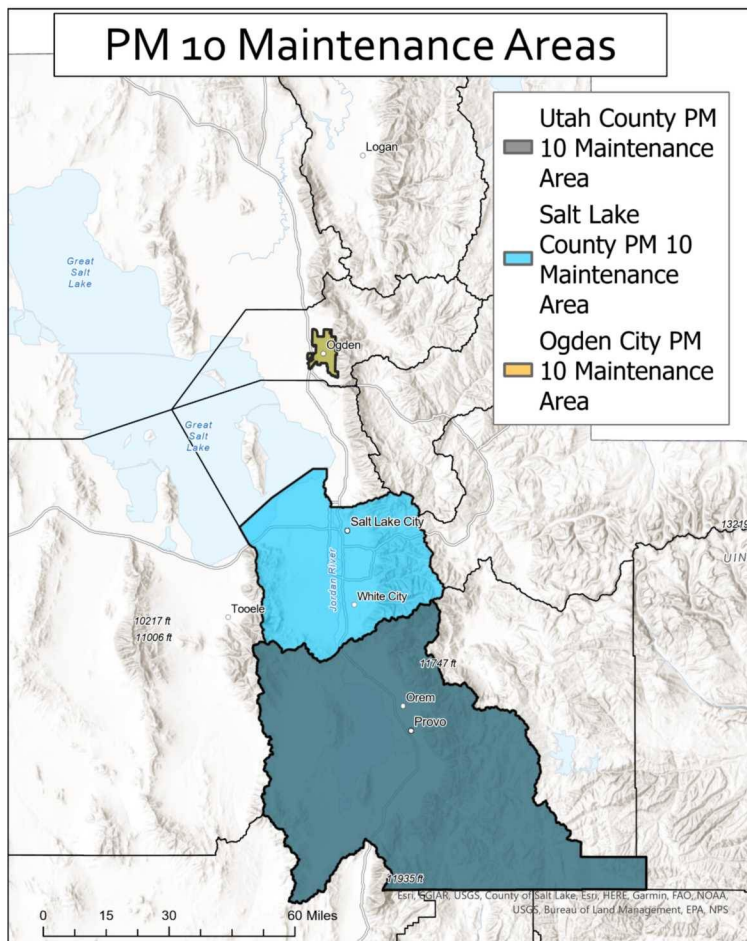


Figure 7: PM₁₀ Maintenance Areas

State Implementation Plans (SIP) were written and promulgated in 1991, and included control strategies that were responsible for the marked decrease in PM₁₀ concentrations observed in the early 1990s. Ogden City, and Salt Lake and Utah Counties were officially designated as attainment for PM₁₀ effective March 27th, 2020. These three former nonattainment areas are now subject to the maintenance plans that were approved by EPA and the areas must continue to attain the standard for the first maintenance period of ten years.

High values of monitored PM₁₀ sometimes result from exceptional events, such as dust storms and wildfires. The data from such events can be flagged under the EPA Exceptional Events Rule for exclusion by EPA when they cause a violation. While there have been isolated high values in the past 14 years, none resulted in a violation of the NAAQS. Figure 8 shows the PM₁₀ estimated exceedances at monitored sites in Utah since 2000.

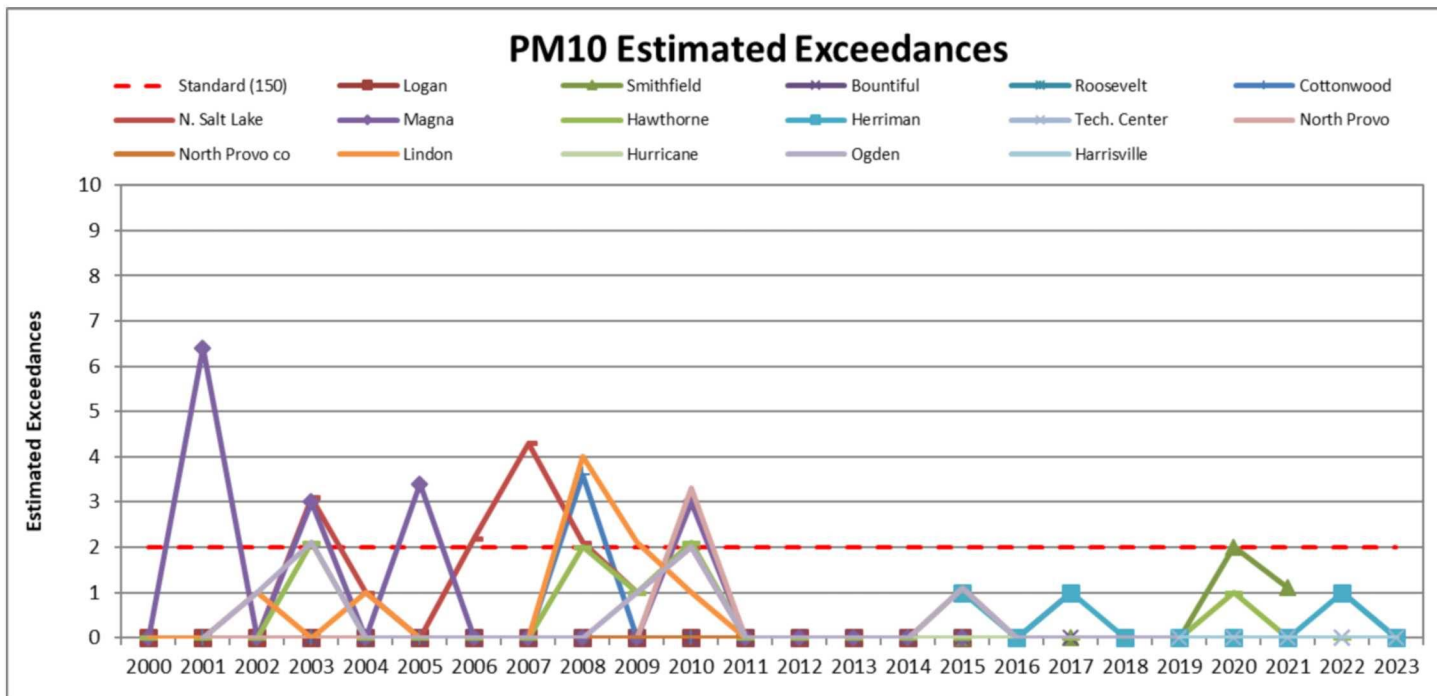


Figure 8: PM₁₀ Estimated Exceedances

The statistical form of the standard essentially allows for one exceedance per year, regardless of how high the value may be. For this reason, it is often useful to look at the second highest value collected at a particular location. Figure 9 shows the second highest 24-hour PM₁₀ concentrations recorded at each station since 2000. The heavy dashed line indicates the NAAQS.

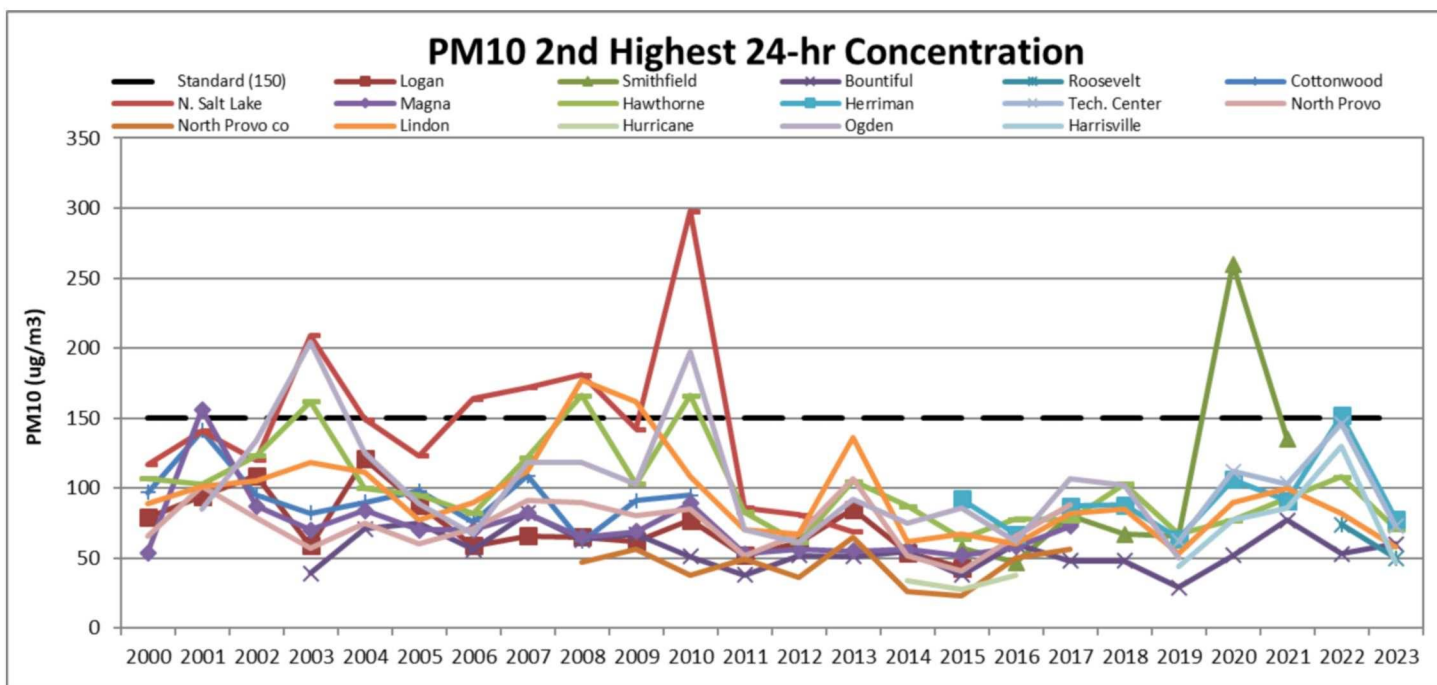


Figure 9: PM₁₀ Second Highest 24-Hour Concentration

The EPA first established standards for PM_{2.5} in 1997. In 2006, the EPA lowered the 24-hour PM_{2.5} standard from 65µg/m³ to 35 µg/m³. In 2012, the EPA lowered the annual standard from 15µg/m³ to 12µg/m³. The PM_{2.5} NAAQS underwent a review in 2020 and the standards were retained. The standard is evaluated by averaging monitored data collected during a three-year period. This minimizes the effects of year-to-year meteorological variability. The 24-hour standard is met when the average of 98th percentile values collected for each of the three years is less than or equal to 35 µg/m³. The 98th percentile concentration for each year is selected from all of the data recorded at a given monitor, such that the values of at least 98 percent of all that data are of a lower concentration.

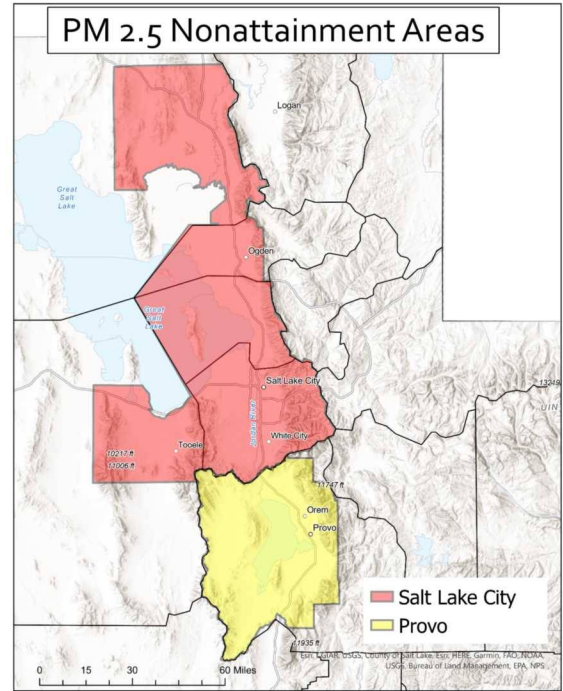


Figure 10: PM_{2.5} Nonattainment Areas

Figure 11 shows that all monitors in Utah are in compliance with the 1997 standard. The three-year averages from 2018-2020 show that all monitors are in compliance with the 2006 standard. The Inland Port monitoring location was not included in the graph as it only has two years of data.

The annual standard is met when the three-year average of annual mean concentrations is no greater than 12µg/m³. Figures 12 and 13 show that all locations meet the annual standard and also illustrate a downward trend in the annual mean concentrations. This is interesting to note because trends in the annual averages are not as easily obscured by short term meteorology as are trends in the 24-hour values. This downward trend is likely also indicative of trends in 24-hour concentrations, absent the influence of year-to-year variability in the severity of wintertime cold pool (inversion) conditions.

