

EMBARGOED

Embargoed until April 21 2020 at 12:01 A.M. (Eastern Time)

State of the Air

Acknowledgments

The American Lung Association “State of the Air® 2020” is the result of the hard work of many people:

To produce the national report: Deb Brown, who leads the Mission Team; Paul G. Billings, who supervised the work; Janice E. Nolen, M.A., who directed the project, analyzed data, wrote the text, and coordinated print and web presentations; Kevin M. Stewart, who assisted in the data analysis, writing and coordination of the report content and metro area assessments; Laura Kate Bender, Diana Van Vleet, Ronni Flannery, and Liz Mueller, who integrated the Healthy Air Campaign with this report; Will Barrett, who compiled material for metro area assessments; Zach Jump, M.A., who converted the raw data into meaningful tables and comparisons and calculated all the population data; Susan Rappaport, M.P.H., who supervised the data analysis; John Balmes, M.D., who reviewed the science and health discussions; Neil Ballentine, who directed the online presentation; Todd Nimirowski, who designed and created the user experiences online; Lauren Innocenzi and, who managed content production online; Laura Lavelle, Carrie Emge and Elexis Rodgers who developed the social sharing and digital engagement strategy; Julia Fitzgerald, , Kim Lacina, Allison MacMunn, Stephanie Goldina, Gregg Tubbs, and Erin Meyer who coordinated internal and external communications and media outreach; Michael Albiero, who designed the logo and report cover; and Craig Finstad, who coordinated sharing the data with direct mail donors.

For state-level outreach: Michael Seilback and Lance Boucher coordinated work with the state staff across the nation. Staff contacted state and local air directors to ensure that they were informed and had a chance to review the draft data.

Outside the American Lung Association: Allen S. Lefohn of A.S.L. and Associates, who compiled the data; Beaconfire RED Consulting, who uploaded the data to the website; and Our Designs, Inc., who designed the print version.

Great appreciation goes to the National Association of Clean Air Agencies who strove to make this report better through their comments, review and concerns. Many of their members reviewed and commented on the individual state data presented and the methodology to make this report more accurate. We also appreciate the assistance of the Association of Air Pollution Control Agencies, whose members also assisted in the review of the data from their states. We appreciate them as our partners in the fight against air pollution. This report should in no way be construed as a comment on the work any of these agencies do.

The American Lung Association assumes sole responsibility for the content of the American Lung Association “State of the Air® 2020.”

American Lung Association

National Headquarters

55 W. Wacker Drive, Suite 1150
Chicago, IL 60601

Advocacy Office

1331 Pennsylvania Avenue, NW, Suite 1425 North
Washington, DC 20004

Phone: 1 (800) 586-4872

Fax: (202) 452-1805

www.stateoftheair.org

www.Lung.org

Copyright ©2020 by the American Lung Association

American Lung Association and *State of the Air* are registered trademarks of the American Lung Association.

Designed by Our Designs, Inc., Nashville, TN

Contents

The State of the Air 2020 4

Rankings

People at Risk in the U.S. 18

Most-Polluted Cities in the U.S. 19

Most-Polluted Counties in the U.S. 22

Cleanest Cities in the U.S. 25

Cleanest Counties in the U.S. 28

Health Effects of Ozone and Particle Pollution. 35

Methodology 49

State Tables 56

The State of the Air 2020

Too many cities across the nation experienced more ozone and more particle pollution in 2016-2018. Many reached or tied their highest levels ever.

The “State of the Air” 2020 found that, in 2016-2018, more cities had high days of ozone and short-term particle pollution compared to 2015-2017 and many cities measured increased levels of year-round particle pollution.

2020 marks the 50th anniversary of the Clean Air Act, the landmark law that has driven dramatic improvements in air quality over its history. This is critical because far too many communities reported air pollution that still threatens health, and climate change impacts continue to threaten to progress. Further, harmful revisions and setbacks to key protections currently in place or required under the Act threaten to make air quality even worse in parts of the country. “State of the Air” 2020 shows that we must not take the Clean Air Act for granted.

