




OUR NATION'S AIR

EPA Celebrates 50
Years!

Welcome!

For 50 years, the U.S. Environmental Protection Agency (EPA) has maintained its commitment to protecting public health by improving air quality and reducing air pollution. This annual report, titled ***Our Nation's Air***, summarizes the nation's air quality status and trends through 2019.

Sections of this report convey information across different time periods, depending on the underlying data sources. While some are consistently available since 1970, like growth data, our longer-term trends for air quality concentrations start in 1990, when monitoring methodologies became more consistent.

Please read and enjoy the full report below, and be sure to [download and share the one page summary](#)  using the share button  at the top. Additional detail on air trends can be found at EPA's [AirTrends website](#). 

Scroll down to read more or use the top menu to jump to a topic. If you encounter any issues viewing content, update or try opening the website in another browser.



Intro

Since 1970, implementation of the Clean Air Act and technological advances from American innovators have dramatically improved air quality in the U.S. Since that time, the combined emissions of criteria and precursor pollutants have dropped by 77%. In recent years the progress has continued: since 2017, the emissions of these pollutants dropped 7%. Cleaner air provides important public health benefits, and we commend our state, local, and industry partners for helping further long-term improvement in our air quality.

America's Air Continues to Improve During Trump Administration

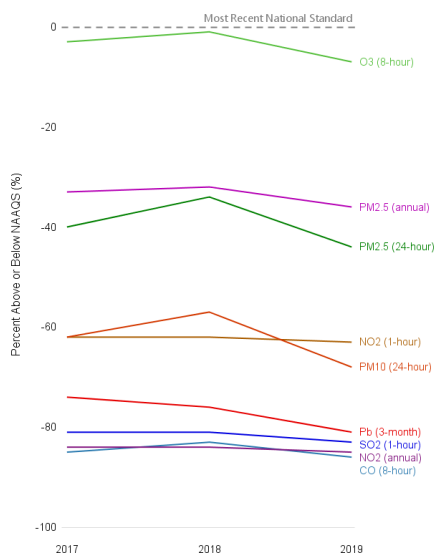
"Americans are breathing the cleanest air since 1970. Criteria air pollutant emissions under President Trump dropped 7 percent since 2017," said EPA Administrator Andrew Wheeler.

Declines in air pollutant concentrations since 2017:

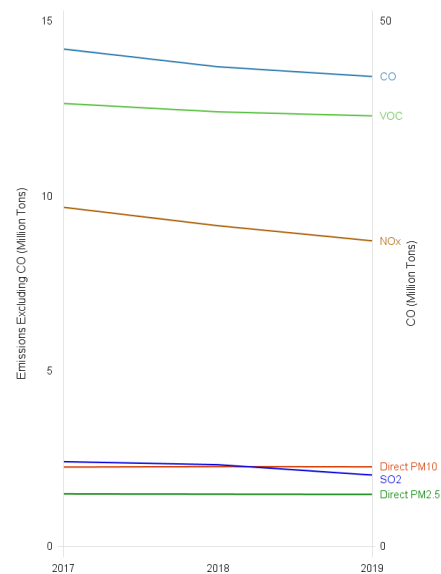
- Carbon Monoxide (CO) 8-Hour, ↓ 10%
- Lead (Pb) 3-Month Average, ↓ 28%
- Nitrogen Dioxide (NO₂) Annual, ↓ 4%
- Nitrogen Dioxide (NO₂) 1-Hour, ↓ 2%
- Ozone (O₃) 8-Hour, ↓ 4%
- Particulate Matter 10 microns (PM₁₀) 24-Hour, ↓ 22%
- Particulate Matter 2.5 microns (PM_{2.5}) Annual, ↓ 7%
- Particulate Matter 2.5 microns (PM_{2.5}) 24-Hour, ↓ 12%
- Sulfur Dioxide (SO₂) 1-Hour, ↓ 10%

"This clean air progress proves that when EPA focuses on its core mission and works collaboratively with states, we can achieve world-leading emissions reductions to the benefit of our nation, its citizens, and the environment."