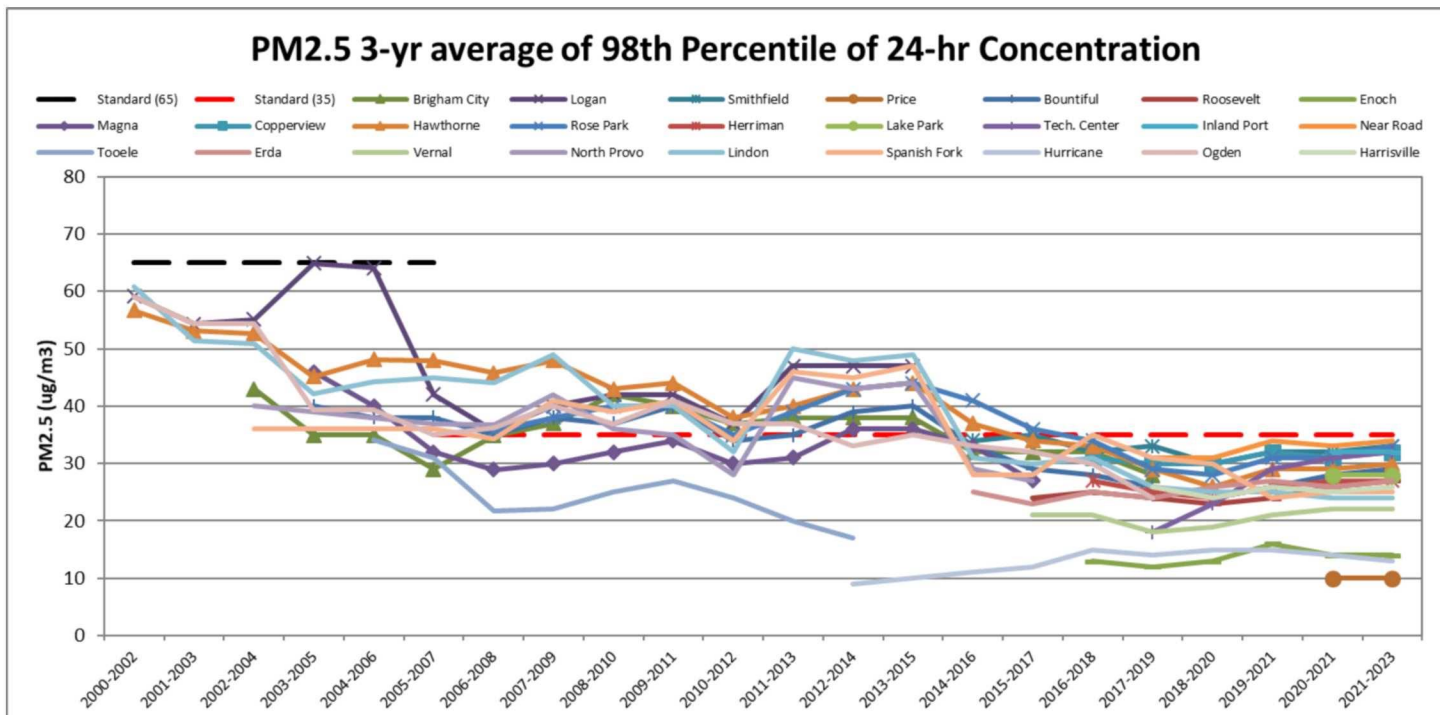


Figure 11: PM_{2.5} Three-Year Average 98th Percentile 24-Hour Concentration

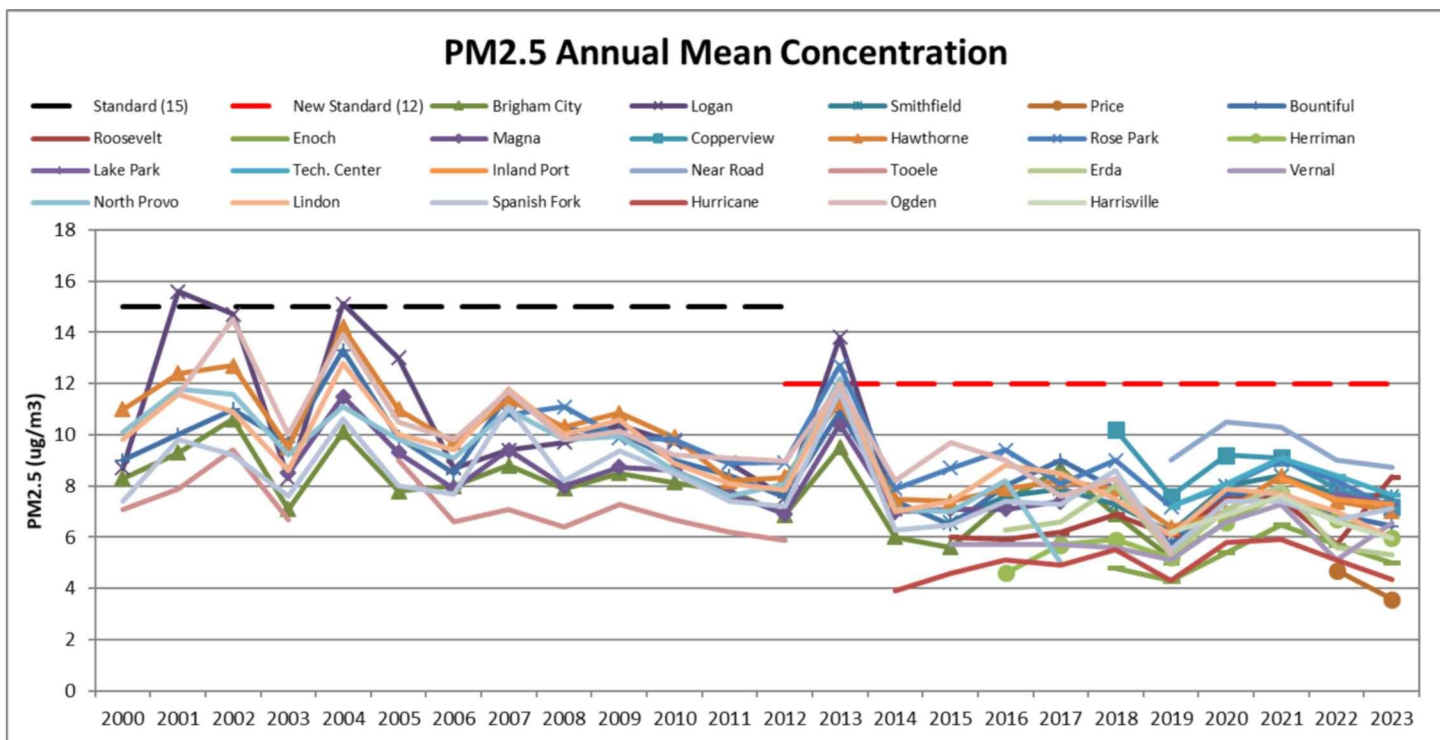


Figure 12: PM_{2.5} Annual Mean Concentration

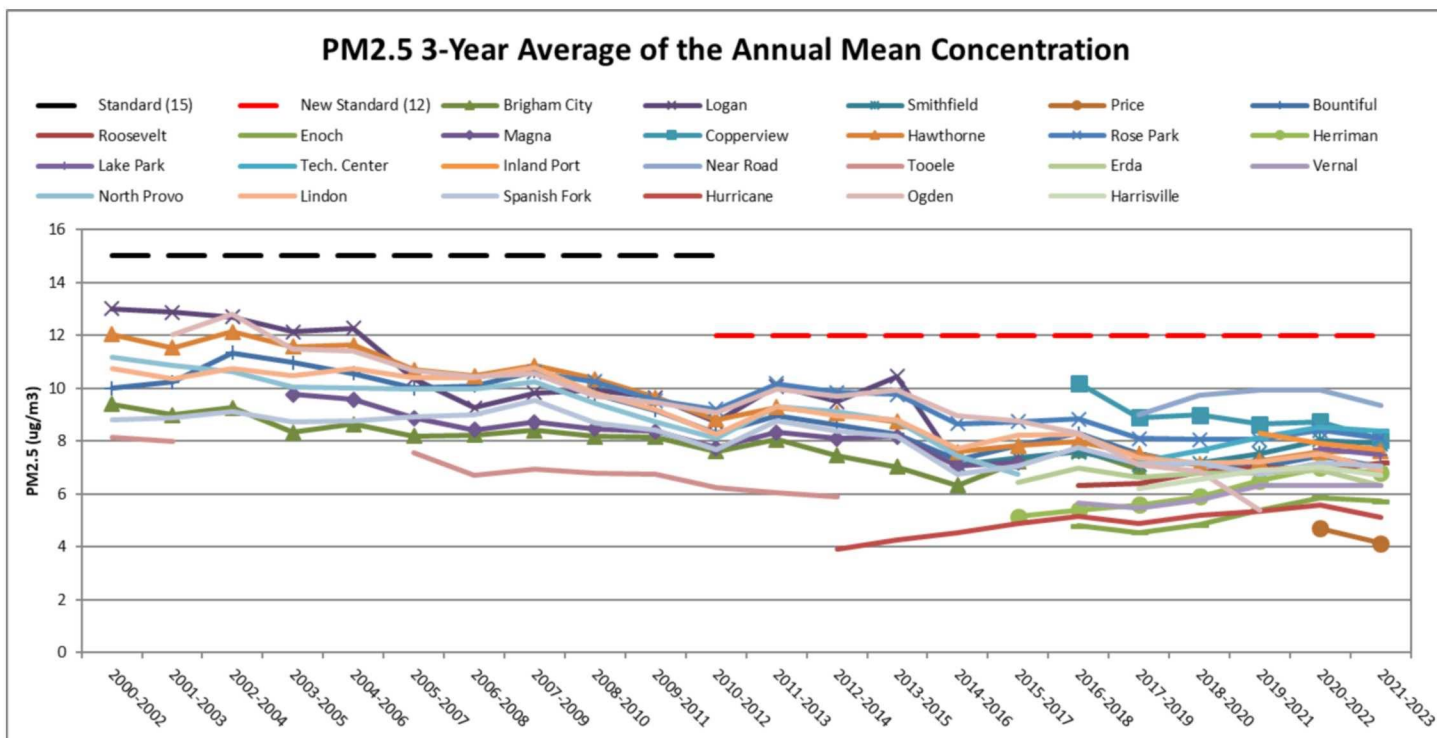


Figure 13: PM_{2.5} Three-Year Average of the Annual Mean Concentration

Particulate Matter Updates

With the PM_{2.5} NAAQS lowered in 2006, Salt Lake City, Provo, and Logan areas were classified as moderate nonattainment. Moderate SIPs were submitted to EPA; however, Salt Lake City and Provo failed to attain the 24-hour standard (35 µg/m³) as of the statutory attainment date of December 31, 2015. As a result, EPA reclassified these areas from moderate nonattainment areas to serious nonattainment areas. Reclassification to serious nonattainment required the Division to revise the implementation plans. The serious area SIP amendments reach beyond the level of emission controls determined to be “reasonably available” which were included in Utah’s moderate area SIPs, and achieve a level defined as the “best available.” The additional controls implemented through the serious SIP,

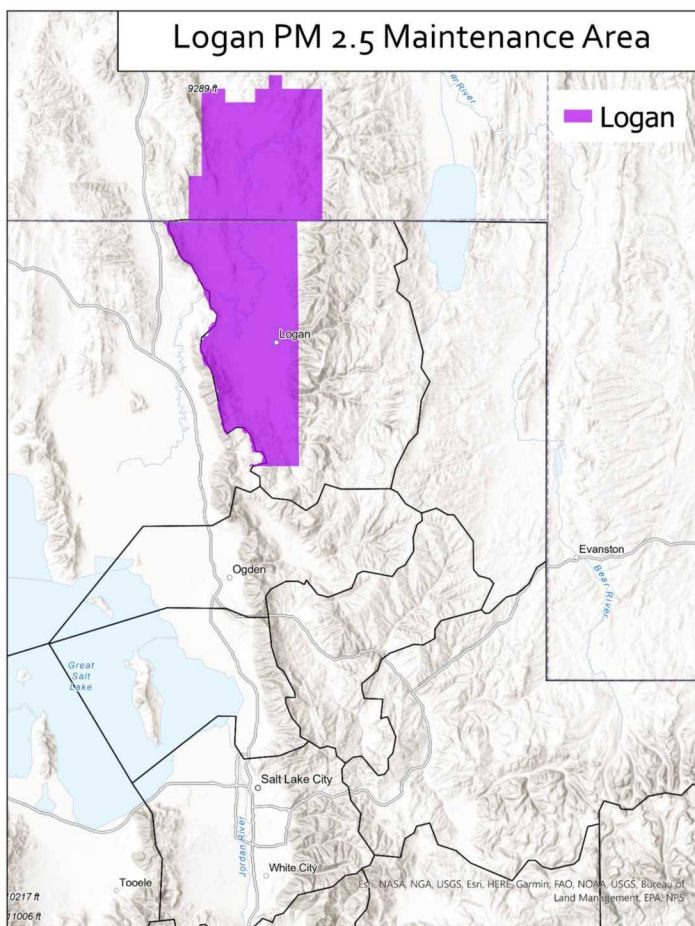


Figure 14: Logan PM_{2.5} Maintenance Area

coupled with favorable meteorology brought the areas into attainment of the standard by the attainment date of December 31, 2019.

Attainment of the standard does not mean the area is reclassified to attainment status. The EPA must act to redesignate an area from nonattainment to attainment status. The CAA outlines five requirements that a nonattainment area must satisfy for redesignation to occur:

1. attainment of the standard;
2. fully approved attainment SIP;
3. improvement in air quality is due to permanent and enforceable emissions reductions;
4. the state has met requirements applicable to the area under CAA Section 110 and part D; and
5. a fully approved maintenance plan.

All regulatory requirements for redesignation have been met for all three areas, with the maintenance plan being the core requirement for redesignating areas to attainment. The plans demonstrate continued attainment of the standard through 2035 with an intermediate year check in 2026. Eight years after redesignation, the Division is required to submit a maintenance plan revision demonstrating attainment for the second ten-year maintenance period. EPA finalized redesignation of the Logan, UT-ID nonattainment area to attainment on June 18, 2021. The Logan area is now in the first ten-year maintenance period. In November of 2020, the EPA proposed to redesignate the Salt Lake City and Provo PM_{2.5} nonattainment areas to attainment. EPA received adverse comments on the proposal, and EPA and the Division continue to work through how to address the adverse comments so that the areas can be redesignated to attainment.

Sulfur Dioxide (SO₂)

Sulfur dioxide is a colorless gas with a pungent odor. In the atmosphere, sulfur dioxide is easily converted into sulfates, which are detected as particulates. It is also converted into sulfuric acid, the major acidic component of acid rain. It is emitted primarily from stationary sources that burn fossil fuels such as power plants and refineries. SO₂ is also a byproduct of copper smelting. Diesel fuel and, to a lesser extent, gasoline contain sulfur and are considered contributors to sulfur dioxide in the atmosphere.

NAAQS Standards and Monitored Data

In 1971, EPA established a 24-hour average SO₂ standard of 0.14 ppm, and an annual arithmetic average standard of 0.030 ppm. Throughout the 1970s, the Magna monitor

routinely measured violations of the 1971 24-hour standard. Consequently, all of Salt Lake County and parts of eastern Tooele County above 5,600 feet were designated as nonattainment for that standard. Two significant technological upgrades at the Kennecott smelter costing the company nearly one billion dollars resulted in continued compliance with the SO₂ standard since 1981. In the mid-1990s, Kennecott, Geneva Steel, the five refineries in Salt Lake City, and several other large sources of SO₂ made dramatic reductions in emissions as part of an effort to curb concentrations of secondary particulates (sulfates) that were contributing to PM₁₀ violations. More recently, Kennecott closed Units 1, 2, and 3 of its coal-fired power plant in 2016, and it closed Unit 4 in 2019, resulting in further SO₂ emissions reductions.

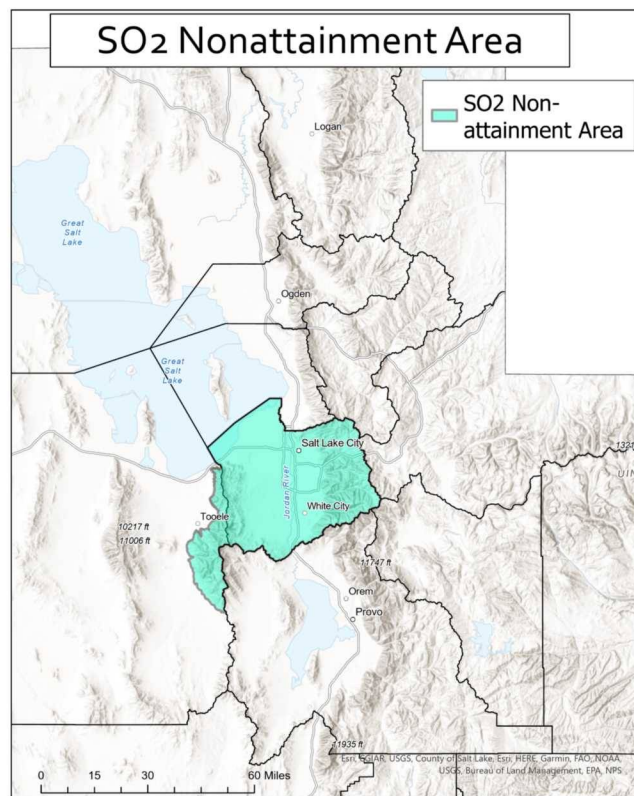


Figure 15: SO₂ Nonattainment Area

Utah submitted an SO₂ Maintenance Plan and redesignation request for Salt Lake and Tooele Counties to the EPA in April of 2005, but EPA never took formal action on the request. Because of changes in the emissions in subsequent years, and changes in the modeling used to demonstrate attainment of the standard, in November, 2019, the state of Utah withdrew the 2005 Maintenance Plan and redesignation request. The Division is currently working with EPA to develop a new maintenance plan and redesignation request to address the 1971 standard.

In 2010, EPA revised the primary standard for SO₂, setting it at 75 ppb for a three-year average of the 99th percentile of the annual distribution of daily maximum one-hour average concentrations for SO₂. The secondary standard is a three-hour standard of 0.5 ppm and is not to be exceeded more than once per year. On November 1, 2016, Governor Herbert submitted a recommendation to EPA that all areas of the state be designated as attainment for the 2010 SO₂ NAAQS based on monitoring and air quality modeling data. On January 9, 2018, EPA formally concurred with this recommendation and designated all areas of the state attainment or unclassifiable. Figure 16 shows the most current measurements to compare against the primary SO₂, NAAQS of 75 ppb.

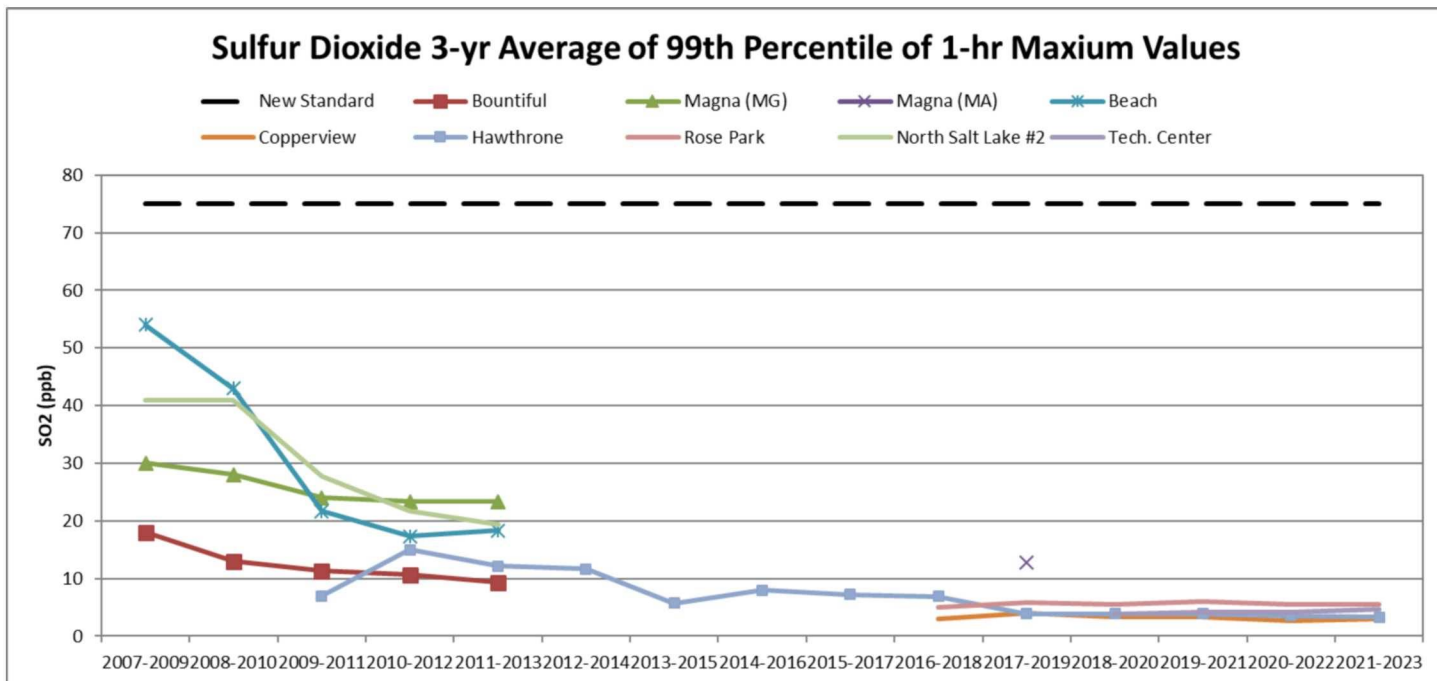


Figure 16: Three Year Average of the 99th Percentile of the Daily Maximum 1-hour Average SO₂

Carbon Monoxide (CO)

Carbon monoxide is a colorless and odorless gas formed by the incomplete combustion of carbon-based fuels. Carbon monoxide is primarily produced from on-road motor vehicles. Other significant sources of carbon monoxide emissions are wood burning stoves and fireplaces. Other emission sources include industrial facilities, construction equipment, miscellaneous mobile sources, and other types of space heating.