The “State of the Air” 2020 report shows that too many cities across the nation increased the number of days when particle pollution, often called “soot,” soared to often record-breaking levels. More cities suffered from higher numbers of days when ground-level ozone, also known as “smog,” reached unhealthy levels. Many cities saw their year-round levels of particle pollution increase as well.

The “State of the Air” 2020 report adds to the evidence that a changing climate is making it harder to protect human health. The three years covered in this report ranked among the five hottest years on record globally. High ozone days and spikes in particle pollution followed, putting millions more people at risk and adding challenges to the work cities are doing across the nation to clean up.

The 2020 report—the 21st annual release—uses the most recent quality-assured air pollution data, collected by the federal, state and local governments and tribes in 2016, 2017 and 2018. The “State of the Air” 2020 report looks at levels of ozone and particle pollution found at official monitoring sites across the United States in those years. For comparison, the “State of the Air” 2019 report covered data from 2015, 2016 and 2017.

The report examines fine particle pollution (particulate matter smaller than 2.5 microns in diameter, also known as PM_{2.5}) in two separate ways: averaged year-round (annual average) and short-term levels (24-hour). For both ozone and short-term particle pollution, the analysis uses a weighted average number of days that allows recognition of places with higher levels of pollution. For the year-round particle pollution rankings, the report uses averages calculated and reported by the U.S. Environmental Protection Agency (EPA). (The full “State of the Air” 2020 methodology is included in a later chapter.)

Overall Trends

Nearly five in 10 people live where the air is unhealthy.

The “State of the Air” 2020 found that, in 2016-2018, millions more Americans were living in communities impacted by unhealthy levels of pollution in the form of more unhealthy ozone days, more particle pollution days and higher annual particle levels than in previous reports.

Nearly five in ten people—150 million Americans or approximately 45.8 percent of the population—live in counties with unhealthy ozone or particle pollution (at least one F). That represents an increase from the past three reports: it’s higher than the 141.1 million in the 2019 report (covering 2015-2017), 133.9 million in the 2018 report (covering 2014-2016) and 125 million in the 2017 report (covering 2013-2015). **More than 20.8 million people, or 6.4 percent of the population, live in the 14 counties that failed all three measures.**

Los Angeles remains the city with the worst ozone pollution in the nation, as it has for 20 years of the 21-year history of the report. **Bakersfield, CA**, returned to the most polluted slot for year-round particle pollution, while **Fresno-Madera-Hanford, CA**, returned to its rank as the city with the worst short-term particle pollution.

This shows growing evidence that a changing climate is making it harder to protect human health. All three years ranked among the five hottest years in history, increasing

high ozone days and widespread wildfires, putting millions more people at risk and adding challenges to the work cities are doing across the nation to clean up. Rollbacks of EPA cleanup rules and reduced Clean Air Act enforcement are further adding to these air quality challenges.

This marks the fourth report in a row that worsening air quality threatened the health of more people, despite other protective measures being in place. Climate change clearly drives the conditions that increase these pollutants. The nation must do more to address climate change and to protect communities from these growing risks to public health.

The Clean Air Act must remain intact and enforced to enable the nation to continue working to protect all Americans from the dangers of air pollution. As the nation celebrates the 50th anniversary of the Clean Air Act this year and the dramatic improvements in air quality over its history, everyone must ensure that the Clean Air Act’s tools remain in place, funded and followed in order to protect the public.

The Lung Association will continue to champion the Clean Air Act and push for clean air for all, defending Americans against proposals to reverse and reduce protections in place and supporting new efforts to curb harmful pollution.