Declining National Air Pollutant Concentration Averages (2017-2019)



Declining National Air Pollutant Emissions (2017-2019)



Air Quality Trends Show Clean Air Progress

Nationally, concentrations of air pollutants have dropped significantly since 1990:

- Carbon Monoxide (CO) 8-Hour, ↓ 78%
- Lead (Pb) 3-Month Average, ↓ 85% (from 2010)
- Nitrogen Dioxide (NO₂) Annual, ↓ 59%
- Nitrogen Dioxide (NO₂) 1-Hour, ↓ 51%
- Ozone (O₃) 8-Hour, ↓ 25%
- Particulate Matter 10 microns (PM₁₀) 24-Hour, ↓ 46%
- Particulate Matter 2.5 microns (PM_{2.5}) Annual, ↓ 43% (from 2000)
- Particulate Matter 2.5 microns (PM_{2.5}) 24-Hour, ↓ 44% (from 2000)
- Sulfur Dioxide (SO₂) 1-Hour, ↓ 90%
- Numerous air toxics have declined with percentages varying by pollutant

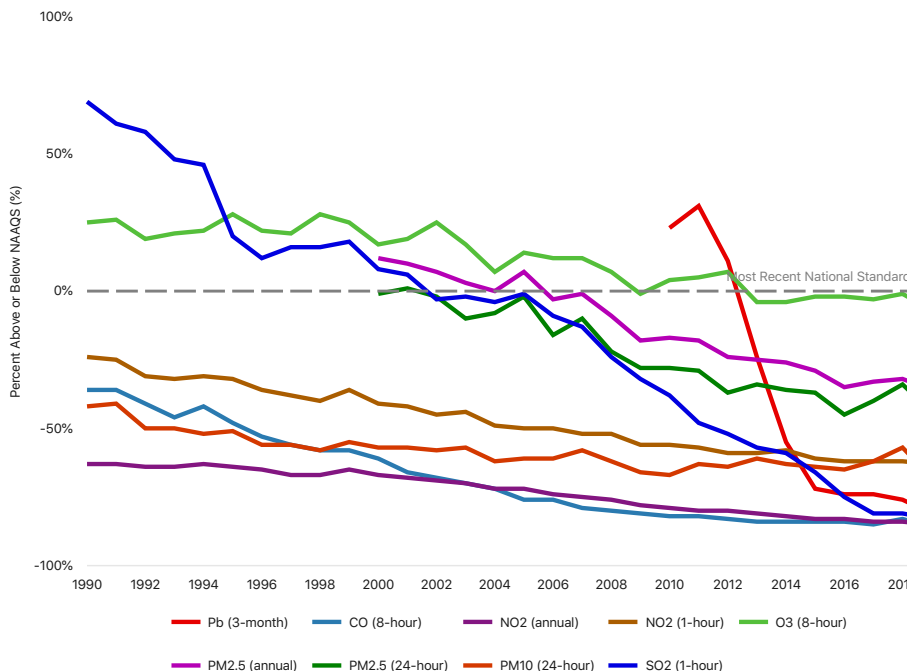
During this same period, the U.S. economy continued to grow, Americans drove more miles, and population and energy use increased.

Air quality concentrations can vary year to year, influenced not only by pollution emissions but also by natural events, such as dust storms and [wildfires](#), and variations in weather.

Tip Click pollutant names in the chart legend to hide or include trend lines, and hover over any line to display percentages above or below the most recent standard. Click the Emission Totals tab to view emission trends.