Because motor vehicle emissions are the primary source of carbon monoxide, the highest concentrations occur during morning and evening rush hours near high-traffic areas. The worst problems occur when there are large numbers of slow-moving vehicles in large parking lots, busy intersections, and traffic jams. Historically, as exhibited in the CAA, it was the EPA's presumption that all elevated carbon monoxide levels were the result of mobile source emissions, and a state had to go through a rigorous demonstration to prove otherwise. In Utah, areas of elevated carbon monoxide

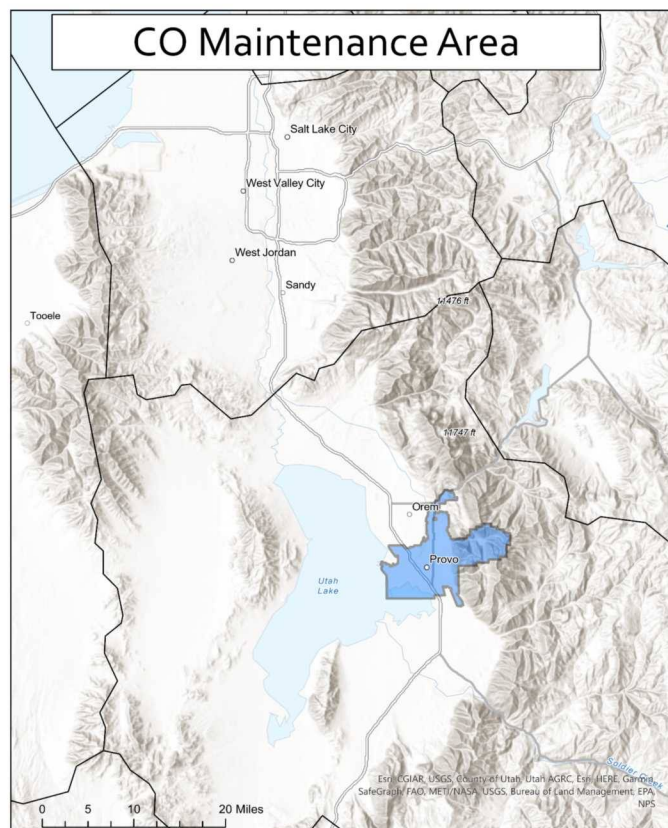


Figure 17: Carbon Monoxide Maintenance Areas

concentrations were typically found near roadways. Carbon monoxide values are higher in winter due to several factors, including cold weather resulting in motor vehicles running less efficiently, wood burning and building heating, and temperature inversions which can trap carbon monoxide and other pollutants.

NAAQS Standards and Monitored Data

The EPA has developed two national ambient air quality standards for carbon monoxide. They are 35 ppm of CO averaged over a one-hour period, and nine ppm of CO averaged over an eight-hour period. A violation of the NAAQS occurs with the second exceedance of either standard at a single location in a calendar year. Once a location is in violation, it is designated as nonattainment.

Salt Lake City, Ogden, and Provo were at one time designated as nonattainment areas for carbon monoxide. Due primarily to improvements in motor vehicle technology, Utah has been in compliance with carbon monoxide standards since 1994 (Figure 18 and Figure 19). Salt Lake City, Ogden, and Provo were redesignated to attainment status in 1999, 2001, and 2006 respectively. Redesignated areas are required to complete two 10-year maintenance periods to demonstrate the ability to maintain attainment of the standard. The maintenance period for Salt Lake City ended in 2019 and in 2021, Ogden completed its maintenance period, leaving only Provo in maintenance for carbon monoxide until 2026.

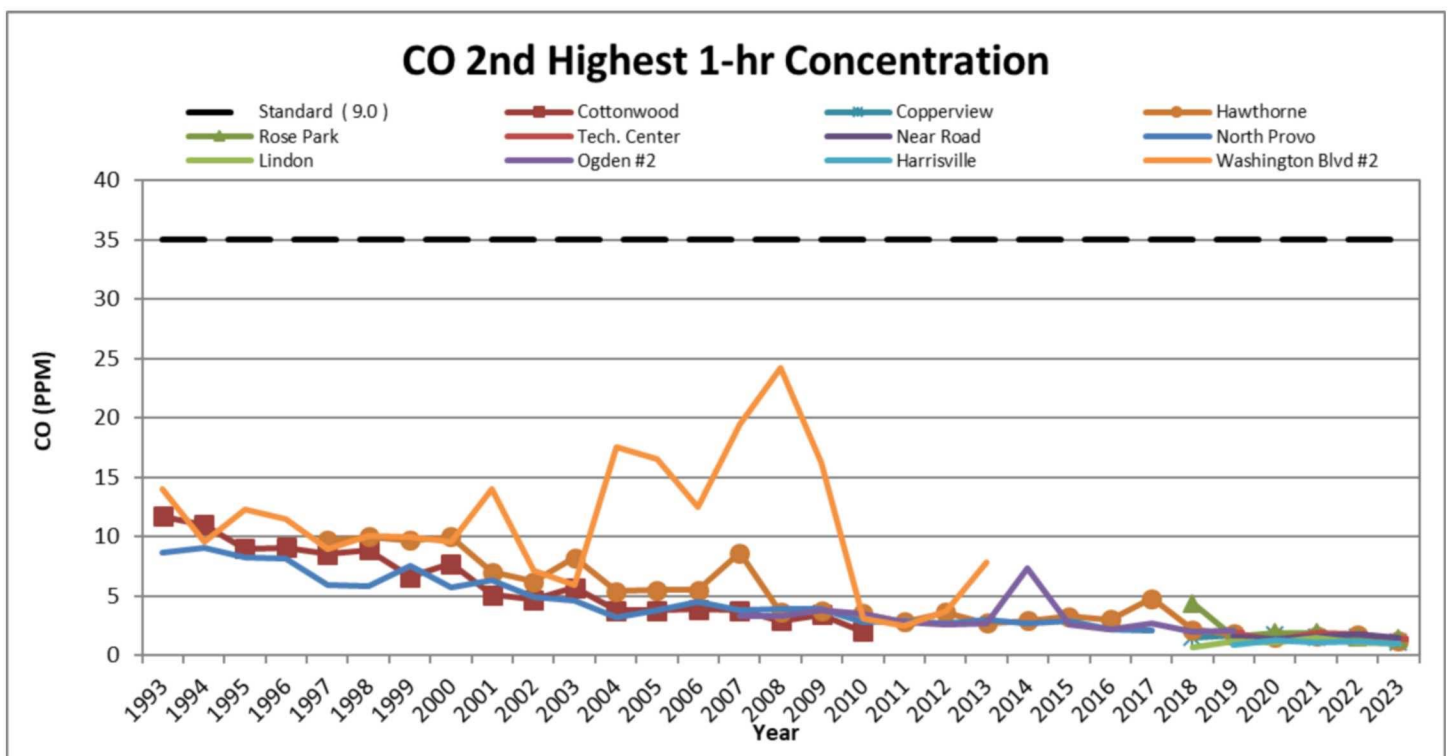


Figure 18: Carbon Monoxide Second Highest 1-Hour Concentration

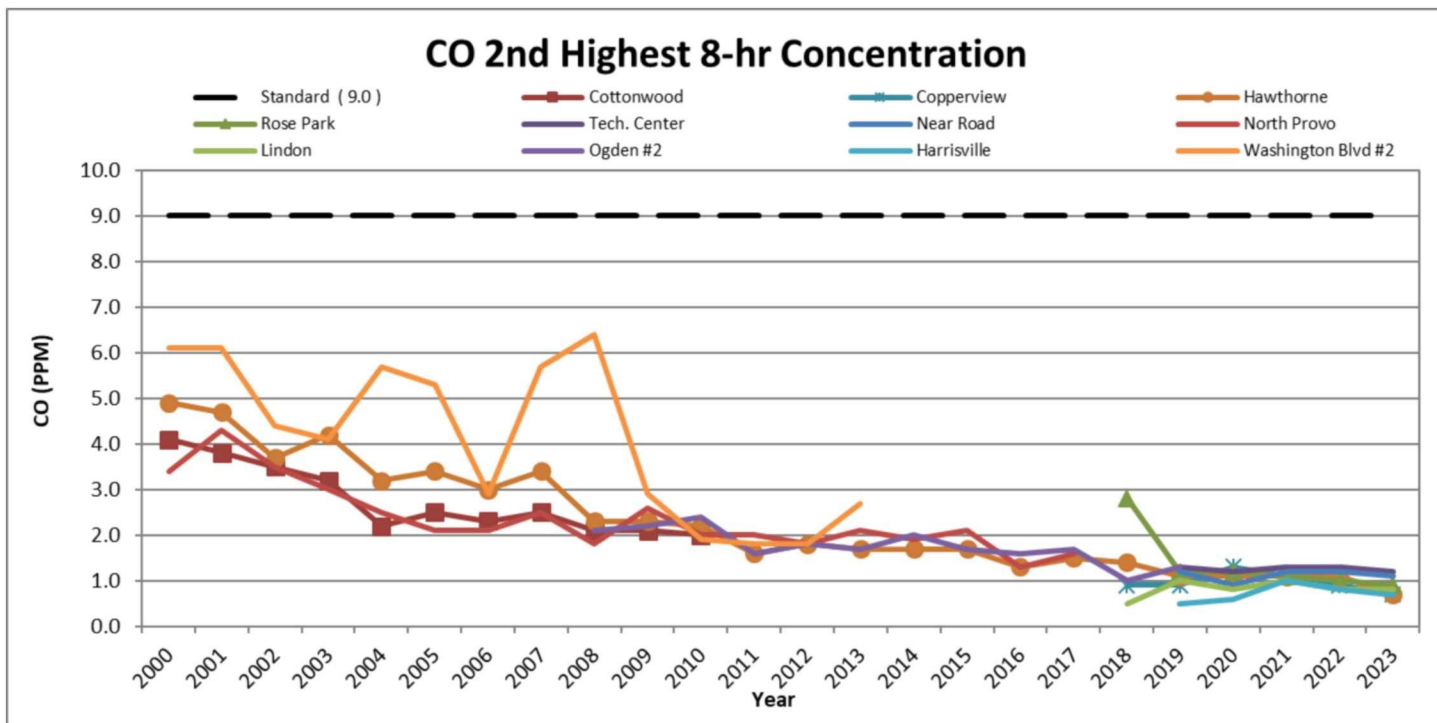


Figure 19: Carbon Monoxide Second Highest 8-Hour Concentration

Nitrogen Dioxide (NO₂)

During high temperature combustion, nitrogen in the air reacts with oxygen to produce various oxides of nitrogen, or NO_x, a reddish-brown gas. One of the oxides of nitrogen, NO₂, is a criteria pollutant.

Oxides of nitrogen can react with other pollutants through secondary reactions in the atmosphere to form additional pollutants of concern. In the summer along the Wasatch Front, and in the winter in the Uinta Basin, photochemical reactions between NO₂ and volatile organic compounds (VOCs) lead to the formation of ground-level ozone. In the winter, NO₂ can undergo a series of reactions to form nitric acid (HNO₃) which then reacts with ammonia (NH₃) to form fine particulate matter (PM_{2.5}). Both of these seasonal scenarios can result in increased pollution and violations of the NAAQS. Utah continues to have difficulty with both the ozone and particulate matter standards, and because of this, the Division is mindful of the trend in NO₂ concentrations as illustrated in Figure 20.

NAAQS Standards and Monitored Data

The EPA has established two national standards for NO₂ – an hourly standard and an annual standard. The hourly standard is set at 100 ppb measured as the three-year average of the 98th percentile of the annual distribution of daily maximum one-hour average concentrations.

The annual NO₂ standard of 53 ppb is expressed as an annual arithmetic mean (average) as seen in Figure 21. The Division monitors the concentrations of NO₂ at various locations throughout the state.

As shown in Figure 20 and Figure 21, Utah has never exceeded the standards for NO₂.

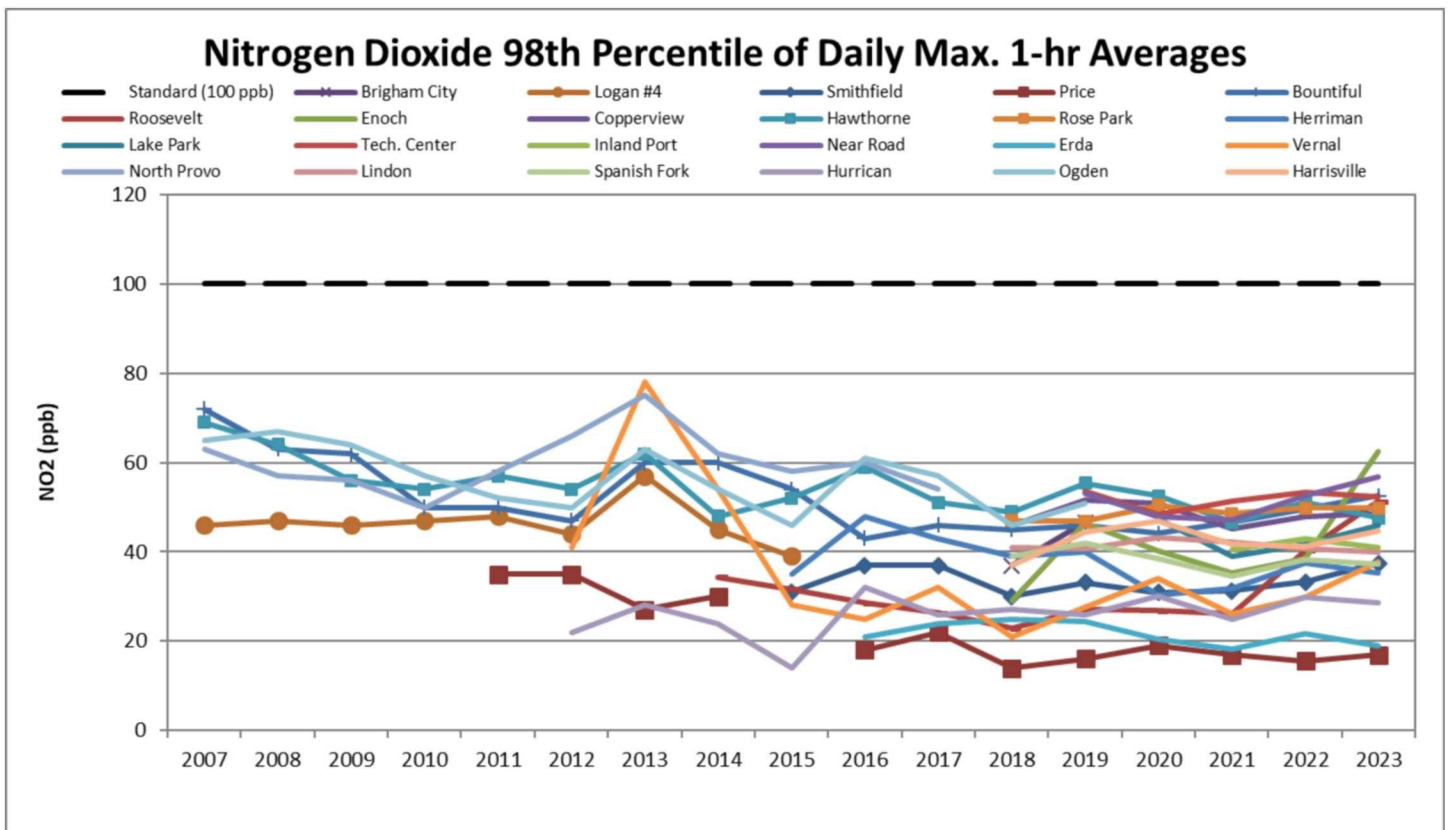


Figure 20: Nitrogen Dioxide 98th Percentile of Daily Max 1-hr Averages

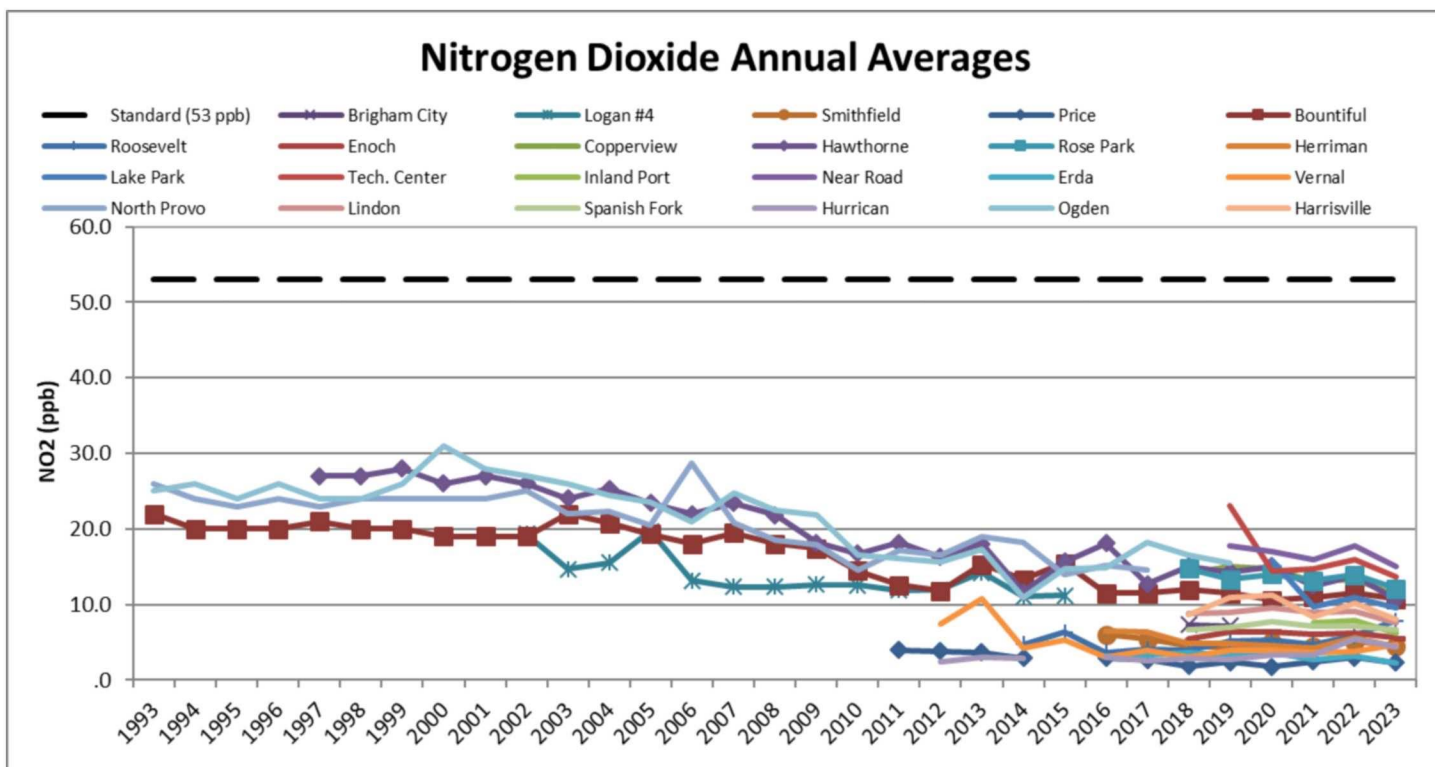


Figure 21: Nitrogen Dioxide Annual Averages

Lead (Pb)

Lead in the ambient air exists primarily as particulate matter in the respirable size range. Historically, the major source of lead emissions came from the burning of leaded gasoline. However, because leaded gasoline for automobiles was completely phased out in the U.S. by the end of 1995, lead from gasoline is no longer a significant problem. Currently, the primary source of lead emissions in Utah is the extraction and processing of metallic ores. Exhaust from small aircraft is another source of lead emissions in the state.