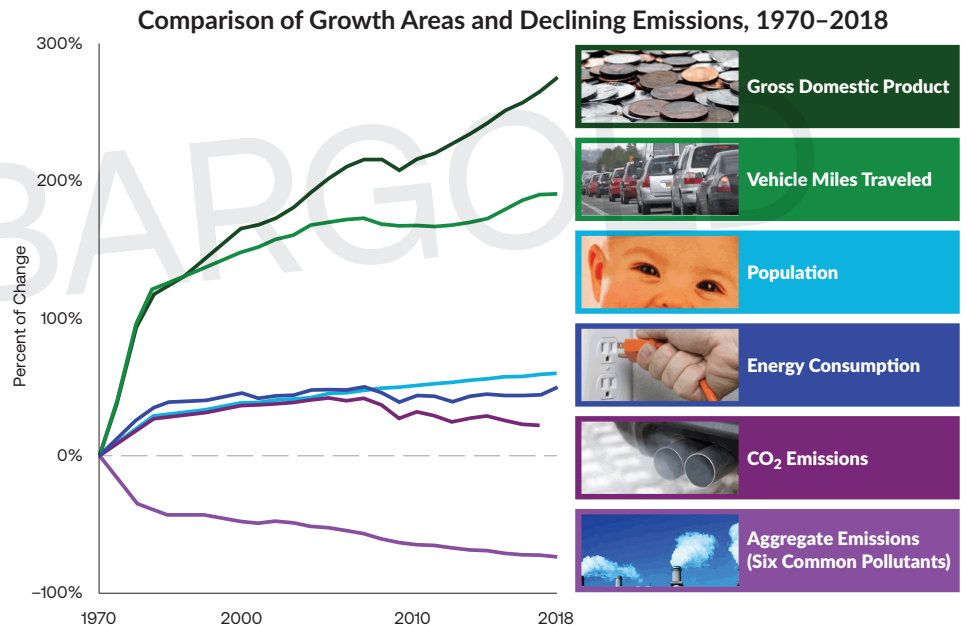


Figure 1: Air pollution emissions have dropped steadily since 1970 thanks to the Clean Air Act. Source: U.S. EPA, Air Trends: Air Quality National Summary, 2019.

Ozone Pollution

Far more people suffered unhealthy ozone pollution in 2016–2018 than in the last three reports. In 2016–2018, more than 137 million people lived in the 205 counties that earned an F for ozone.

That is significantly higher than in the 2019, 2018 and 2017 reports and is the highest since the 2016 report. This trend shows strong evidence of the impacts on air quality from the warmer years also reported in this period. Of the ten most polluted cities, six did worse than in the 2019 report, including some of the nation’s largest metropolitan areas.

Why? Increased heat. The three years in this report were three of the five warmest on record in the United States: the year 2016 remains the warmest year on record, while 2017 is now the fourth warmest, and 2018 ranked fifth warmest. Warmer temperatures make ozone more likely to form and harder to clean up.

Changes in where ozone is worst in the U.S. continue a trend seen in the past four reports, where increased oil and gas extraction in the Southwest and cleanup of power plants in the eastern U.S. have shifted the cities that experienced the greatest number of unhealthy air days.

Ozone rankings are all based on unhealthy air days as recorded using the Air Quality Index adopted with the 2015 national air quality standard for ozone. In 2018, EPA officially designated all or parts of the 25 most polluted cities as “nonattainment” areas for that ozone air quality standard. That action requires these areas to take steps to clean up the sources of pollution going forward.

Los Angeles remains at the top of the list of most polluted cities for ozone, as it has for all but one of the 21 reports, despite the metro area’s continued fight against ozone. Los Angeles-Long Beach also recorded more unhealthy ozone days in this report, measured by weighted average.

In addition to Los Angeles, 13 others among the 25 cities with the worst ozone pollution each had a higher weighted average of unhealthy days in 2016-2018, including some of the nation’s largest metropolitan areas: Phoenix, Las Vegas, Denver, Salt Lake City, Chicago and Milwaukee. Many smaller cities on that list also suffered from more ozone: Visalia, CA; Bakersfield, CA; El Centro, CA; El Paso-Las Cruces, TX-NM; Chico, CA; Fort Collins, CO; and Sheboygan, WI.

Eleven of the 25 cities with the worst ozone pollution had fewer unhealthy ozone days on average in 2016-2018. Those included San Jose-San Francisco-Oakland and Dallas-Fort Worth, each of which reached its fewest unhealthy ozone days ever. Other cities that had fewer high-ozone days included Fresno; Sacramento; San Diego; New York-Newark; Redding-Red Bluff, CA; Houston; Washington-Baltimore; Philadelphia; and Hartford, CT.