Concentration Averages **Emission Totals**

Declining National Air Pollutant Concentration Averages



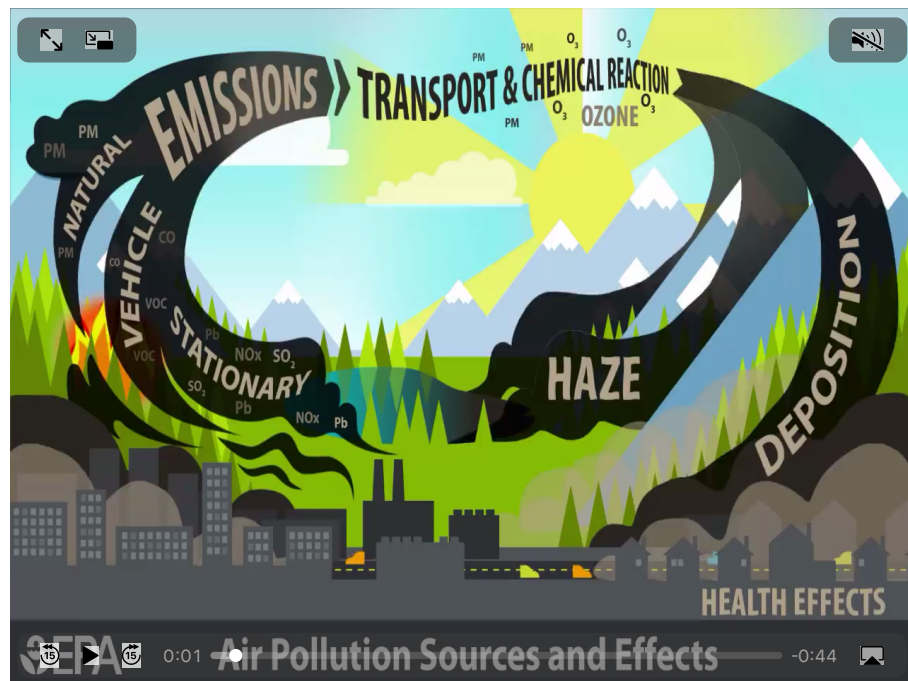
Source: U.S. EPA Air Quality System

Air Pollution Includes Gases and Particles

Air pollution consists of gas and particle contaminants that are present in the atmosphere. Gaseous pollutants include sulfur dioxide (SO₂), oxides of nitrogen (NO_x), ozone (O₃), carbon monoxide (CO), volatile organic compounds (VOCs), certain toxic air pollutants and some gaseous forms of metals. Particle pollution (PM_{2.5} and PM₁₀) includes a mixture of compounds that can be grouped into five major categories: sulfate, nitrate, elemental (black) carbon, organic carbon and crustal material.

Some pollutants are released directly into the atmosphere while other pollutants are formed in the air from chemical reactions. Ground-level ozone forms when emissions of NO_x and VOCs react in the presence of sunlight. Air pollution impacts human health and the environment through a variety of pathways.

SIX COMMON POLLUTANTS



Understanding Emission Sources Helps Control Air Pollution

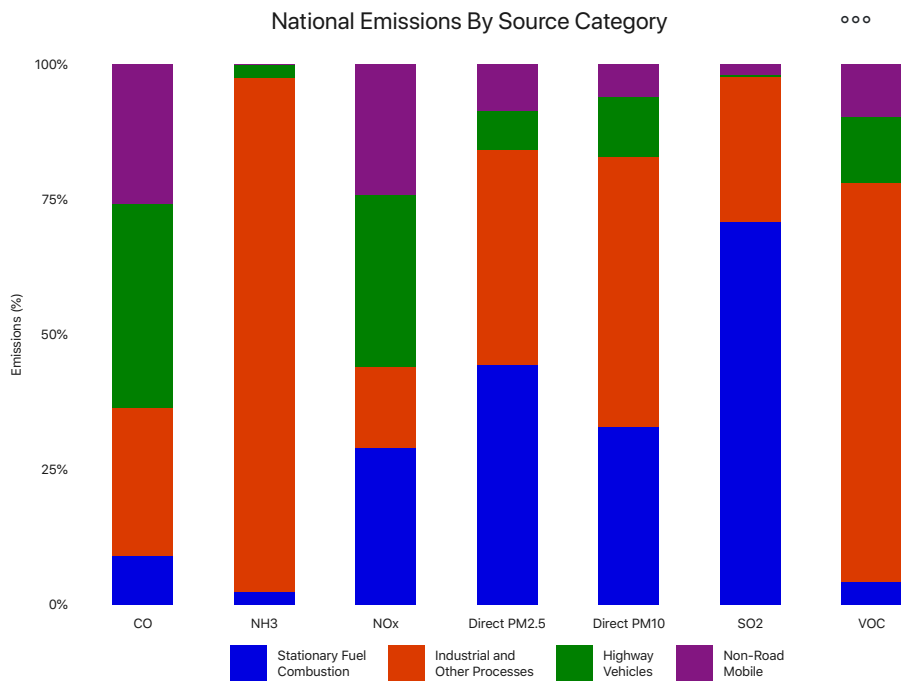
Generally, emissions of air pollution come from

- stationary fuel combustion sources (such as electric utilities and industrial boilers),
- industrial and other processes (such as metal smelters, petroleum refineries, cement kilns and dry cleaners),
- highway vehicles, and
- non-road mobile sources (such as recreational and construction equipment, marine vessels, aircraft and locomotives).

As the chart shows, pollutants are emitted by a variety of sources. For example, electric utilities, part of the stationary fuel combustion category, release SO₂, NO_x and particles.

EMISSION INVENTORIES

Tip Click source categories in the chart legend to hide or include, and hover over any bar to display totals or percentages by source category. Click the ellipsis in the upper righthand corner and check "Show Totals" to view the chart based on totals instead of percentages.