Utah has not exceeded the health standard for lead since the late 1970s, and the EPA authorized the discontinuation of lead monitoring in Utah in 2005; however, in both 2008 and 2010, the EPA set new monitoring requirements for lead, and the Division resumed monitoring in 2010.

NAAQS Standards and Monitored Data

On November 12, 2008, the EPA strengthened the NAAQS for lead. The previous standard was a calendar quarter (three-month) average concentration not to exceed $1.5 \mu\text{g}/\text{m}^3$. The new standard is $0.15 \mu\text{g}/\text{m}^3$ as total suspended particles (TSP), measured as a three-month rolling average. The new standard included a new monitoring requirement, so the Division began lead monitoring again at the Magna station near the Kennecott copper smelter. Data was collected from January 2010 through June 2017, at which time the Division was able to

demonstrate the likelihood of violating the standard was so remote, it would no longer be necessary to run the monitor. With EPA's concurrence, the Magna lead monitor was shut down in June 2017. The Division and EPA continue to monitor requirements, such as source emission thresholds, population, and NAAQS revisions that may trigger the necessity to resume monitoring lead in Utah.

Regional Haze



The Regional Haze Rule requires Utah to address regional haze in each mandatory Class I Area (CIA) located within Utah and in each mandatory CIA located outside Utah that may be affected by pollutants emitted from sources within Utah. The objectives of the Regional Haze Rule are to improve existing visibility in 156 national parks, wilderness areas, and monuments (termed Mandatory Class I Areas or CIAs), prevent future impairment of visibility by manmade sources, and meet the national goal of natural visibility conditions in all mandatory CIAs by 2064. Utah's CIAs consist of: Arches National Park, Bryce Canyon National Park, Canyonlands National Park, Capitol Reef National Park, and Zion National Park. More information on Utah's regional haze history can and current developments can be found [here](#).

Regional Haze Updates

The Division submitted the second implementation period SIP to EPA in July 2022 and is awaiting their review. The Division is currently working on the Regional Haze Progress Report due to EPA by January 31st, 2025.

Climate Pollution Reduction Grant

On August 16, 2022, the Inflation Reduction Act of 2022 (IRA) was signed into law. Among other provisions, the IRA established funding for state greenhouse gas planning and

implementation efforts. This funding initiative, known as the Climate Pollution Reduction Grants (CPRG) program, includes two phases.

Phase I provides formula planning grant funding for states (\$3M each), metropolitan areas (\$1M to each of the 67 largest areas), territories (\$2M set-aside), and tribes (\$25M set-aside) to develop plans to reduce greenhouse gas emissions. Phase II will provide \$4.6B nationwide in competitive implementation grant funding for government entities participating in Phase I. Find more information at EPA’s CPRG program.

Governor Cox identified the Department of Environmental Quality (DEQ), as the lead agency to receive CPRG funding to engage in emission reduction planning in Utah through the Beehive Emission Reduction Plan initiative. In this capacity, DEQ will play a key role in helping Utah secure broader emissions reduction-related funding under the IRA, the Infrastructure Investment and Jobs Act (IIJA), and other sources. DEQ has extensive emission reduction planning experience and is prepared to coordinate with partners to ensure that funding is leveraged to support balanced, state-driven solutions that pave the way for continued growth while maintaining a high-quality of life in Utah.

Division Organization

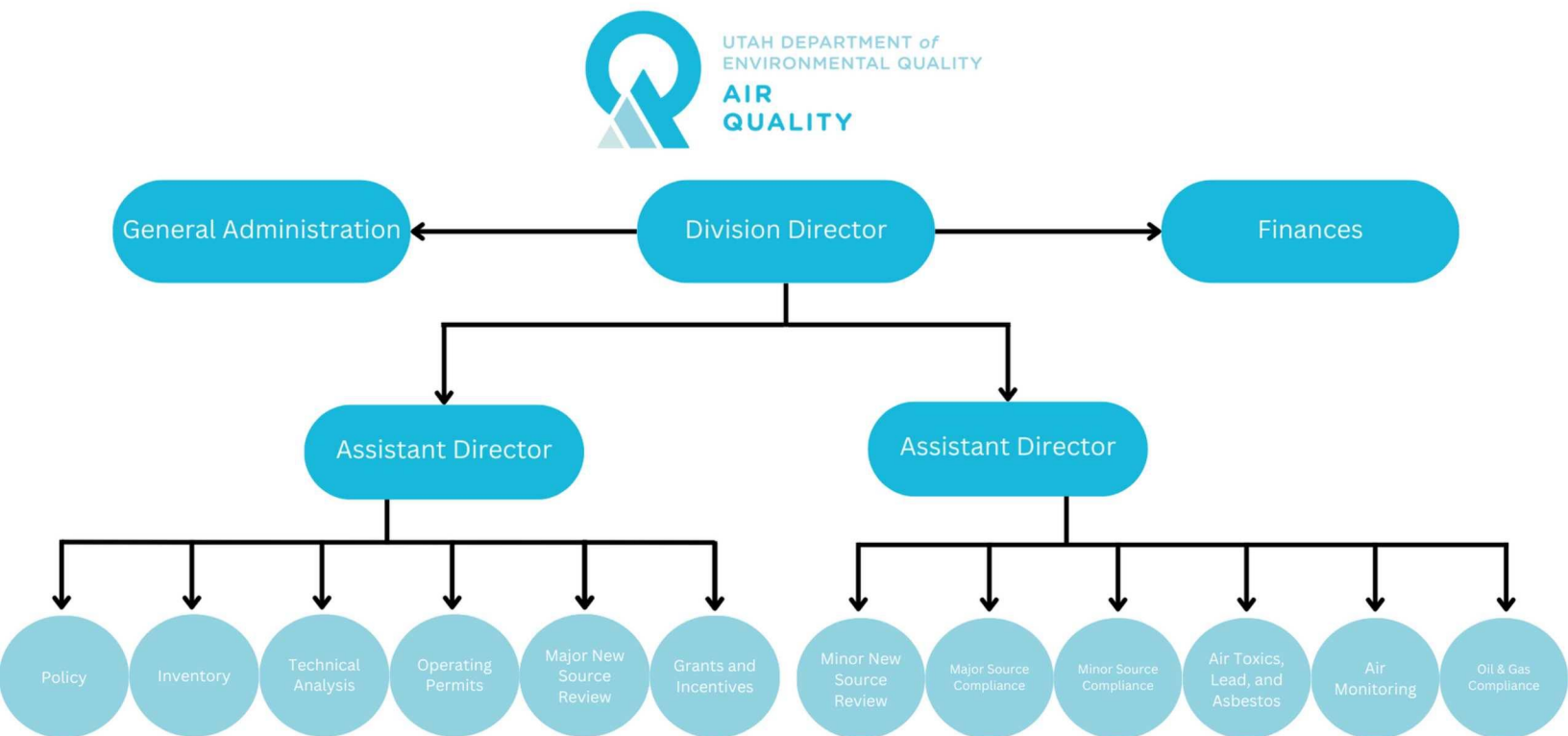


Figure 22: Division of Air Quality Organization

Permitting Program

The Division's Operating Permit Section, Major New Source Review Section, and Minor New Source Review Section are responsible for implementing state and federal air permitting programs that are intended to control air emissions from new and modified stationary sources.

Permits are legally enforceable documents that specify the size and number of allowable emission units, operational limits of permitted emission units, and emission limits for each permitted source. Permitted emission limits can be emission limitations (mass or concentration) or surrogate limits such as production rates, hours of operation, fuel consumption, or a combination thereof. Opacity, the measure of opaqueness or transparency of emission plumes, is also a common metric used to both limit and measure source emissions. Permits include testing and monitoring requirements. The results of the tests and the monitoring data are used to determine if a source of air pollution is operating in compliance with the permit and the rules.

The Division issues two types of permits. New Source Review (NSR) permits, also known as Approval Orders (AOs), are preconstruction-type permits for new and modified sources of air emissions. These are issued by the New Source Review Sections and have been required in Utah since 1969.

The Operating Permits Section issues the Title V Operating Permits to the "major" stationary sources in the state, as required in Title V of the federal CAA. There are currently 76 of these sources. Operating permits consolidate all air quality related requirements from numerous state and federal air quality programs into a single regulatory document. The purpose of an operating permit is to clarify for the permit holder, as well as the Division's compliance inspectors, the wide range of requirements applicable to any regulated source by placing those requirements into one consolidated document.

In addition, the Division's permitting sections process a number of smaller actions such as de minimis determinations for NSR, name changes, tax exemption certificates for pollution control equipment purchases, and soil aeration approvals.

New Source Review

Any new or modified source of air pollution in Utah is required to obtain an AO before it is allowed to begin construction. For areas that are not in compliance with the NAAQS, a NSR permit ensures that air quality is not further degraded from the existing levels by new

emission sources. In areas that are in compliance with the NAAQS, an NSR permit ensures that new emissions do not significantly worsen air quality. These processes are outlined in both state and federal rules.

The application for an AO, called a notice of intent (NOI), is reviewed to ensure that the source installs appropriate state-of-the-art emission controls. For major sources in nonattainment areas, state-of-the-art technology is known as lowest achievable emission rate (LAER). For areas in attainment of the NAAQS and for minor sources in nonattainment areas, state-of-the-art controls are known as the best available control technology (BACT). Both LAER and BACT are case-by-case determinations of control technology for a specific source. BACT considers the technical feasibility of implementing the control, the cost, and the environmental benefits of the control equipment, while LAER technology considers only technological feasibility and environmental benefits. The general public and the EPA are given an opportunity to review the proposed AO before it is issued. The Utah Air Quality Rules specify the criteria indicating which sources must obtain an AO.

The Division NSR Sections recently implemented a review of the Approval Orders to stationary sources that were issued over ten years and older. Any new rules that now apply to the stationary source are highlighted in the permit. The contact information is also updated in the permit to assist in contacting the source in the future. Any grammatical or typographical errors are also corrected. These reviews allow the Division to update the permitting database with updated emission estimates and permitted equipment. These updates allow the Division to pull accurate data and reports from the database to assist in air quality planning efforts.

The regulated community and general public can now successfully track the Notice of Intent (NOI) applications through the permitting process in near real-time using the recently developed permitting dashboard <https://noistatus.deq.utah.gov/status>.

The dashboard provided transparency to the public of all the relevant permitting activities. It also allows the regulated sources to view the permitting process flow for each submitted NOI. The dashboard includes contact information, a flow chart of the permitting process and where the NOI currently is in the approval process. The permitting dashboard assisted permit engineers with increased permit issuance frequency last year and it helped improve communication between permitting engineers, the regulated community, and the public.

Operating Permits (Title V)

Congress created Title V of the CAA in 1990. This Title requires states to issue an operating permit to the larger or “major” sources of air pollution within the state. Utah developed and submitted a Title V program in 1994 and received approval from the EPA in 1995.

Operating permits are legally enforceable documents issued to air pollution sources after the source has begun to operate. A primary purpose of the permit is to consolidate the applicable requirements from the many and varied air quality programs such as NSR permits, SIPs, federal New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAP), and Maximum Available Control Technology (MACT).

The general public is given an opportunity to review the draft operating permits before they are issued. In addition, the EPA has up to 45 days to review the proposed operating permit. The criteria indicating which sources must obtain an operating permit are specified in R307-415 of the Utah Administrative Code (UAC). As with the NSR permit or AOs, potential applicants are encouraged to contact the Division prior to submitting the necessary paperwork.

Another significant objective of the Title V program is to shift the compliance liability from the regulating agency to the permitted source. Each year, the source must certify that it is in compliance with all permit terms and conditions or indicate non-compliance issues. False reports have criminal implications beyond the civil liabilities of other violations. In addition, sources must report the results of monitoring at least every six months. Permit provisions for monitoring, record keeping, and reporting are added or enhanced to ensure compliance with the permit conditions and limits.

An operating permit has a life of only five years. These permits, both initially and upon renewal, are complex and care must be taken to ensure that federal requirements for the Compliance Assurance Monitoring Rule (CAM) and any other new requirements, such as new MACT Standards, are included.

Title V permitting drafted the first Utah refinery permit this year, completing the process through public comment and preparing it for EPA 45 day review. The Utah refinery permits have been on hold since 1995 due to EPA SIP conflict issues, which were finally resolved in August 2023.

Additionally all but one Title V permit renewals were completed this year leaving only a single permit in “extended beyond permit date” status. This rate of completed renewals is unmatched in the nation.

Compliance Program

The Compliance Program consists of four sections: Major Source Compliance, Minor Source Compliance, Minor Source Oil and Gas and Air Toxics, Lead-Based Paint, and Asbestos (ATLAS). These sections are responsible for ensuring compliance with all air pollution orders, permits, rules, and standards. This is accomplished through inspections, audits of stack tests and continuous emission monitoring systems (CEMS), plan and report reviews, accreditation and certification programs, compliance assistance/outreach activities, and, when necessary, enforcement actions.



Major, Minor and Minor Oil & Gas Source Compliance

The Major, Minor, and Minor Oil & Gas Source Compliance sections are responsible for ensuring compliance at more than 4,500 facilities within the state. The Major Source Compliance Section is responsible for inspections and report/plan reviews for the large facilities, audits of stack tests and continuous emission monitoring systems, and any associated enforcement. The Minor Source Compliance Section is responsible for inspections and report and plan reviews at small to medium-sized facilities, audits, stack tests, fugitive dust control, abrasive blasting, residential solid fuel burning, open burning, and any associated enforcement. The Minor Oil & Gas Compliance Section is responsible for inspections and report and plan reviews at oil and gas related facilities, audits, stack tests and gasoline transport and filling station vapor recovery.

Table 4: 2023 Compliance Summary

Major & Minor Compliance	Count
Source Inspections	755
On-Site Stack Test/CEM Audits	72
Stack Test/CEM Reviews	415
Emission Reports Reviewed	229

Temporary Relocations Accepted	67
Fugitive Dust Control Plans Accepted	1,319
Soil Remediation Report Reviews	12
Open Burn Permit Application Completed Online	7,733
Misc. Inspections	153
Complaints Received	181
Wood Burning Complaints	51
Breakdown Reports Received	16
Compliance Actions Resulting from a Breakdown	1
VOC inspections	0
SCAN/Warning Letters	22
NOV's	3
Compliance Advisories	76
No Further Action Letters Issued	19
Settlements	28
Penalties assessed	\$499,801.00
Total Inspections	980

Air Toxics, Lead-Based Paint, and Asbestos Section (ATLAS)

ATLAS determines compliance with multiple regulations involving asbestos and lead-based paint (LBP). ATLAS is responsible for the following programs:

Lead-Based Paint

Toxic Substances Control Act (TSCA) Title IV, 40 CFR Part 745 and Utah Administrative Code (UAC) R307-840, 841, and 842. Under this program, ATLAS performs regulatory

oversight of training providers, regulated projects subject to the LBP Activities Rule and the LBP Renovation, Repair, and Painting Rule, certification of individuals and firms, and lead-based paint outreach activities.

Asbestos in Schools

TSCA Title II Asbestos Hazard Emergency Response Act (AHERA), 40 CFR Part 763 and, UAC R307- 801-4. Under this program, ATLAS deals with the review and approval of AHERA Management Plans, performs inspections of buildings subject to AHERA, and inspections and asbestos abatement for structures subject to AHERA.

Asbestos NESHAP and State Asbestos Work Practices

40 CFR Part 61, Subpart M, UAC R307-214-1 and UAC R307-801. Under this program, ATLAS deals with the certification of individuals and companies, review of asbestos project notification forms, review of demolition notification forms, review of alternative work practice requests, inspection of asbestos abatement projects, demolition of structures, and asbestos outreach activities.