Regional Differences. Only seven cities among the worst for ozone are east of the Mississippi River, including the New York City metro area, where Fairfield County, CT, suffers from the highest levels in the eastern U.S. Others in the Northeast and Mid-Atlantic in the 25 most-polluted list are Washington-Baltimore; Philadelphia; and Hartford, CT. The Midwest has three: Chicago; Sheboygan, WI and Milwaukee. For the first time, with Atlanta’s improvement, no city in the Southeast has any city on the most-ozone-polluted list.

Cities in the West and the Southwest continue to dominate the most-ozone-polluted list. California retains its historic distinction, as it is home to 10 of the 25 most polluted cities. The Southwest continues to fill most of the remaining slots, with eight of the 25 cities, including three in Texas—Houston, El Paso, and Dallas-Fort Worth. Colorado has two—Denver and Fort Collins. Arizona, Nevada and Utah each have one.

The findings show the continued impact of transported pollution that moves ozone and ozone precursors across state lines. For example, emissions generated in Chicago cross Lake Michigan to reach Sheboygan, WI. Fairfield County, CT, remains the county with the highest ozone in the eastern half of the nation because of the transported ozone and ozone precursors from upwind states.

Short-Term Particle Pollution

More cities experienced more days of spikes in particle pollution, compared to the 2019 report. Twenty-two of the 25 most polluted cities had more days on average in the 2020 report. Many cities reached their highest number of such days ever reported.

More people experienced unhealthy spikes in particle pollution than in the last three reports. More than 53.3 million people suffered those episodes of unhealthy spikes in 86 counties where they live. In the 2019 report, the total was approximately 49.6 million people who experienced too many unhealthy days; in the 2018 report, approximately 35.1 million people; and in the 2017 report, approximately 43 million people.

Why? Wildfires in 2017 and 2018, especially in California, were a main reason for many of these spikes. In the western U.S., climate change has made more likely the conditions of heat and drought that promote wildfire hazards. In some communities, **wood smoke from home heating**, especially when worsened by stagnant air masses known as inversions, has also contributed to high levels of particle pollution.

Nine of the ten most polluted cities had more days when particle pollution reached unhealthy levels; four of those reached their worst exposure ever recorded. Of the 25 most polluted cities, 22 had more days on average in this year's report, with nine cities reaching their highest number of days on average ever recorded.

Fresno-Madera-Hanford, CA, returns to rank as the #1 most polluted city for short-term particle levels. This marks the third time Fresno-Madera-Hanford has ranked at the top in this category; the last period was from 2011-2013 covered in the 2015 report. Bakersfield, which had been ranked in that spot for eight of the last ten reports, shifted to the 2nd most polluted city.

Nine cities had their highest-ever weighted average number of days with spikes in particle levels: Fairbanks, AK; Yakima, WA; Redding-Red Bluff, CA; Phoenix, AZ; Spokane-Spokane Valley-Coeur d'Alene, WA-ID; Chico, CA; Salinas, CA; Santa Maria-Santa Barbara, CA; and Las Vegas, NV.

Showing the impact of wildfires, this year's report marks the second year that Santa Maria-Santa Barbara, CA, showed up on the list of the most polluted for short-term particle pollution. Prior to the 2019 report, this city had been on the list of cleanest cities in the nation for the previous six years for the same pollutant.

Twelve other cities on the most-polluted list also suffered from more days with unhealthy levels of particle pollution. These include Bakersfield; San Jose-San Francisco; Los Angeles; Salt Lake City, UT; Sacramento; Visalia, CA; Logan, UT; Medford-Grants Pass, OR; El Centro, CA; Eugene, OR; Reno, NV; and Portland, OR.

Only 3 of the 25 most polluted cities improved and had fewer unhealthy air days on average than in the 2019 report. Though it improved from its worst performance in last year's report, Missoula, MT, remained among the nation's 10 most polluted cities. Two other cities on the list had fewer unhealthy days on average: Seattle and Pittsburgh.

In California, Montana, Oregon and Washington, extended wildfires increased the days when PM levels spiked during 2016-2018. The Los Angeles metro area had two days when levels spiked to "hazardous," the highest, "maroon" level in the Air Quality Index. The Chico, CA, metro area also recorded two hazardous days in Butte County, reaching its highest ever short-term weighted average. Eugene, OR, and rural counties Mendocino County, CA, Okanogan County, WA and Gallatin County, MT, each reached one hazardous day.