Source: U.S. EPA National Emissions Inventory 2017

Air Pollution Can Affect Our Health and Environment in Many Ways

Numerous scientific studies have linked air pollution to a variety of health problems. Depending on the pollutant, people at greater risk for experiencing air pollution-related health effects may include older adults, children and those with heart and respiratory diseases — [30-second Healthy Heart video](#).

[Carbon Monoxide \(CO\)](#)

Health Effects Breathing elevated levels of CO reduces the amount of oxygen reaching the body's organs and tissues. For those with heart disease, this can result in chest pain and other symptoms leading to hospital admissions and emergency department visits.

Environmental Effects Emissions of CO contribute to the formation of CO₂ and ozone, greenhouse gases that warm the atmosphere.

[Hazardous Air Pollutants \(also known as Air Toxics\)](#)

[Lead \(Pb\)](#)

[Nitrogen Dioxide \(NO₂\)](#)

[Oxides of Nitrogen and Sulfur \(NO_x and SO_x\)](#)

[Ozone \(O₃\)](#)

[Particulate Matter \(PM\)](#)

[Sulfur Dioxide \(SO₂\)](#)

Growth

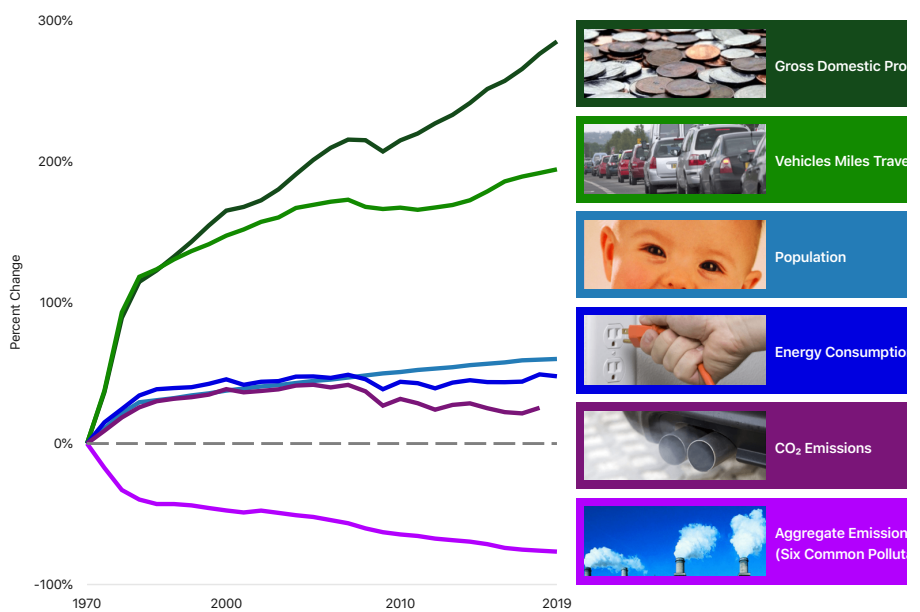
For nearly 50 years, the Clean Air Act has been a key part of cutting pollution as the U.S. economy has grown.

Economic Growth with Cleaner Air

Between 1970 and 2019, the combined emissions of the six common pollutants (PM_{2.5} and PM₁₀, SO₂, NO_x, VOCs, CO and Pb) dropped by 77 percent. This progress occurred while the U.S. economy continued to grow, Americans drove more miles, and population and energy use increased.

Tip Click any of the legend items on the right side of the chart to hide or include trend lines. The y-axis may change based on the selections.

Comparison of Growth Areas and Declining Emissions
1970-2019




Source: Various

For nearly 50 years, the Clean Air Act has brought Americans cleaner air and lower risks of adverse health effects.

[▶ Play background video](#) of [NASA](#) 2005 - 2019 NO₂ satellite imagery

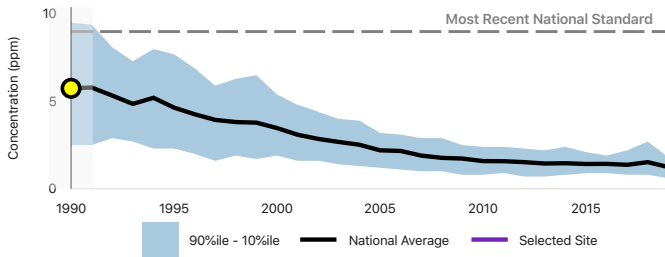
Criteria Pollutant Trends Show Clean Air Progress

Select a [NAAQS](#) to view concentration and emission trends 
[Understand health effects](#)