Table 5: 2023 ATLAS Activity Summary

Activity	Count
Asbestos Demolition/Renovation NESHAP Inspections	264
Asbestos AHERA Inspections	228
Asbestos State Rules Only Inspections	27
Asbestos Notification Forms Accepted	1821
Asbestos Telephone Calls	3661
Asbestos Individuals Certifications Approved	1216
Asbestos Company Certifications/Re-Certifications	102
Asbestos Alternate Work Practices Approved/Disapproved	38/0
Lead-Based Paint (LBP) Inspections	18
LBP Notification Forms Approved	13
LBP Telephone Calls	657
LBP Letters Prepared and Mailed	54

LBP Courses Reviewed/Approved	0
LBP Course Audits	4
LBP Individual Certifications Approved	205
LBP Firm Certifications	140
Notices of Violation Sent	1
Compliance Advisories Sent	91
Warning Letters Sent	49
Settlement Agreements Finalized	17
Penalties Agreed to	\$47,654.00

Small Business Environmental Assistance 507 Program (SBEAP)

The CAA 507 Programs consist of three parts: A Small Business Ombudsman (SBO) to act as an advocate for small business, a Small Business Environmental Assistance Program (SBEAP) to provide technical support, and a Small Business Compliance Advisory Panel (CAP) to provide feedback and help identify small business issues. The SBEAP helps small businesses understand and comply with state environmental regulations including air quality rules. The SBEAP continues to assist small businesses by providing web resources, responses to email and telephone inquiries, and assistance with permitting through a pre-design program. The Division's CAP sunsetted due to 2022 legislation. The SBEAP CAP has successfully been combined with the Division's Industry Stakeholder Meeting.

Enforcement Actions

The following enforcement actions may be taken depending on the magnitude of the alleged violation(s), prior compliance history, and degree of cooperation of an alleged violator:

- Warning Letter – a notification sent to violators to resolve minor, and/or first-time violations.
- Early Settlement Agreement – a less formal administrative resolution of an alleged violation(s) in which the Division and the recipient agree in writing to specific

actions taken to correct the alleged violation(s). Any stipulated penalties are discounted by 20% to encourage quick resolution. Supplemental Environmental Projects or payment to the DEQ Environmental Mitigation Fund may be used to offset a portion of any cash payments for stipulated penalties. All collected cash penalties become part of the State General Fund.

- Notice of Violation and Order for Compliance – a formal, traditional declaration of a violation(s) which involves the Attorney General’s Office. The cited violation(s) become final after 30 days, unless formal appeal procedures are followed.
- Settlement Agreement – a resolution of a Notice of Violation and Order for Compliance. The Division and the recipient agree to specific actions taken to correct the potential violation(s). No discounts of stipulated penalties are offered. The Division legal costs may also be collected. Supplemental Environmental Projects may be agreed to, or payment to the DEQ Environmental Mitigation Fund to offset a portion of any cash payments for stipulated penalties. All collected cash penalties become part of the State General Fund.

Most enforcement actions are resolved through Warning Letters or Early Settlement Agreements. In rare instances, Notices of Violations and Orders for Compliance are used. In the extremely rare instance where the aforementioned enforcement actions fail to resolve a compliance issue, procedures are in place for Board hearings, administrative law judge review, or formal judicial action. Environmental criminal cases are referred to the appropriate law enforcement agency.

Emissions Inventories

The Inventory Section has the primary responsibility to collect and collate emissions inventories in order to understand the origins of the various contaminants detected in the air. This includes both historic inventories and projection inventories, reflecting current and proposed control strategies. The data is used for SIP planning purposes as well as to meet EPA inventory reporting requirements. Every three years, EPA develops the National Emissions Inventory (NEI), and requires each state to submit its inventory data into the NEI directly. To do so, the Division collects information about the quantity and characteristics of the various air pollutants released by all emission sources in the state. In addition to these triennial inventories, emissions information is also collected annually from the largest industrial sources to meet the fee requirements of Title V Operating Permits of the CAA, or requirements in various sections of the SIP. Finally, additional detailed inventories are prepared, as needed, for special projects such as SIP development and to quantify

emissions during specific seasonal air pollution episodes. Much of this data is uploaded into the NEI annually, as available.

Once collected, the inventory information is reviewed, quality assured, analyzed, stored in the DAQ data system and the NEI, if required, and made available to the public. Inventories entirely collected by the state, such as the point source inventory, are generally available two years following the year of collection; however, inventories dependent on EPA-controlled calculations are available an additional six months later. For example: the 2020 point inventory is collected in 2021, and will be available in 2022 and area and mobile NEI inventories became available in 2023. The Division uses this emissions information to review trends over time, as input data for air quality modeling analysis and as an indicator of the effectiveness of existing and projected control strategies.

Sources of Air Contaminants

Emission inventories are typically organized into three types of sources: Point, Area, and Mobile. Point sources are stationary industrial or commercial sites, such as power plants, refineries, and manufacturing facilities. Air pollutants released from these sources are reported directly to the Division's staff through the State and Local Emissions Inventory System (SLEIS). The mobile sector consists of emissions from non-stationary sources such as cars, trains, and aircraft.

Mobile emissions are further broken down into on-road and non-road categories. On-road mobile sources primarily consist of personal and commercial cars and trucks, and contribute the largest part of the mobile source emissions. Non-road mobile sources consist of a diverse group of heavy construction equipment, small engines (lawnmowers and snow blowers), trains, and aircraft. Estimating emissions from mobile sources requires understanding vehicle emission characteristics and model years. It is also necessary to know how they are driven, where they are driven, and the distances they are driven.

Area sources are generally much smaller stationary sources, and due to their greater number, are generally accounted for in a group. However, as the NAAQS become more restrictive, it is necessary to start tracking emissions more closely from smaller industrial sources. Additionally, as mobile source emissions drop, area sources are quickly becoming the largest source of emissions. Home heating, agricultural burning and harvesting, construction, residential and commercial energy generation, wildfires, and biogenics (emissions from vegetation) are examples of area source categories.

The upstream oil and gas inventory is part of the area source inventory, but because oil and gas companies submit an inventory for their facilities, it is assigned its own sector.

Triennial Emissions Inventory

Under current federal law, Utah is required to collect a statewide emission inventory every three years. The 2020 triennial inventory is the most recent statewide inventory available. The 2020 triennial inventory covers 485 individual point sources, 154 area categories, 67 oil and gas categories, 37 on-road categories, and 57 non-road categories. The 2020 inventory introduces a new sector, EPA Point Source, of which there are 14 individual sources. Table 6 shows total emissions, by county, of the criteria pollutants, CO, NO_x, PM₁₀, PM_{2.5}, SO₂, and VOCs. Figures 23 through 28 show the 2020 triennial emissions inventory in six pie charts, displaying the relative proportion of emissions generated within source categories.

The figures in the charts represent statewide annual emissions and should not be compared to the inventories used in the PM_{2.5}, ozone, or other SIP revisions, which are seasonal and area specific. Biogenic and wildfire emissions produced from non-anthropogenic (non-human) natural activity are usually estimated as segments within the area source category, but have been listed separately due to their unique nature and impact.

Biogenic emissions dropped from 2017 to 2020 primarily due to an updated model and inputs. EPA calculates these emissions, and updated their Biogenic Emission Inventory System from BEIS3.61 to BEIS4, and their Biogenic Emissions Landuse Database from BELD5 to BELD6. Updates included changes to where vegetation and associated biogenic emissions are located in Utah based on new landuse characterization, and improved characterization of leaf area index and other biogenic emissions parameters from meteorological datasets. In Utah, these updates resulted in a decrease in biogenic emissions relative to the previous version used in 2017. Wildfire emissions increased from 2017 to 2020 as there were comparatively more wildfire events in 2020 than 2017. Volatile chemical products (VCPs) in the area source sector are calculated using the VCPy framework in the 2020 NEI, resulting in increased VOCs from this sector in 2020 relative to 2017. Additionally, the 2020 data will reflect emissions during the beginning of the COVID-19 Pandemic, and users should assess how representative this data is for Utah.

Table 6: 2020 Triennial Inventory

2020 Triennial Inventory (tons/year)						
County Name	CO	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOC
Beaver	5,246.31	1,353.96	2,249.81	457.13	14.10	9,763.31
Box Elder	20,387.94	3,720.20	7,493.25	1,885.51	198.99	11,045.88

Cache	10,114.76	1,887.99	9,918.69	1,536.28	42.37	8,051.85
Carbon	5,297.67	1,770.68	3,381.89	515.69	453.50	8,943.12
Daggett	8,067.06	1,151.70	1,310.55	691.92	55.77	5,143.45
Davis	24,398.15	4,520.89	3,555.43	963.84	150.00	6,716.86
Duchesne	408,129.63	10,049.47	43,779.45	33,719.89	2,558.44	117,645.36
Emery	11,693.20	15,142.35	4,350.68	1,073.73	4,586.07	8,864.11
Garfield	4,291.98	839.25	1,819.04	258.31	3.39	15,680.18
Grand	6,633.88	2,086.44	1,477.92	228.06	5.98	11,713.24
Iron	14,805.42	2,603.51	4,306.03	1,127.44	60.51	16,425.11
Juab	25,667.06	2,021.57	3,951.08	2,228.74	193.14	12,421.25
Kane	7,251.24	916.79	2,592.24	543.96	31.40	15,174.31
Millard	40,534.98	13,449.94	8,285.74	4,336.92	2,509.22	19,195.00
Morgan	2,537.05	2,522.97	1,452.93	239.15	339.48	4,320.44
Piute	4,210.57	254.90	1,075.66	382.11	18.34	4,781.32
Rich	1,869.92	299.42	1,838.68	265.00	0.53	2,756.17
Salt Lake	97,262.51	19,028.07	19,695.36	4,770.16	744.67	18,649.97
San Juan	8,646.90	1,734.10	4,235.02	736.01	53.18	20,834.63
Sanpete	5,249.63	854.47	5,596.78	876.01	17.74	8,473.81
Sevier	13,883.46	1,310.59	5,480.16	1,451.15	86.80	10,618.35
Summit	9,624.72	2,334.80	4,477.24	853.14	143.35	9,032.68
Tooele	15,912.04	3,948.68	4,069.67	1,415.37	114.56	11,000.05
Uintah	13,330.49	8,675.53	6,018.75	1,261.54	142.84	58,144.55
Utah	47,868.48	7,134.80	15,834.65	3,523.41	177.14	18,371.92
Wasatch	7,145.98	916.44	5,405.15	906.09	23.40	7,713.70
Washington	23,008.65	3,370.40	5,682.84	1,354.59	123.44	14,466.10
Wayne	1,712.73	364.01	886.75	140.47	0.81	5,066.23

Weber	19,040.89	3,628.92	5,847.75	1,314.53	48.72	6,978.83
Total	863,823.29	117,892.84	186,069.20	69,056.18	12,897.90	467,991.76
Portable	144.61	459.67	119.80	30.58	16.65	25.45
Grand Total	863,967.90	118,352.51	186,189.00	69,086.76	12,914.55	468,017.21