Wildfires are not the only source of high particle pollution days. Other contributing sources include wood stove use (especially in Fairbanks, AK), older diesel vehicles and equipment, and industrial sources (as in Pittsburgh, PA). Changes in weather patterns can create atmospheric inversions that trap particles in place, leading to days with spikes.

Pittsburgh is the only city in the 25 most polluted that is east of the Mississippi River.

Year-Round Particle Pollution

This year saw mixed results in terms of annual particle levels among the 26 most polluted cities in the United States: 13 of these cities saw increased particle levels; 11 cities improved; one was not included in last year's report; and one maintained the same levels as last year's report. Nine cities among the most polluted achieved their lowest ever annual particle levels. (The list of most polluted cities for annual particle pollution contains 26 cities instead of 25 due to a tie for 25th place.)

Just as people move around, so too does harmful pollution. Wildfire smoke is just one example of pollution threatening health far from the source.

More people live in areas with unhealthy year-round particle pollution than in last year's report. More than 21.2 million people live in 19 counties where the annual average concentration of particle pollution was too high. This is higher than the 20.5 million Americans living in 18 counties in the 2019 report.

Bakersfield, CA returned to the rank of most polluted city for year-round particle pollution in 2016-2018. As with the short-term particle category, Bakersfield and Fresno also swapped rankings for annual particle pollution levels. Bakersfield returns to #1 most polluted in the nation while Fresno ranks #2, having tied its lowest annual average.

Thirteen of the 26 cities most polluted year-round by particle pollution saw increases over levels in the 2019 report: Bakersfield, CA; Visalia, CA; San Jose-San Francisco-Oakland, CA; Phoenix, AZ; El Centro, CA; Detroit-Warren-Ann Arbor, MI; McAllen-Edinburgh, TX; Philadelphia-New Castle-Weirton, PA-OH-WV; Sacramento-Roseville, CA; Shreveport-Bossier City-Minden, LA; Medford-Grants Pass, OR; Chico, CA and St. Louis-St. Charles-Farmington, MO-IL.

Eleven of the 26 most polluted cities had lower year-round particle levels, of which 9 matched (Pittsburgh and Fresno) or newly achieved (Atlanta, Birmingham, Chicago, Cincinnati, Cleveland, Houston, and Indianapolis) their lowest respective averages ever.

Of the remaining two cities among the most polluted in the nation by annual particles, Los Angeles, CA had the same level as last year, while Brownsville, TX did not have annual particle pollution data available last year for comparison.

Nine cities among the most polluted for annual particle pollution fail to meet the current national air quality standards. However, evidence shows that no threshold exists for harmful effects from particle pollution—that is, that even levels lower than the official standard are not safe to breathe.

Overall, cities in the western United States dominate the list, with 15 cities among the 26 most polluted by annual particles. California continues to claim more places on the list than any other state, with six of the 10 most polluted, including each of the worst five—and six of the nine cities that fail to achieve the national standard. Fairbanks, Phoenix, Pittsburgh and Detroit are also among the ten most polluted, with only Detroit achieving the national standard. Beyond cities in western states, the remainder of the most particle-polluted cities all meet the standard and are distributed throughout the Midwest, Southeast and Mid-Atlantic regions.

Cities with high power plant emissions as well as local, industrial sources continue to show up on the list, including Pittsburgh; Detroit; Cleveland; Philadelphia; Cincinnati; Birmingham; Indianapolis; Shreveport, LA; and Atlanta.

Fortunately, year-round particle pollution continues to decline across most of the nation, unlike the days with high ozone and high short-term particle pollution.

Because of their high numbers and long duration, western wildfires contributed to some of the elevated annual averages in western cities. That is especially true in California and Pacific Northwest communities that experienced major wildfire smoke impacts in 2018.