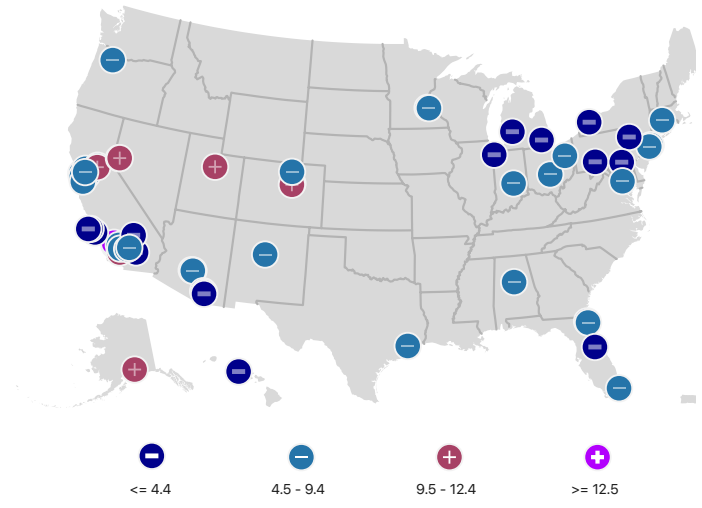
Carbon Monoxide (2nd Maximum Non-overlapping 8-hour)



CO 8-hour Concentration

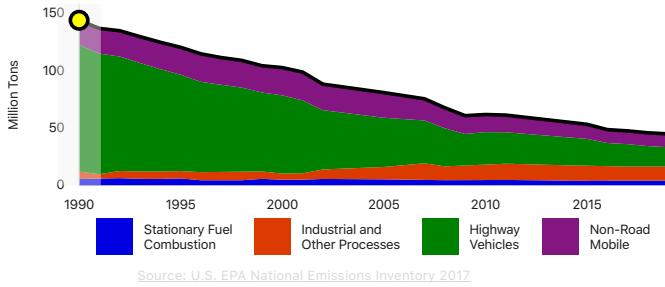


CO 8-hour Concentration



CO Emissions

CO Emissions



Select a state

 Symbols indicate values above or below the most recent standard. Click any point to display annual concentration data. Double click the map to zoom in and click the home button to reset. Please be patient with map exports.

Charts The play/pause button controls animation, or manually change the year by dragging the yellow circle in the chart or the slider's gray square.

Understanding PM_{2.5} Composition Helps Reduce Fine Particle Pollution

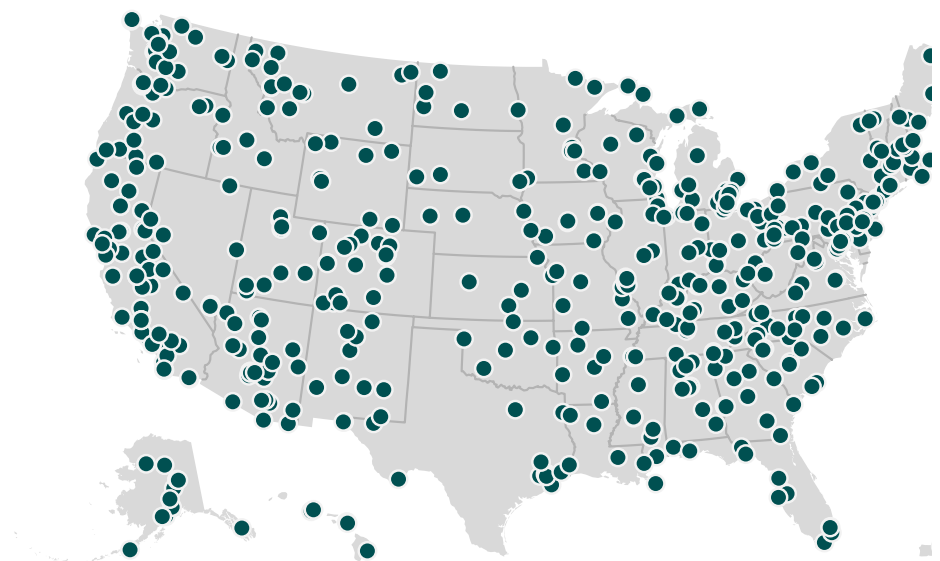
The different components that make up particle pollution come from specific sources and are often formed in the atmosphere. The major components, or species, are elemental carbon (EC), organic carbon (OC), sulfate and nitrate compounds, and crustal materials such as soil and ash.