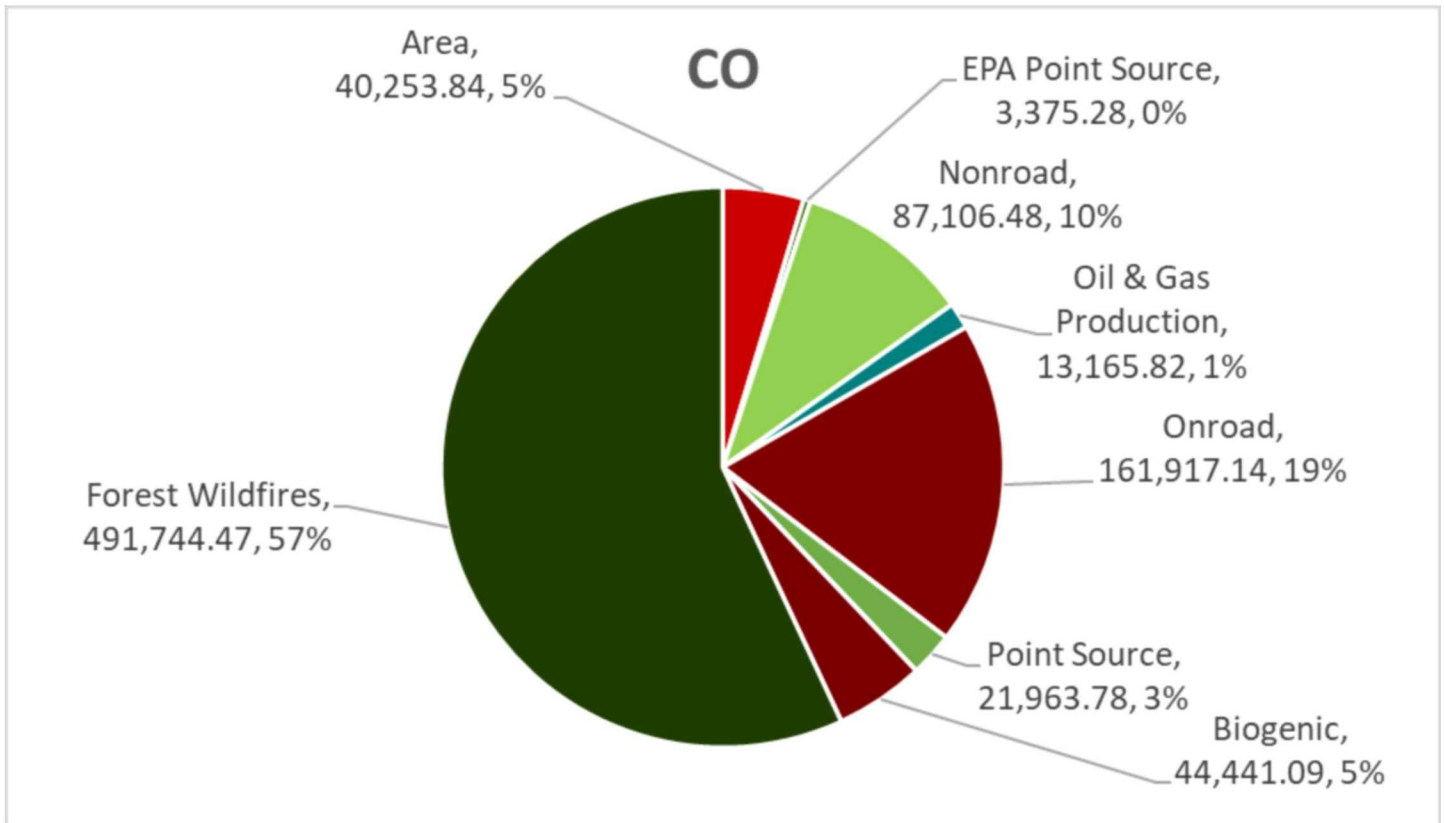


Figure 23: CO 2020 Triennial Emissions Inventory

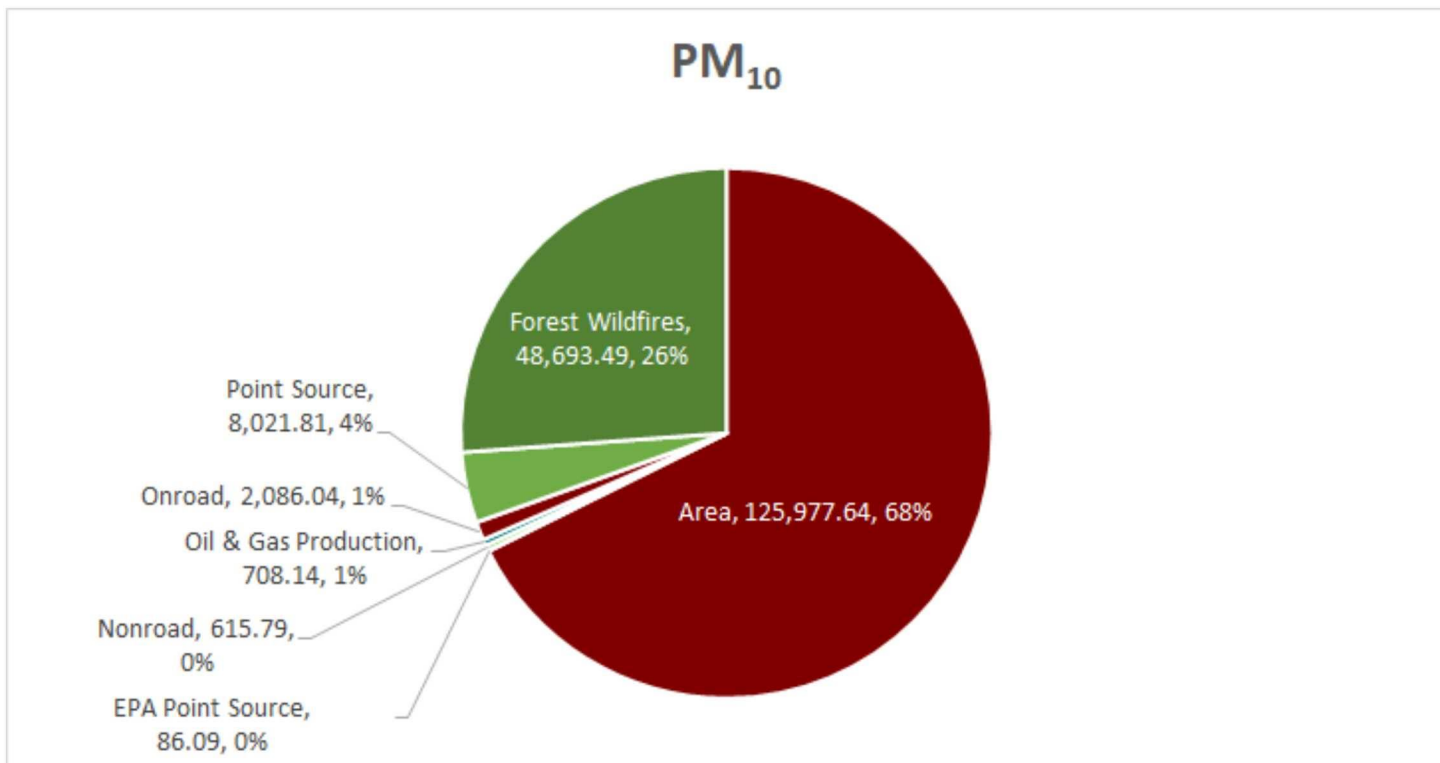


Figure 24: PM₁₀ 2020 Triennial Emissions Inventory

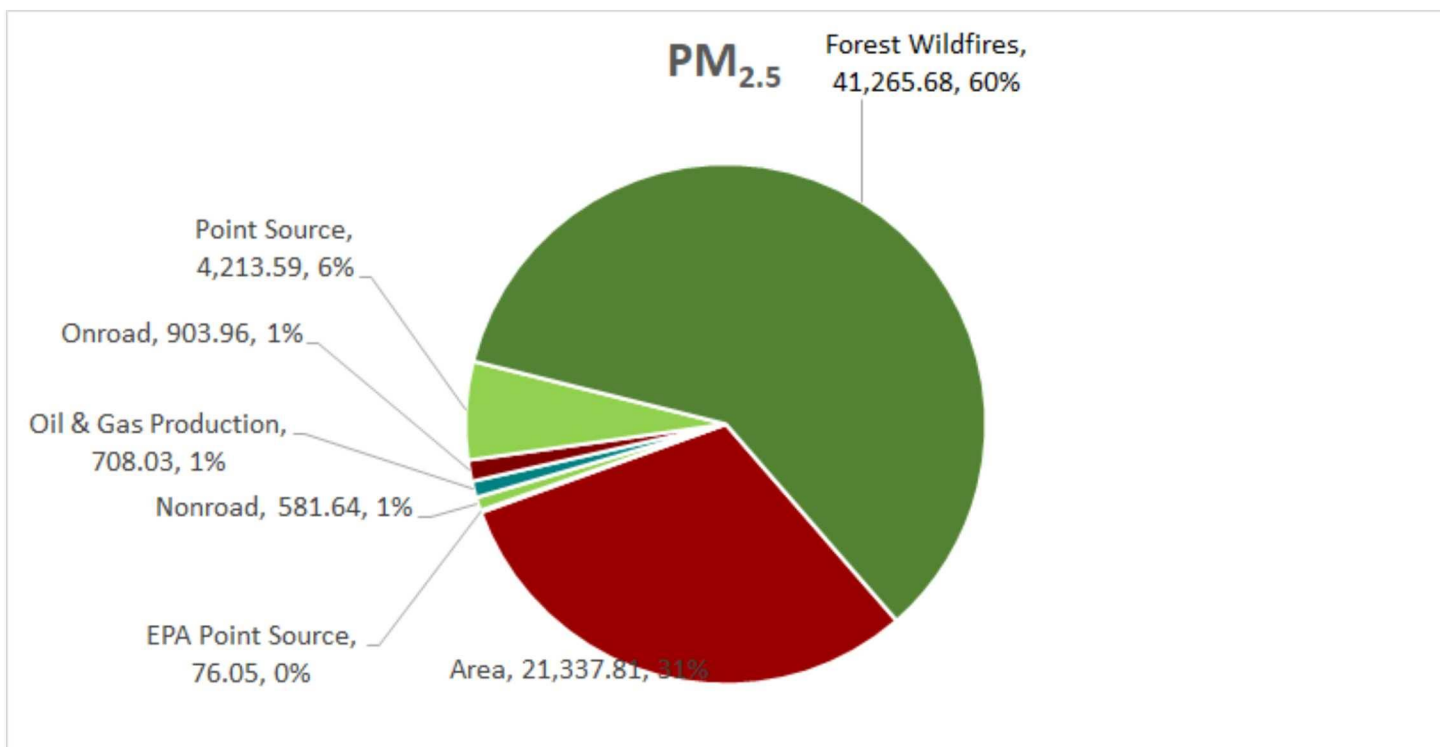


Figure 25: PM_{2.5} 2020 Triennial Emissions Inventory

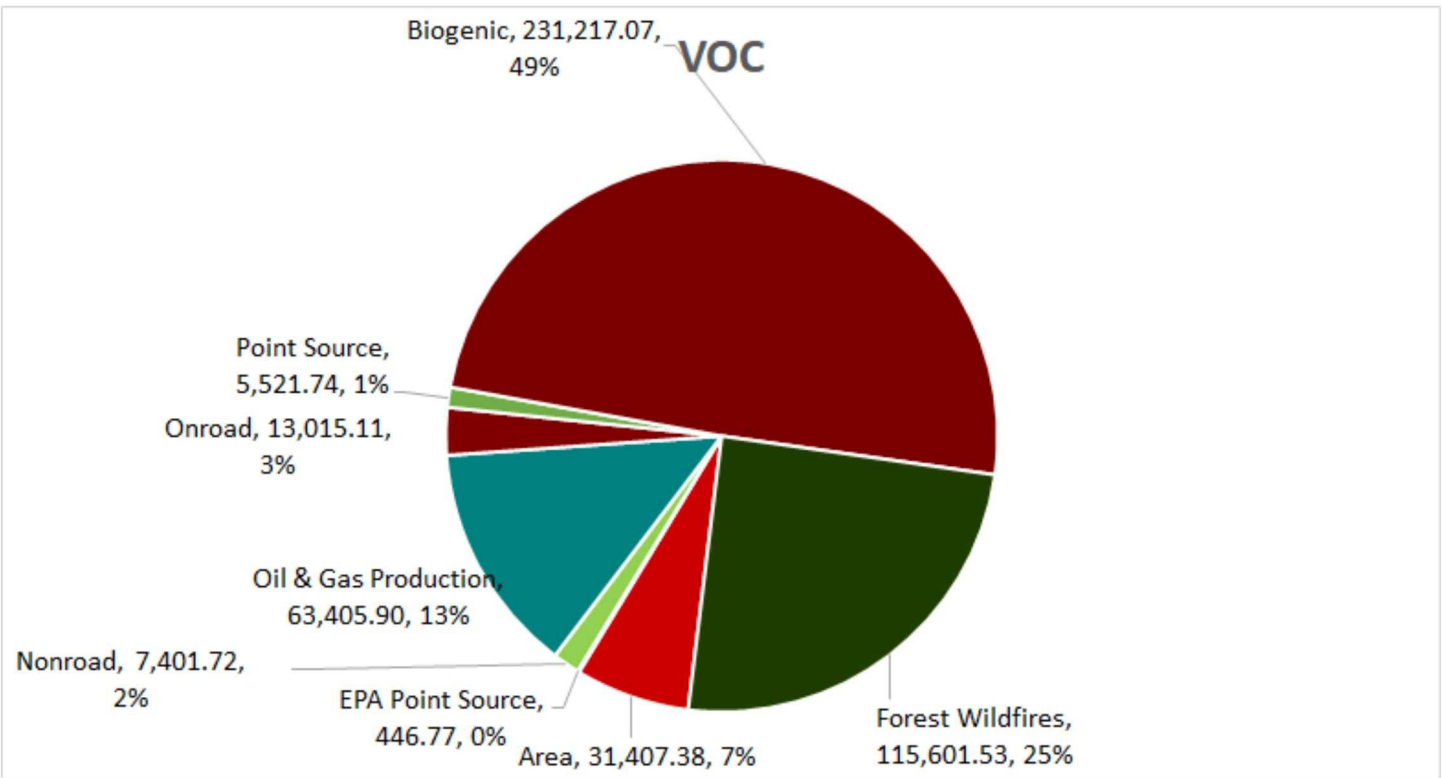


Figure 26: VOC 2020 Triennial Emissions Inventory

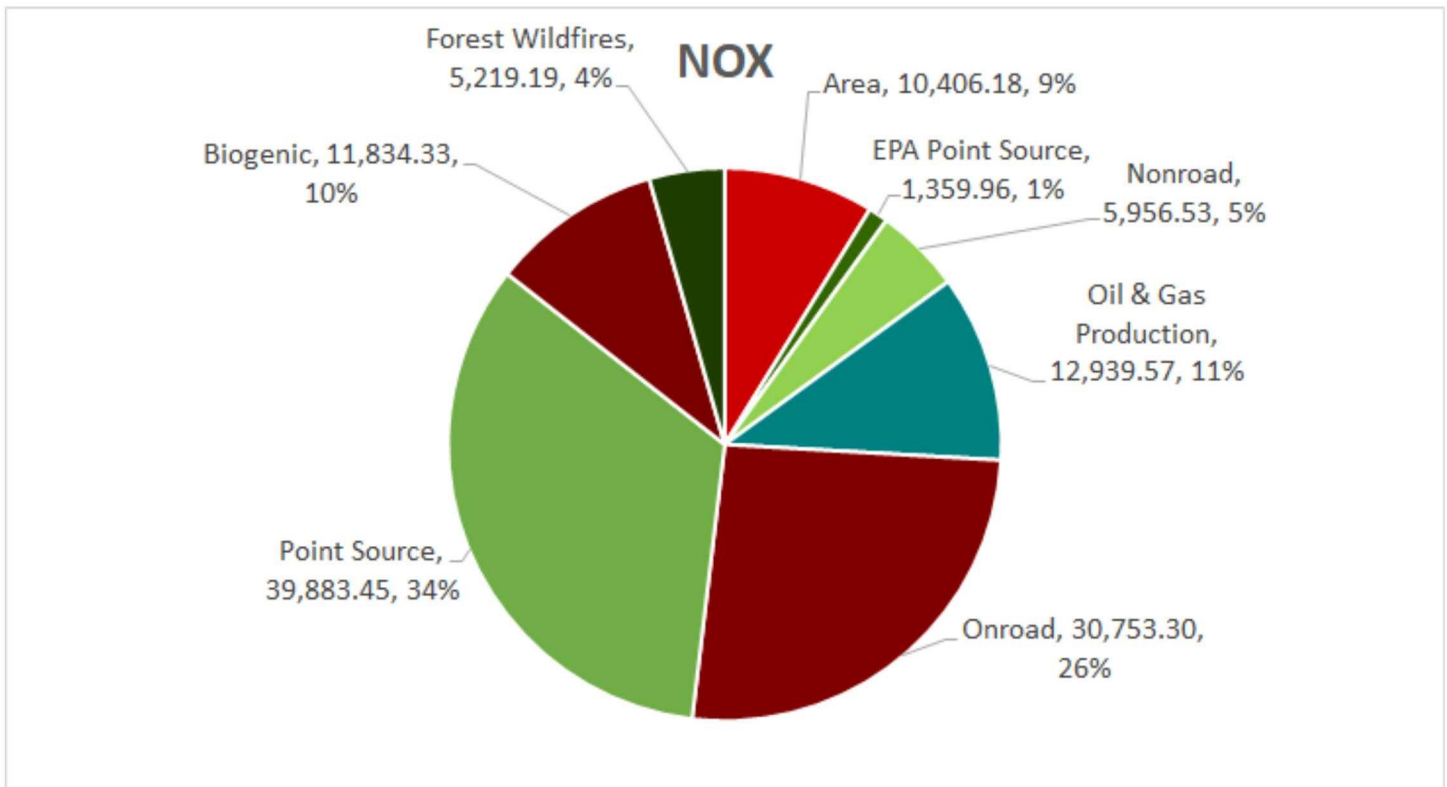


Figure 27: NOx 2020 Triennial Emissions Inventory

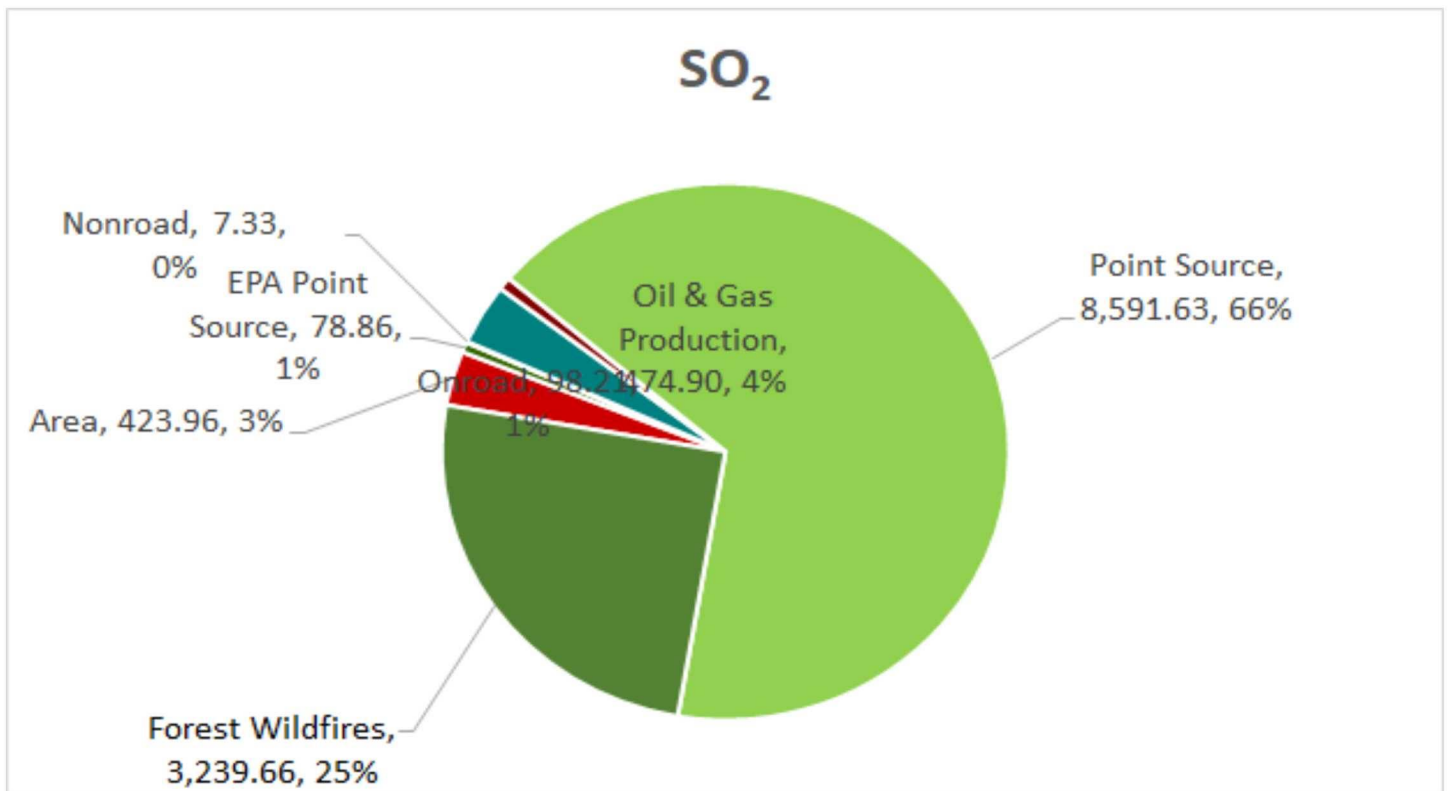


Figure 28: SO₂ 2020 Triennial Emissions Inventory

Air Quality Modeling

The Technical Analysis Section uses advanced air quality models to prepare attainment demonstrations for SIPs and to meet other federal regulatory requirements. Using computer models, advanced data visualization and statistical techniques, the modeling team evaluates the impacts of control strategies as well as new and existing sources of air pollution on air quality in Utah’s nonattainment areas. The modeling work also helps improve our understanding of the coupling between source emissions, meteorology, and chemistry, all of which are drivers of air pollution formation in Utah valleys. Findings from this work help us better understand past and current pollution episodes and better predict future pollution events. The modeling team is committed to continued improvement of their technical expertise and skillset. The team uses available air monitoring data, most recent model developments, sophisticated analysis methods and programming languages, and findings from projects funded through the Division’s “Air Quality Research” program to inform and continually improve the air quality modeling platform. This includes refining emission inventories, meteorological processes, and chemistry pathways. The team also works closely with local researchers, the EPA, and model developers to further refine the air quality models they use to better predict air pollution episodes and identify effective regulatory control strategies.

Air Quality Research

Federally Funded Research Projects and Initiatives

Addressing Air Pollution Inequities in the Salt Lake Valley through Community-Engaged Particle Monitoring

The Division is partnering with the University of Utah (Kerry Kelly, Nancy Daher) to expand PM_{2.5} and coarse particulate matter PM₁₀ monitoring around the Great Salt Lake, Inland Port, and Beck Street areas in the Salt Lake Valley. The Division and the University of Utah will develop community-specific PM_{2.5} and PM₁₀ assessments, identify air pollution hotspots, and provide communities with localized real-time pollution measurements. For this study, forty low-cost sensors will be deployed in underserved communities located on the west side of Salt Lake City. The data from these sensors will inform real-time pollution maps that will be available on a public-facing website. This effort will increase community awareness on air quality challenges related to particulate matter.

Combining Community Partnerships and Mobile Monitoring to Address Inequities in Exposure to Hazardous Air Pollutants along Utah's Wasatch Front

The Division is expanding VOC monitoring in underserved communities along the Northern Wasatch Front. The Division will assess VOC variability at the neighborhood-level, identify VOC emission hotspots, and assess changes in VOC levels over time. VOC emissions not only contribute to ozone pollution, but high levels of VOCs can be toxic. The Division will conduct neighborhood-level mobile monitoring for two-week periods every six weeks for three years. For each period, the Division will focus on one region and repeat mobile routes at different times of day. Mobile routes will be designed following feedback from local communities. Localized VOC measurements from this effort will be used to develop interactive maps that will inform impacted communities. The Division will be partnering with Utah Clean Air Partnership (UCAIR) for this project.