Cleanest Cities

Four cities rank on all three cleanest cities lists for ozone, year-round particle pollution and short-term particle pollution. They had zero high ozone or high particle pollution days and are among the 25 cities with the lowest year-round particle levels. All four repeat their ranking on this list. Listed alphabetically, these cities are:

| | |
|---------------------------------|--------------------|
| Bangor, ME | Urban Honolulu, HI |
| Burlington-South Burlington, VT | Wilmington, NC |

Nine other cities rank among the cleanest cities for both year-round and short-term levels of particle pollution. That means they had no days in the unhealthy level for short-

More cities among the most polluted by annual particle levels saw increases than improved in the 2020 report.

term particle pollution and are on the list of the cleanest cities for year-round particle pollution. Listed alphabetically below, they are:

| | |
|-----------------------------------|---------------------|
| Appleton-Oshkosh-Neenah, WI | Sioux Falls, SD |
| Elmira-Corning, NY | Springfield, MA |
| Gainesville-Lake City, FL | St. George, UT |
| Grand Island, NE | Syracuse-Auburn, NY |
| Palm Bay-Melbourne-Titusville, FL | |

Seventeen other cities rank among the cleanest for ozone and short-term particle pollution. That means they had no days in the unhealthy level for ozone or for short-term particle pollution. Listed alphabetically below, they are:

| | |
|-------------------------------------|---------------------------|
| Bowling Green-Glasgow, KY | La Crosse-Onalaska, WI-MN |
| Clarksville, TN-KY | Lincoln-Beatrice, NE |
| Corpus Christi-Kingsville-Alice, TX | Monroe-Ruston, LA |
| Fayetteville-Sanford-Lumberton, NC | Morgantown-Fairmont, WV |
| Fayetteville-Springdale-Rogers, AR | Roanoke, VA |
| Florence, SC | Springfield, MO |
| Fort Smith, AR-OK | Tallahassee, FL |
| Gadsden, AL | Topeka, KS |
| Houma-Thibodaux, LA | |

Five cities rank on both lists for ozone and year-round particle pollution levels. These cities had no days in the unhealthy level for ozone pollution and are on the list of the cleanest cities for year-round particle pollution. Listed alphabetically below, they are:

| | |
|---------------|---------------|
| Anchorage, AK | Duluth, MN-WI |
| Bismarck, ND | Salinas, CA |
| Casper, WY | |

People at Risk

The “State of the Air” 2020 shows that too many people in the United States live where the air is unhealthy for them to breathe.

- **Nearly five in 10 people (45.8 percent) in the United States live in counties with unhealthful levels of either ozone or particle pollution.** Approximately 150 million Americans live in these 257 counties with unhealthful levels of either ozone or short-term or year-round particles.
 - **The number has increased—again.** This year’s report found 8.76 million more Americans living in counties with unhealthy air compared to last year’s report, and 15.9 million more Americans compared to the 2018 report. Fortunately, the total is still far below the 166 million in the years covered in the 2016 report (2012–2014).
 - **Why? One big reason is climate change.** Warmer weather, different rain patterns and major wildfires all contribute to continued challenges to long-term progress in reducing harmful air pollution under the Clean Air Act.
- **More than four in 10 (41.9 percent) of the people in the United States live in areas with unhealthy levels of ozone pollution.** More than 137 million people live in the 205 counties that earned an F for ozone in this year’s report, approximately 3 million more people than in last year’s report.
- **Nearly one in six people (16.3 percent) in the United States—more than 53.3 million—live in an area with too many days with unhealthful levels of particle pollution.** More people experienced those unhealthy spikes than in the last three reports. In the 2019 report, approximately 49.6 million people experienced too many unhealthy days; in the 2018 report, approximately 35.1 million people; and in the 2017 report, approximately 43 million people.

- **More than 21.2 million people (6.5 percent) suffered from unhealthy year-round levels of particle pollution in 2016-2018.** These people live in 19 counties where the annual average concentration of particle pollution was too high. This population estimate is higher than the 20.5 million Americans living in 18 counties with unhealthy levels of year-round particle pollution reported in the 2019 report that covered 2015-2017.
- **20.8 million people (6.4 percent) live in 14 counties with unhealthy levels of all three: ozone and short-term and year-round particle pollution in 2016-2018.** This is over 600,000 more people living in the 12 US counties with unhealthy levels for all three measures than in the 2019 report that covered 2015-2017.