As previously shown, PM_{2.5} concentrations are declining. Assessing particle pollution concentrations along with composition data aids in understanding the effectiveness of pollution controls and in quantifying the impacts to public health, regional visibility, ecology and climate.

Tip Click any point to display 2000–2018 annual and quarterly PM_{2.5} speciation trends, and select maximize to enlarge the chart. Double click the map to zoom in and click the home button to reset.



PM_{2.5} Composition Trend



Select a state

Source: U.S. EPA Air Quality System

Unhealthy Air Days Show Long-Term Improvement

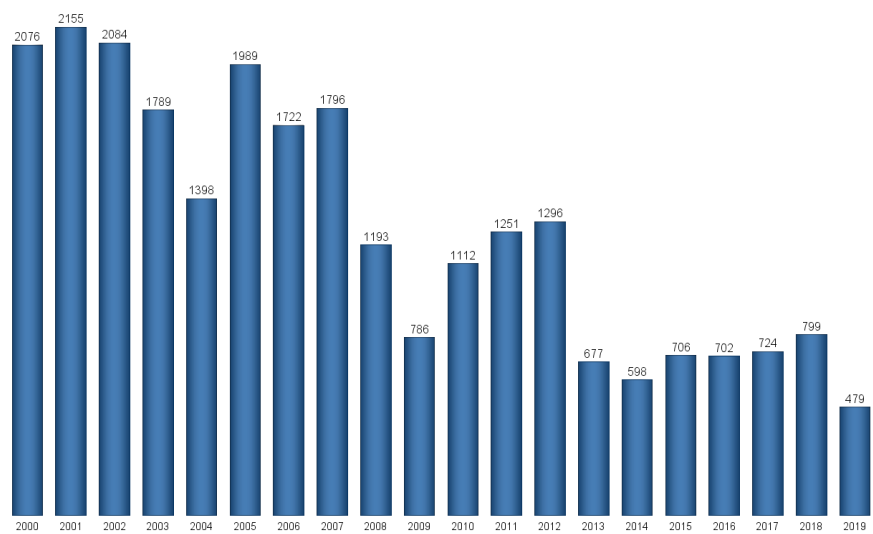
The Air Quality Index (AQI) is a color-coded index EPA uses to communicate daily air pollution for ozone, particle pollution, NO₂, CO and SO₂. A value in the unhealthy range, above the national air quality standard for any pollutant, is of concern first for sensitive groups, then for everyone as the AQI value increases. Fewer unhealthy air quality days means better health, longevity, and quality of life for all of us.

Tip Shown are the number of days in which the combined ozone and PM_{2.5} AQI was unhealthy for sensitive groups (orange) or above (red, purple or maroon) for the years 2000-2019. Click the bar chart, or these links, to view AQI retrospective reviews: [PM_{2.5}](#) or [ozone](#).

AQI FORECAST

Unhealthy air quality days vary year to year, influenced not only by pollution emissions but also by natural events, such as dust storms and [wildfires](#), and variations in weather.

Number of Days Reaching *Unhealthy for Sensitive Groups* or Above on the Air Quality Index (Among 35 major U.S. Cities, for Ozone and PM2.5 Combined)

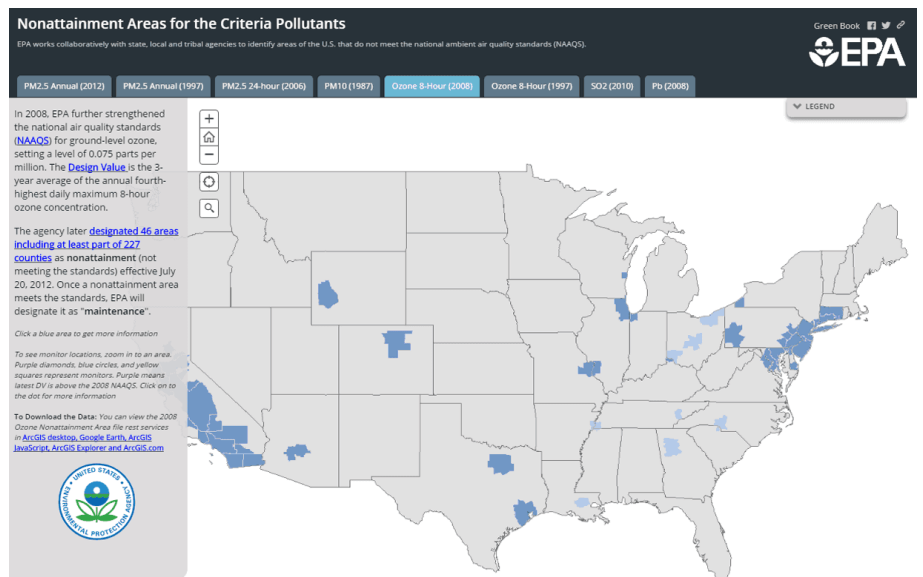


Air Quality in Nonattainment Areas Improves

EPA works collaboratively with state, local and tribal agencies to identify areas of the U.S. that do not meet the national ambient air quality standards (NAAQS). These areas, known as nonattainment areas, must develop plans to reduce air pollution and attain the NAAQS.