State Funded Research Projects and Initiatives

Utah Summer Ozone Study

The Division is funding a comprehensive field campaign to study summertime ozone pollution in the Northern Wasatch Front. This study is called the Utah Summer Ozone

Study (USOS) and is being conducted by the National Oceanic and Atmospheric Administration (NOAA). USOS is large in scope. NOAA will leverage a mobile laboratory van and a fully-instrumented Twin Otter aircraft to collect measurements of ozone precursors around the Salt Lake Valley. The Division will provide guidance and assistance to NOAA in order to maximize the Division's return on investment. USOS will be conducted over a five-week period from July 15 to August 16, 2024. This period was selected because Utah typically has the greatest frequency of ozone exceedance events in July and the most probable occurrence of wildfire influence in August.



NOAA Twin Otter (left) and NOAA mobile laboratory (right). Both platforms will be used to take measurements during the 5-week USOS campaign.

The six key objectives of USOS include:

1. Determine spatial distributions, speciation, and sources of volatile organic compounds (VOCs) in the Wasatch Front region.
2. Determine spatial distributions, speciation and sources of nitrogen oxides (NO_x), and total reactive nitrogen, NO_y .
3. Determine spatial distributions, speciation, and sources of halogens, including chlorine, bromine, and potentially iodine compounds.
4. Characterize important processes affecting the planetary boundary layer and transport of pollutants within and between basins within the region.
5. Determine the sensitivity of local ozone (O_3) formation to NO_x and VOCs, and potentially halogens, based on modeling of observations.
6. Determine the influence of wildfire emissions on O_3 formation in the urban areas of the Wasatch Front.

The goal of USOS is to greatly expand the Division's understanding of the science underlying summertime ozone pollution events that affect over 2.5 million Utah residents. Results from USOS will help the Division improve regulatory modeling and guide effective State Implementation Plan (SIP) development.

Air Quality Incentive Programs

The Grants/Incentives Section develops programs that offer incentives to industry, government entities, fleet owners, and private citizens to voluntarily reduce emissions. Funding for these programs comes from various sources, including settlement agreements, legislative appropriations, and federal grant programs. The following sections provide a summary of each program. More information on these programs is available online [here](#).

Targeted Airshed Grants

Through congressional appropriations, EPA provides funding opportunities to the top five most polluted nonattainment areas for ozone, annual $PM_{2.5}$, or 24-hour $PM_{2.5}$ standards through competitive grants, also known as Targeted Airshed Grants. Successful recipients use the funding to reduce air pollution in the nonattainment areas. UDEQ was a recipient of these funds in 2016, 2017, and 2018 for targeting emissions in the state's three nonattainment areas for the 24-hour $PM_{2.5}$ standards: Logan, Salt Lake, Provo, and the Uinta Basin nonattainment area for wintertime ozone.

School Bus and Heavy-Duty Truck Replacement Programs



In 2017, \$3,184,875 was awarded to UDEQ for heavy-duty diesel truck replacements in the Logan Utah nonattainment area. Through this award, Cache County School District will replace eight diesel school buses, Cache County will replace two heavy-duty diesel trucks, Hyrum City will replace one heavy-duty diesel truck, Logan City will replace nine heavy-duty diesel trucks, and Nibley City will replace two heavy-duty diesel trucks with this funding, while just over \$920,000 is still available for new projects. The diesel truck and bus replacement projects are estimated to reduce emissions over 94 tons per year and nearly 1,800 tons over the lifetime of the

projects.

Uinta Basin Oil and Gas Engine Replacement Program

In October 2019, DEQ received a \$5 million Targeted Airshed Grant to reduce emissions from oil and gas production in Uintah and Duchesne counties.

Participation requires replacing natural gas engines on pump jacks with electric engines. For an engine to qualify, it must be operable and have three years left in its life. Producers

will be required to contribute a minimum of 60% of the project cost and also destroy the gas engine within three months after the electric engine is in service. The Division is hosting an open application period and makes awards to eligible grantees on a first-come, first-served basis until the funds run out. For more information, please visit our website [here](#).

Vehicle Repair and Replacement Assistance Program

In March of 2017, EPA awarded \$2,477,250 to DEQ for the Logan Utah-Idaho, Nonattainment Area and in September of 2019, EPA awarded \$4,698,489 to DEQ for the Salt Lake City Utah Nonattainment Area for vehicle repair and replacement assistance programs (VRRAP) in these areas. The VRRAP programs offer incentives to individuals whose vehicle does not pass an emissions test. The incentive provides financial assistance to replace the failed vehicle with a newer, cleaner one or to repair it so that it passes a subsequent emissions test. The amount of financial assistance depends on household income, household size, and whether the applicant chooses to replace or repair the failed vehicle. Financial assistance can be as high as \$5,500 for a vehicle replacement or \$1,000 for a repair. The program is administered by the Bear River Health Department in the Logan Utah-Idaho Nonattainment Area, with the Davis, Salt Lake, and Weber-Morgan Health Departments administering the program in the Salt Lake City Utah Nonattainment Area.

The Logan VRRAP officially opened for the public on April 20, 2017. As of September 30, 2023, the VRRAP has repaired 1,191 and replaced 259 vehicles. These activities are anticipated to reduce emissions annually by 17.89 tons of NMOG, NO_x, and PM and reduce lifetime emissions of NMOG, NO_x, and PM by 128.30 tons. Weber-Morgan Health Department officially started accepting applications for their VRRAP on March 2, 2020 followed by the Davis County Health Department on March 16, 2022. The Salt Lake County Health Department had planned to start its program in the Spring/Summer of 2020; however, COVID delayed the start of their program until September 2021. As of September 30, 2023, the Salt Lake City VRRAP has repaired 271 and 86 replaced vehicles. These activities are anticipated to reduce emissions annually by 2.11 tons of NMOG, NO_x, and PM and reduce lifetime emissions of NMOG, NO_x, and PM by 20.54 tons.



Wood Stove Conversion Program

The Division's wood stove and fireplace [conversion program](#) helps residents, particularly low-income households, reduce their emissions from burning wood by providing financial assistance to convert their wood burning devices to cleaner-burning devices. Residents in Utah's PM_{2.5} nonattainment areas are eligible to participate. The conversion program plays an important role in reducing emissions as one wood stove is shown to emit as much as 100% more than its gas-powered counterpart. Although monitoring data shows that all three nonattainment areas have attained the 24-hour PM_{2.5} [NAAQS](#), wood-burning remains a major contributor to particulate pollution. Woodstove and fireplace conversions will help ensure the areas continue to attain the standard in the future.

The wood stove and fireplace conversion program started in December 2017 after the EPA awarded Utah just over \$9.5 million through a competitive Targeted Airshed Grant. The Salt Lake, Provo, and Logan nonattainment areas all received approximately \$3.2 million for conversions. During the 2019 legislative session, the state legislature identified the continued replacement of wood burning devices with cleaner-burning devices as a key strategy to continued improvement in air quality throughout the state. As a result, they allocated additional funding to augment the wood stove and fireplace conversion program. As of December 2, 2023, the Division has completed 3,998 projects with the combined funding.



Volkswagen (VW) Settlement

In 2015, the United States Environmental Protection Agency (EPA) issued two notices of violation of the CAA to Volkswagen Group¹ (Volkswagen or VW), the German automotive manufacturer. The EPA asserted that VW-installed software activated emissions controls only while undergoing emissions testing, but rendered certain emissions controls inoperative during normal driving conditions. Consequently, approximately 500,000 2.0-liter diesel vehicles (models 2009 to 2015) and 90,000 3.0-liter diesel vehicles (models 2009-2016) sold across the U.S. emitted between nine and 40 times the nitrogen oxides (NO_x) emissions allowed by federal law.

¹ The Volkswagen Group collectively includes Volkswagen AG, Audi AG, Volkswagen Group of America, Inc., Porsche AG, and Porsche Cars North America, Inc. Notice of Violation from Phillip A. Brooks, EPA Air Enforcement Division to David Geanacopoulos and Stuart Johnson, Volkswagen Group of America, Inc. (September 18, 2015); Notice of Violation from Susan Shinkman, EPA Office of Civil Enforcement to David Geanacopoulos and Stuart Johnson, Volkswagen Group of America, Inc. and Joseph Folz and Walter J. Lewis, Porsche Cars North America, Inc. (November 2, 2015).

Utah received approximately \$35 million from a nationwide settlement with VW for violations of the CAA. Utah's portion will help offset excess nitrogen oxides (NO_x) emissions from the approximately 7,000 VW, Audi, and Porsche vehicles in the state affected by the automaker's violations.

The Division estimates that these excess NO_x emissions contributed between 351 to 1,556 tons of NO_x over the span of time they were operating in Utah. Approximately 70 percent of the affected vehicles were registered in the seven counties designated as [nonattainment](#) for particulate matter (PM_{2.5}) under the [National Ambient Air Quality Standards](#).

Governor Herbert designated the DEQ as the lead agency to administer these monies. DEQ's responsibilities as lead agency include the development of an [Environmental Mitigation Plan \(EMP\)](#). On behalf of the DEQ, the Division oversaw this process and invited the public to provide input on the EMP and worked with an advisory committee on recommendations.

The VW settlement included a prescribed list of categories for NO_x mitigation projects. The Division crafted an [EMP](#) using these guidelines, input from the public, and recommendations from an advisory committee. Final selection of Eligible Mitigation Action (EMA) categories were based on the advisory committee's recommendations, public input, and the Division's goals to:

- achieve significant NO_x reductions that work toward fully mitigating the excess lifetime NO_x emissions from the non-compliant VW vehicles and contribute to the state's ongoing goal of attainment of the NAAQS;
- maximize the amount of emissions reductions for each dollar spent;
- benefit areas in Utah that bear a disproportionate amount of the air pollution burden;
- stimulate emerging vehicle technologies that result in long-term emissions benefits; and
- provide economic and health benefits to the citizens of Utah.

The plan focuses the \$35 million settlement funds on upgrades to government-owned diesel truck and bus fleets as well as the expansion of electric vehicle (EV) charging equipment. Funding allocations are as follows:

- Class 4-8 Local Freight Trucks and School Bus, Shuttle Bus, and Transit Bus: 73.5%
- Light-Duty, Zero EVSE: 11%

- Administrative Costs: 8.5%
- Diesel Emission Reduction Act (DERA) options: 7%

Applications for funding were available from October 1, 2018 to November 30, 2018. Government entities as defined in [Utah Code § 63G-7-102\(4\)](#) and federal government agencies were eligible to apply.

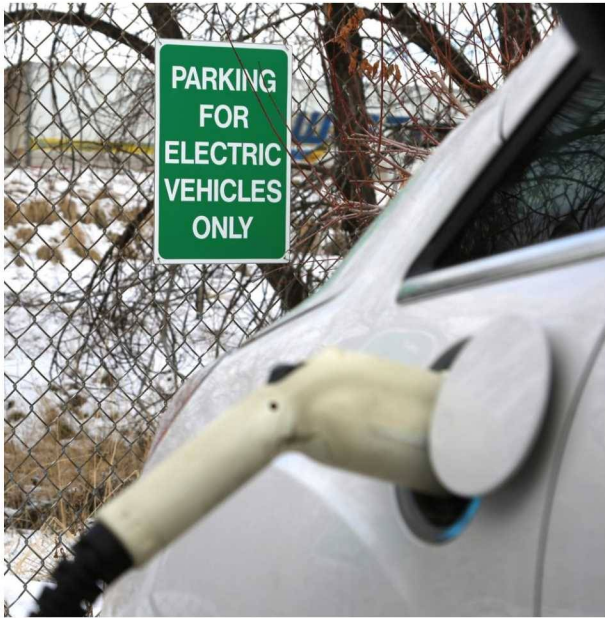
The Division received 50 applications for the Class 4-8 Local Freight Trucks, School Bus, Shuttle Bus, and Transit Bus categories and 25 applications for the Light-Duty, Zero Emissions Vehicle Supply Equipment category with combined projects totaling over \$71 million. Projects were prioritized and selected based on their reduction of nitrogen oxides (NO_x), cost-per-ton of NO_x reduced, and value to the nonattainment areas and community benefits. Successful projects are shown in Table 7 below. Awardees have three years to complete their projects. More information on the VW Settlement is available [here](#).

Table 7: State of Utah VW Settlement Awards for Heavy-Duty Vehicles

State of Utah VW Settlement Awards				
Class 4-8 Local Freight Truck, School Bus, Shuttle Bus, and Transit Bus Categories				
Awardee	Replacement Type	Award Amount	# of Vehicles Awarded	Eligible Mitigation Action Category
Bountiful City	Diesel to Diesel	\$145,000	2	Class 8 Local Freight Truck
Canyons School District	Diesel to Diesel	\$826,000	14	School Buses
Jordan School District	Diesel to Diesel	\$138,992	2	School Buses
North Salt Lake City	Diesel to Diesel	\$108,741	1	Class 8 Local Freight Truck
Orem City	Diesel to Diesel	\$1,070,000	5	Class 8 Local Freight Truck and Shuttle Bus
Park City Municipal Corp	Diesel to Electric	\$3,129,449	5	Transit Buses
Pleasant Grove City	Diesel to Diesel	\$410,112	5	Class 8 Local Freight Truck Class 4-7 Local Freight Trucks
Salt Lake City Corp	Diesel to Diesel	\$956,503	7	Class 8 Local Freight Truck
Salt Lake City School District	Diesel to Electric	\$699,660	4	School Buses
Salt Lake Urban Search and Rescue	Diesel to Diesel	\$86,740	1	Class 8 Local Freight Truck
Tooele County School District	Diesel to Diesel	\$132,000	2	School Buses
UDOT	Diesel to Diesel	\$2,604,948	22	Class 8 Local Freight Truck
Utah Transit Authority	Diesel to Electric	\$13,079,240	20	Transit Buses

Electric Vehicle Supply Equipment (EVSE) Projects

Workplace Electric Vehicle Charging Funding Assistance Program



During the 2019 general legislative session, the state legislature appropriated \$4.9 million to incentivize the installation of electric vehicle supply equipment (EVSE) throughout the state. The EVSE incentive program allows businesses, non-profit organizations, and other governmental entities, excluding state executive branch agencies, to apply for a grant that reimburses up to 50% of the purchase and installation costs for a pre-approved EVSE project. Funds can be used for the purchase and installation of both Level 2 or DC fast charging EVSE.

The program began to accept applications on September 16, 2019. As of December 5, 2023, 99 projects totaling just over \$3,316,262 have been completed, with 469 Level 2 and 40 DC fast EVSE installed throughout the state. The Division has pre-approved an additional 35 projects encumbering approximately \$1,673,738 of the funds. All funds have been allocated.

Volkswagen (VW) EVSE

As a result of the VW settlement described in the section below, the Division has awarded more than \$3.8 million to 18 government entities to install one single-port, 91 dual-port Level 2, and 26 DC fast chargers throughout Utah. As of December 5, 2023, 89 Level 2 and 28 DC fast chargers have been installed. More details on the VW Settlement and the VW EVSE program are provided in the section below.

Table 8: State of Utah VW Settlement EVSE Awards

Light-Duty Zero Emission Vehicle Supply Equipment Category					
Awardee/Locations	Award Amount ¹	EVSE Type ²	Number of EVSEs ³	Number EVSE Installed ⁴	Dollars Paid for Projects Completed
Clinton City Loc. 1: Civic Center Park Loc. 2: Center Park Loc. 3: Powerline Park	\$60,129	Level 2	3 Dual-port	3 Dual-port	\$46,808.38
Davis Technical College Loc.: DATC Campus	\$49,000	Level 2	3 Dual-port 1 Single-port	3 Dual-port 1 Single-port	\$46,037.00
Utah DFCM ⁵ Loc. 1: MASOB ⁶ Loc. 2: Regional Building 2	\$49,401	Level 2	11 Dual-port	12 Dual-port	\$49,401.00
Kamas City Loc.: City Office	\$41,227	Level 2	1 Dual-port	In Process	In Process
Kaysville City Loc. 1: City Hall Loc. 2: 100 E. 200 N. Loc. 3: 300 N. Flint St. Loc. 4: Kaysville Operations Center	\$69,988	Level 2	9 Dual-port	9 Dual-port	\$69,572
Lehi City Loc.: City Hall	\$16,755	Level 2	1 Dual-port	1 Dual-port	\$16,775
Murray City Power Loc.: Murray Park Rec. Center	\$157,608	Level 2	2 Dual-port	2 Dual-port	\$141,992.86
		DC Fast Chargers	1	1	
Orem City Loc.: City Hall	\$308,269	DC Fast Chargers	4	4	\$270,675
Provo City Loc. 1: Provo City Center Loc. 2: Recreation Center Loc. 3: Academy Library Loc. 4: Public Works Complex Loc. 5: Provo Power Complex Loc. 6: Rock Canyon Loc. 7: North Park	\$752,500	Level 2	20 Dual-port	16-Dual-port (4 Dual-Port In process)	\$222,030 (In progress)
S.L. Co. Health Dept. Loc.: S.L. County Environmental Health Department	\$603,095	Level 2	8 Dual-port	8 Dual-port	\$577,771.88
		DC Fast Chargers	2	2	

Sandy City Loc.: City Hall	\$118,982	DC Fast Chargers	3	3	\$118,982
Saratoga Springs Loc.: Municipal Campus	\$26,788	Level 2	3 Dual-port	3 Dual-port	\$26,788
South Salt Lake City Loc.: City Hall	\$136,517	Level 2	4 Dual-port	4 Dual-port	\$79,586
Timpanogos Cave National Monument Loc.: Visitor Center	\$10,966	Level 2	1 Dual-port	1 Dual-Port	\$7,860.80
UDOT ⁷ Loc 1: Calvin Rampton Loc 2: Garden City Loc 3: Castle Dale City Museum Loc 4: Monticello Visitor Center Loc 5: Bluff Maintenance Station Loc 6: Richfield Admin. Office Loc 7: Kanab Loc 8: The Fork Rest Area Loc 9: Grassy Mtn Rest Area ⁸ Loc 10: UDOT Price District Office	\$1,047,623	Level 2	11 Dual-port	18 Dual-port)	\$940,240
		DC Fast Chargers	16	17	
Utah Valley University Loc 1: Orem Main Campus Loc 2: Lehi Campus Loc 3: Aux. Services Building	\$99,000	Level 2	6 Dual-port	6 Dual-port	\$99,000
Weber State University Loc 1: Campus Services Bldg. Loc 2: Hurst Center Loc 3: Reed K. Swenson Bldg. Loc 4: Dee Event Center	\$143,694	Level 2	4 Dual-port	4 Dual-port	\$76,912
West Valley City Loc 1: City Hall Loc 2: West Valley City Fitness Center	\$140,564	Level 2	4 Dual-port	Withdraw	Withdraw project
Total	\$3,832,106	Level 2	91 Dual-port 1 Single-port	89 Dual-port 1 Single-port	\$2,790,431.92
		DC Fast Chargers	26	28	

Notes:

1. (based on vendor bids at time of application submittal - November, 2018)
2. Included in Project Proposal
3. As Proposed in Project Proposal
4. by Project Completion Date
5. Division of Facilities and Construction Management
6. Multi-Agency State Office Building
7. Utah Department of Transportation
8. West Bound and East Bound

Utah Clean Fleet Program

The Utah Clean Fleet Program, formerly known as the Utah Clean Diesel Program, offers incentives to heavy-duty diesel fleet owners who operate their vehicles or equipment in the state's nonattainment areas to replace their older vehicles or equipment with new. Roughly \$9 million in federal funding is available to fleet owners for replacing diesel short-haul delivery trucks, refuse haulers, school buses, and non-road equipment with newer, cleaner versions. Up to 45 percent toward the purchase of new vehicles and equipment is available upon scrapping the original diesel vehicle or equipment.