Through successful state led implementation, numerous areas across the country are showing improvement and fewer areas are in nonattainment. Since 2010, there were no violations of the standards for CO and NO₂.

Tip Shown is a snapshot of the 2008 ozone nonattainment area map. Click the map to view a larger interactive version that includes all [current NAAQS nonattainment areas](#).



Visibility



Over its 50-year history, EPA has made significant progress in improving visibility in our nation's parks and wilderness areas.

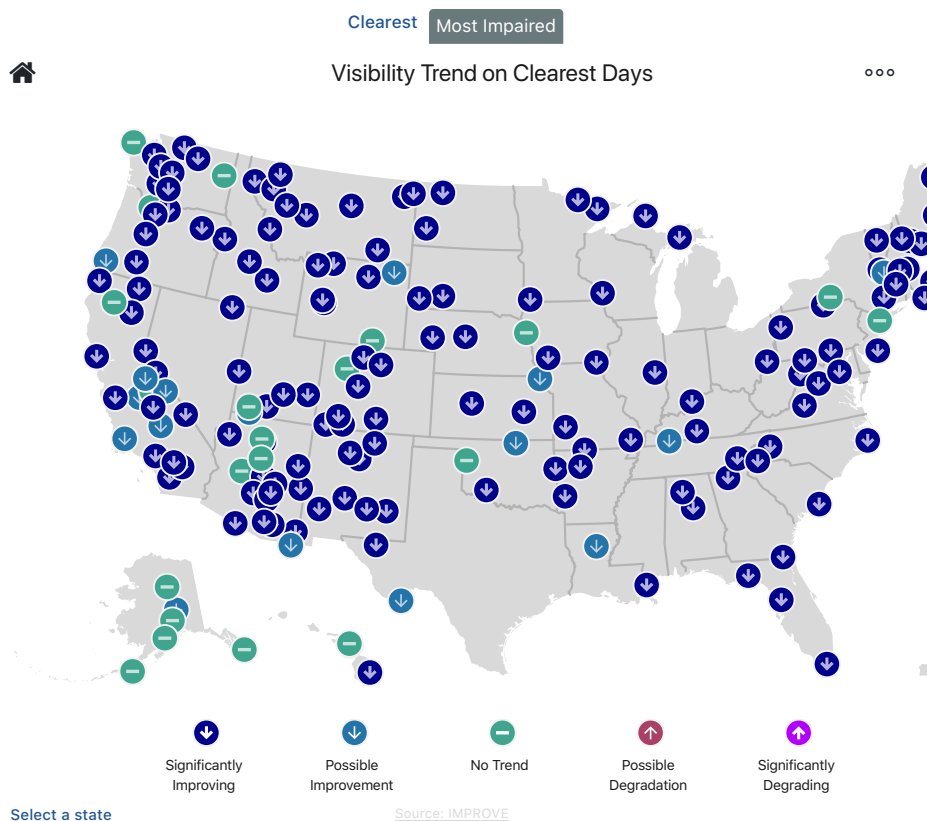
Visibility Improves in Scenic Areas

EPA and other agencies, such as the National Park Service, monitor visibility trends in 155 of the 156 national parks and wilderness areas (i.e., Class I areas).

The map indicates several Class I areas have improving visibility or decreasing haze (indicated by the downward pointing arrows). To learn more about visibility in parks and view live webcams please visit this [National Park Service website](#).

Tip Click any point to display 2000-2018 trends, and select maximize to enlarge the chart. Double click the map to zoom in and click the home button to reset.

REGIONAL HAZE RULE





Toxics

Following the 1990 Clean Air Act Amendments, key milestones in EPA's 50-year history were reached in significantly reducing toxic emissions from industry and transportation.

Air Toxics Levels Trending Down

Ambient monitoring data show that some of the toxic air pollutants, such as benzene, 1,3-butadiene and several metals, are declining at most sites.