Early retirement of older diesel trucks can achieve approximately 71 to 90 percent reductions in NO_x , 97 to 98 percent reductions in $\text{PM}_{2.5}$, and 89 to 91 percent reductions in VOCs, according to the EPA Emissions Standards for Heavy-Duty Highway Engines and Vehicles. Replacing diesel vehicles and equipment with electric achieves 100 percent reductions in emissions.

EPA provides a separate allocation of clean diesel funding for participating states, known as the State Clean Diesel Grant (SCDG) program. The UDEQ will use \$3,190,922 for the replacement of refuse trucks, fire trucks, Class 5-8 trucks, school buses, and non-road diesel vehicles. VW Settlement funding of \$2,160,572 will provide added funds for these projects for a total of \$5,351,494.

Through the SCDG, the Division awarded Salt Lake City School District (SLCSD) \$700,357 for the replacement of four diesel school buses to electric. SLCSD will receive an additional award of \$1,751,450 to replace eight more diesel school buses with electric school buses. Alsco Inc. will also receive an award of \$40,000 to replace one Class 8 diesel truck. Ace Disposal will receive a \$1,250,000 award to replace seven Class 8 diesel refuse trucks— six to compressed natural gas (CNG) and one to electric. Waste Management of Utah will receive an award of \$350,000 to replace ten diesel refuse trucks with CNG refuse trucks. Weber Fire will receive an award of \$200,000 to replace one Class 8 diesel fire truck with new diesel, and United States Cold Storage who will be awarded \$145,000 to replace one non-road diesel terminal tractor to electric through this program.

Over \$26 million in federal funding has been awarded to UDEQ for the Utah Clean Fleet Program since 2008.

State of Utah Charge Your Yard Incentive Program

On April 17, 2023, the Division launched the Charge Your Yard Incentive Program for licensed yard care businesses in Davis, Salt Lake, Tooele, Utah, and Weber counties to upgrade their gas-powered leaf blowers and string trimmers to battery-powered electric. This program remains ongoing. Applications are accepted and selected on a rolling basis as funding is available. Selection priority criteria is as follows:

1. Business location in Salt Lake City;
2. A low number of employees (relative);
3. Primary operation in Environmental Justice areas as defined by the EPA EJ Screen Tool; and
4. BIPOC- and women-owned businesses.

Following notification of selection, businesses are required to recycle gas-powered leaf blowers and string trimmers in order to initiate participation. Participants receive a \$500 credit for each unit recycled, up to a maximum of \$3,000 credit per business. Credit obtained by recycling gas-powered equipment is redeemed in the form of a discount on the purchase of battery-operated electric string trimmers, leaf blowers, and their associated batteries and chargers. Electric equipment must be purchased online through one of the participating retailers of the Charge Your Yard Program: Al's the Chainsaw King, Cutler's, Home Depot, Lowe's, Redback, and Wilkinson Supply. As of December 2023, 126 lawn care businesses applied and were selected to participate. Of those, 110 recycled their gas-powered equipment and received a promotional credit incentive. To date, 417 string trimmers and 188 leaf blowers have been recycled, resulting in the Charge Your Yard Program distributing over \$300,000 in incentives to lawn care businesses along the Wasatch Front. The program is made possible by the Utah Division of Air Quality in partnership with SLCgreen.

Alternative Fuel Heavy-Duty Vehicle Tax Credit Program

The state provides an income tax credit for the qualified purchase of a natural gas, a 100% electric, or a hydrogen-electric heavy-duty vehicle which is defined in 59-7-618.1 and 59-10-1033.1 Utah Code Annotated as a commercial category 7 or 8 vehicle that has never been titled or registered. Class 7 and Class 8 vehicles are classified by the gross vehicle weight rating (GVWR). A Class 7 vehicle has a GVWR between 26,001 and 33,000 pounds. A

Class 8 vehicle has a GVWR higher than 33,000 pounds. These vehicles usually have three axles, but some will have five axles in order to haul a trailer with substantial weight on it. Some examples would be a five-axle tractor-trailer (semi or 18-wheeler), cement trucks, dump trucks, and refuse haulers. Operators of Class 7 and 8 trucks must have a commercial driver's license.

The Utah legislature authorized the credit during the 2021 General Session for the tax year 2021 through 2030. The following table shows the tax credit for each tax year.

Table 9: Tax Credits Per Tax Year

Tax Year	Credit
2021	\$15,000
2022	\$13,500
2023	\$12,000
2024	\$10,500
2025	\$9,000
2026	\$7,500
2027	\$6,000
2028	\$4,500
2029	\$3,000
2030	\$1,500

Free-Fare Day Pilot Project

During the 2019 Legislative Session, the legislature appropriated \$500,000 to the Division to administer a Trip Reduction Program. A primary component of the Trip Reduction Program is a Free-Fare Day Pilot Project. The Division has worked closely with the Utah Transit Authority (UTA) to provide free fares during inversion periods when pollution concentrations are



increasing and projected to reach levels that are harmful to human health. The Division originally anticipated the provision of seven free fare days over the life of the program. However, due to ridership changes associated with the COVID-19 pandemic, the total number of free fare days will be determined based upon estimated foregone fare revenues and remaining available funding. As a result of favorable air quality conditions, no free fare days were implemented in 2020. In 2021, UTA implemented four free days, including two during the summer ozone season and two during the winter particulate matter season. In 2022, the Division funded an additional four free fare days, including two as part of Free Fare February, and another two in early-September. Funding remains for approximately two more days at recent foregone revenue levels. In 2023, the Division funded two final free fare days in August. The Division is currently working with UTA and other project partners to develop a final report for the Legislature that will analyze the air quality benefits of the program. UTA will provide much of the data necessary for the report, including ridership data and results from surveys administered on free fare days.

Ancillary Programs

Transportation Conformity

Several Metropolitan Planning Organizations (MPOs) are responsible for developing, producing, and adopting Metropolitan (or Regional) Transportation Plans (MTP or RTP) and Transportation Improvement Programs (TIP) within the state. The MPOs include Cache MPO (CMPO), Dixie MPO, Mountainland Association of Governments (MAG), and the Wasatch Front Regional Council (WFRC). MPOs located in nonattainment and/or maintenance areas have the responsibility to ensure that the current MTP and TIP conform to the Utah SIP through a process known as transportation conformity. The Federal Highway Administration and Federal Transit Administration review the conformity determinations along with the MTP and TIP in consultation with the EPA to ensure that the relevant planning and air quality regulations have been adequately addressed. The Utah Department of Transportation (UDOT) is responsible for transportation conformity within isolated rural nonattainment areas when a non-exempt FHWA/FTA project(s) needs funding or approval.

- CMPO, MAG, and WFRC demonstrated conformity to the SIP for the Plans and TIPs for their respective areas.
- CMPO established conformity for the 2050 RTP in July of 2023 and the 2024-2029 TIP in October 2023: Cache County, Utah portion of the PM_{2.5} moderate nonattainment.
- MAG established conformity for the 2050 RTP in June 2023 and the 2024-2029 TIP in October 2023 for the Provo/Orem City CO maintenance area, Utah County PM₁₀ and PM_{2.5} moderate nonattainment area, and the Southern Wasatch Front, UT Ozone marginal nonattainment area (portion of Utah County).
- WFRC established conformity for the 2024-2029 TIP in October 2023 and the 2050 RTP in May 2023 for the Salt Lake County and Ogden City PM₁₀ nonattainment areas, Salt Lake PM_{2.5} moderate nonattainment area (Davis, Salt Lake, and Weber Counties and portions of Box Elder and Tooele Counties), and the Northern Wasatch Front, UT Ozone marginal nonattainment area (Davis, Salt Lake, and Weber Counties and portions of Box Elder and Tooele Counties).
- UDOT was not required to establish conformity for the Uinta Basin, UT Ozone marginal nonattainment area including portions of Duchesne and Uintah Counties.

Utah Air Quality Public Notifications

The Division provides air quality forecasting on its webpage for the current and next two days. The Air Monitoring Section (AMS) provides air pollution information based on the daily air quality status. The AMS data is used to determine the relationship of existing pollutant concentrations to the NAAQS. There is a three-tiered air quality alert system including unrestricted, voluntary action, and mandatory action. This system is used to implement winter and summer controls on the use of solid fuel burning devices, fire places, and motor vehicles, and to advise the public and industrial sources to act to reduce their pollution footprint during these events.

The forecast call determines which restrictions are in place for a given county. In addition, the webpage advises the public as to current air quality conditions using the standard Air Quality Index (AQI) categories including good, moderate, unhealthy for sensitive groups, unhealthy, and very unhealthy. Each advisory category listed on the webpage is accompanied by a health protection message that recommends actions affected groups can take to mitigate the effects of pollution on them and links to the AQI website for further information. The AMS advisory is calculated for five major pollutants including ground-level ozone, particulate pollution (particulate matter), carbon monoxide, sulfur dioxide, and nitrogen dioxide. The outreach program information consolidated in the three-day forecast includes the Summer and Winter Control Programs and Choose Clean Air information.

The Division also sponsors an electronic mail server (Listserv). Subscribers are automatically notified by e-mail when unhealthy air pollution levels are forecast throughout Utah and when action alerts are issued. The National Center for Automotive Sciences and Technology at Weber State University developed a mobile app called Utah Air for the Division. It provides similar information directly on smart phones and other mobile devices. The application is free and can be downloaded from both the Android and Apple app stores.

Winter Control Program (unrestricted, voluntary action, mandatory action)

This program originated with the PM₁₀ SIP, but was significantly strengthened in December 2012 to be much more proactive and less reactive. Now, instead of waiting until an area is exceeding a standard, action alerts are called when the DAQ meteorologists see that we are in the early building stages of an inversion that will likely lead to pollution concentrations at or above the trigger level of 25µg/m³. The program runs annually from November through early March. In addition to the burning restrictions, residents are

encouraged to drive less and are directed to information on other ways they can reduce pollution.

Summer Control Program (unrestricted, voluntary action, mandatory action)

Action days are announced whenever the probability of exceeding the ozone standard is forecasted to be high. High temperature and stagnant air masses contribute to this probability. Residents are encouraged to minimize driving whenever the ozone or PM standards are approached.

Smoke Management in Utah

Utah's first Smoke Management Plan (SMP) was written in 1999. The plan is designed to meet the requirements of Title R307, state administrative rule for air quality, Regional Haze Rule, 40 CFR 51.309(d)(6), and the policies of the EPA Interim Air Quality Policy on Wildland and Prescribed Fires. The signatories to the SMP are: US Forest Service, Bureau of Land Management, National Park Service, US Fish and Wildlife Service, Bureau of Indian Affairs, and the Utah Division of Forestry, Fire, and State Lands.



The SMP serves as an operational plan for the state administrative rule, R307-204 Emission Standards: Smoke Management, by providing direction and operating procedures for all organizations involved in the management of prescribed fire. R307-204 establishes by rule the procedures and the permitting process that land managers are required to follow to mitigate the impact of smoke on air quality and visibility in the state.

The following table provides a five-year view of the number of prescribed burn days and acres burned across Utah.

Table 10: 2023 Five-Year Review of Prescribed Burn Days and Acres Burned in Utah

Year	Acres Burned	Number of Prescribed-Burn Ignition Days
2019	18,171	188
2020	5,636	120
2021	11,818	245
2022	17,750	268
2023	27,470	295

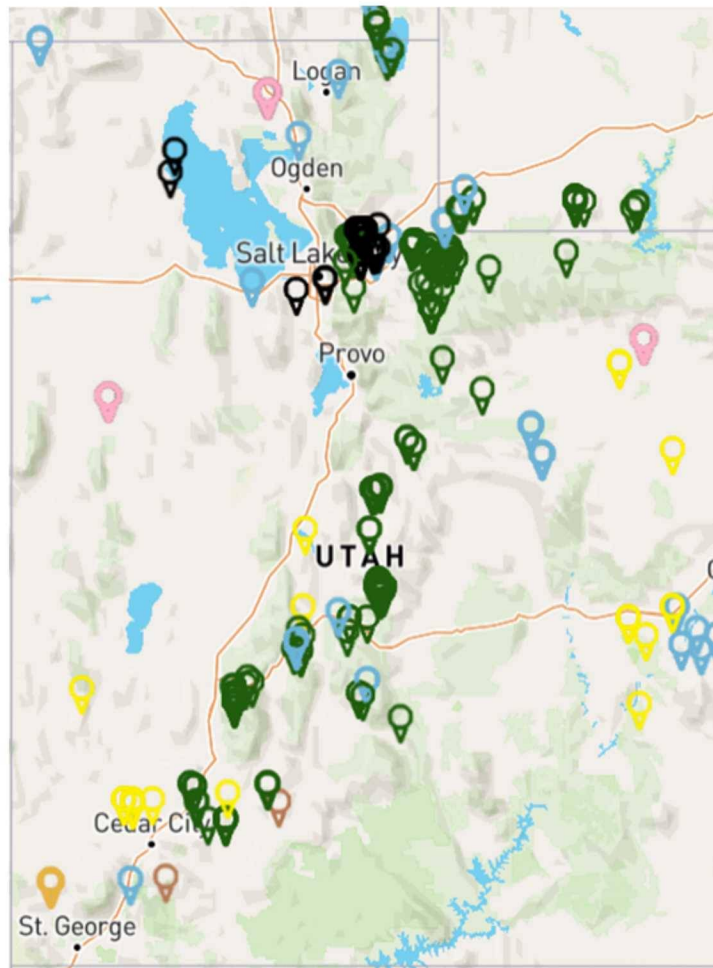


Figure 29: 2023 Utah Prescribed Burn Days

Each dot in Figure 29 represents a prescribed fire burn day in Utah in 2023 for a total of 295 days.

-  US Fish and Wildlife Service
-  Utah Department of Natural Resources
-  US Forest Service
-  Bureau of Indian Affairs
-  National Park Service
-  Local or Private Entity
-  Bureau of Land Management

Vehicle Inspection/Maintenance Programs

In the early 1980s, Inspection/Maintenance (I/M) programs were introduced as a necessary strategy to achieve the ozone and carbon monoxide NAAQS. These programs have been highly effective in improving air quality and have played a crucial role in reducing emissions that contribute to ozone and carbon monoxide. The continued operation of these programs is essential for the Wasatch Front to remain in compliance with these standards and to achieve the 2015 ozone standard. The county health departments are responsible for administering these programs. The most recent I/M program was implemented in Cache County Utah, and has been running smoothly since January 1, 2014.

Smoking Vehicles

Excessive smoke emissions from vehicles can contribute to poor air quality. To promote clean air, several local health departments operate programs that educate and notify people about smoking vehicles. During the 2015 General Legislative Session, two bills were passed to enhance these programs in Utah:

- HB17 clarified that visible emissions from gas or certain diesel-powered vehicles are not allowed on Utah roads.
- HB110 gave the Utah Division of Motor Vehicles the authority to suspend a vehicle's registration if it does not meet air emissions standards.
- The Division worked with the local health departments, the Utah Division of Motor Vehicles, and the Utah Highway Patrol to develop a method of enforcing these laws.

If you spot a vehicle producing excessive smoke, you can report it through your respective county health department:

- Cache County: 435-792-6570 or click [here](#) to report online.
- Davis County: 801-525-4975 or click [here](#) to report online.
- Salt Lake County: Click [here](#) to report online.
- Utah County: 801-851-7600 or click [here](#) to report online.
- Weber County: 801-399-7140 or click [here](#) to report online.