Points on the map indicate the long-term statistical trend direction: decreasing, increasing and no trend. Depicted in gray are sites where a trend direction is undetermined due to insufficient data.

Tip Use the dropdown menu to select a pollutant, click any point to display trends, and select maximize to enlarge the chart. Double click the map to zoom in and click the home button to reset. View a [tabular summary](#) of air toxics trends.

NATIONAL AIR TOXICS ASSESSMENT

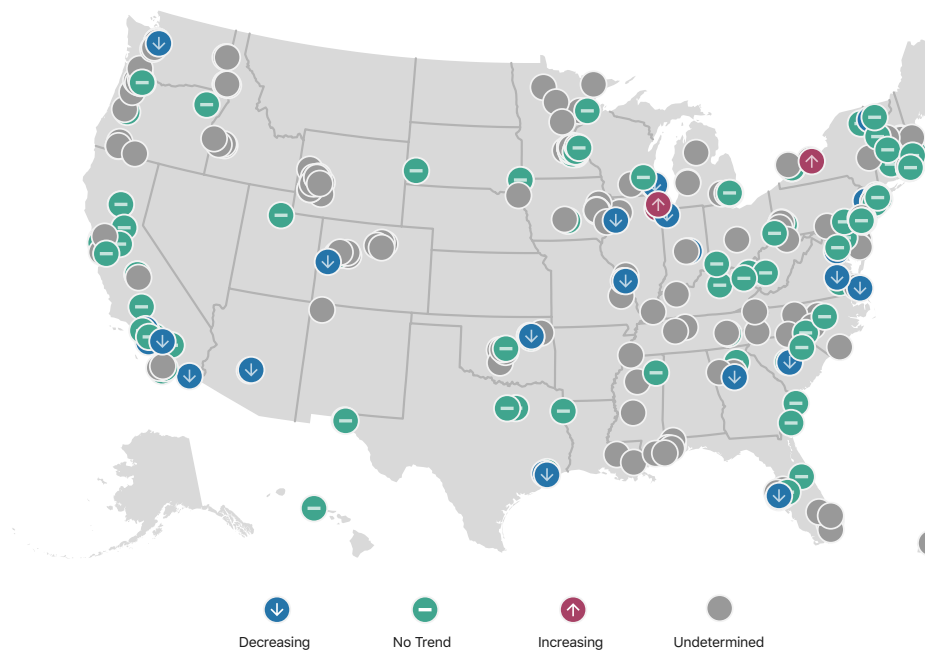
Based on the 2014 NATA, secondary pollution formation is the largest contributor to cancer risks nationwide, accounting for 47 percent of the risk. On-road mobile sources contribute the most risk from directly emitted pollutants (about 12 percent).

Select an air toxic to view concentration trends

Acetaldehyde



Acetaldehyde Concentration Trend



Select a state

Source: Phase XI of the Ambient Monitoring Archive (AMA)



Air Quality Milestones

1970 1971 1977 1981 1985 1987 1990

EPA 50th Anniversary

EPA was established on December 2, 1970 to consolidate in one agency a variety of federal research, monitoring, standard-setting and enforcement activities to ensure environmental protection. For 50 years, EPA has been working for a cleaner, healthier environment for the American people. EPA and its partners' actions have resulted in cleaner air, purer water and better protected land. The agency will continue its mission to protect human health and the environment for generations to come.

Read more about EPA history, and EPA today, at the [EPA at 50: Progress for a Stronger Future website](#).

Tip Select a year at the top of the timeline, or click and drag photos left/right, to navigate through air quality milestones.



197

EPA and Clean Air Act Creation


December 2, 1970 - EPA is officially established.

December 31, 1970 - Congress passes the **Clean Air Act of 1970** authorizing EPA to set national air quality, auto emission, and anti-pollution standards.


Our Nation's Air Continues to Improve

However, work must continue to ensure healthy air for all communities. EPA and our partners at the state, tribal and local levels will continue to work to address the complex air quality problems we face.

[Download and share the one page summary](#)  and scroll down for additional resources.

 *Approximately 82 million Americans lived in counties with air quality concentrations above the level of one or more NAAQS in 2019.*

Social Media

Use the share button  at the top to share this report with others, and follow the latest EPA activities to protect human health and the environment using the buttons below.


Source code, data and documentation are available for download in the GitHub repository.



Additional Resources

Please visit other EPA air quality related websites.



[Contact Us](#)  to ask a question, provide feedback, or report a problem.