Many people are at greater risk because of their age; because they have asthma or other chronic lung disease or cardiovascular disease; because they have ever smoked; because they belong to communities of color or because they have low socioeconomic status. With the risks from airborne pollution being so great, the Lung Association seeks to inform people who may be in danger. The following list identifies the numbers of people in each at-risk group.

- **Older and Younger**—Nearly 22 million adults age 65 and over and 34.2 million children under age 18 live in counties that received an F for at least one pollutant. More than 2.8 million seniors and 5 million children live in counties failing all three tests.
- **Asthma**—2.5 million children and 10.6 million adults with asthma live in counties that received an F for at least one pollutant. More than 316,000 children and nearly 1.4 million adults with asthma live in counties failing all three tests.
- **Chronic Obstructive Pulmonary Disease (COPD)**—Nearly 7 million people with COPD live in counties that received an F for at least one pollutant. More than 750,000 people with COPD live in counties failing all three tests.
- **Lung Cancer**—More than 77,000 people were diagnosed with lung cancer and live in counties that received an F for at least one pollutant. Nearly 8,400 people were diagnosed with lung cancer and live in counties failing all three tests.
- **Cardiovascular Disease**—More than 9.3 million people with cardiovascular diseases live in counties that received an F for at least one pollutant. Over 1 million people live in counties failing all three tests.
- **Poverty**—Evidence shows that people who have low incomes may face higher risk from air pollution. More than 18.7 million people with incomes meeting the federal poverty definition live in counties that received an F for at least one pollutant. More than 3 million people in poverty live in counties failing all three tests.
- **Communities of Color**—Studies have found that Hispanics, Asians, American Indians/Alaska Natives and especially African Americans experienced higher risks of harm, including premature death, from exposure to air pollution. Approximately 74 million people of color live in counties that received at least one failing grade for ozone and/or particle pollution. Over 14 million people of color live in counties that received failing grades on all three measures.
- **People Who Have Ever Smoked**—There is some recent evidence suggesting that people who have a history of smoking are at greater risk of premature death and of lung cancer when subjected to long-term exposure to fine particle pollution. Over 14.3 million Americans who have ever smoked live in counties that received at least one F for particle pollution. Of those, some 5.5 million people live in counties that received failing grades for all three pollutants.

Threats and opportunities for the nation's air quality

After 50 years under the Clean Air Act, the nation has made significant strides in cleaning up harmful air pollution. However, this year's report shows that many communities are still waiting for healthy air, and that climate change poses current and growing threats to the nation's progress. Fully implementing and enforcing the Clean Air Act and addressing climate change requires a strong, coordinated effort on the part of our federal, state, tribal and local leaders, and the need is more urgent than ever.

Unfortunately, in almost every case, the current Administration has continued to attempt to roll back, weaken, or undermine core healthy air protections under the Clean Air Act. Not only has this Administration targeted specific Clean Air Act safeguards for rollbacks, it has also sought to weaken EPA's ability to set future protections. Many of the rollbacks are not yet final and face challenges in court. However, the impacts of some of this Administration's actions could be felt for years to come.

At the same time as the Administration is halting progress or even moving backward on addressing climate change, many members of the U.S. Congress have worked to advance policies to reduce greenhouse gas emissions. This critical work presents real opportunities for cleaning up air pollution and improving lung health. However, some climate proposals actually include provisions that would weaken the Clean Air Act, a tradeoff that could lead to more health harm from air pollution.

Below are key threats and opportunities for the nation's progress toward cleaner, healthier air, plus ways that you can help.

Opportunity: Congressional action on climate change

To protect public health from climate change, the nation needs urgent action in every arena—from the Administration to the U.S. Congress to state, local and tribal governments to the private sector. The Clean Air Act requires EPA to limit greenhouse gases because of the danger they pose to human health. Congressional action is critical too, and climate conversations and ideas have been proliferating on Capitol Hill.

There are many ways Congressional legislation could reduce emissions, like investing further in clean, renewable energy and incentivizing low- and zero-emission cars, buses and trucks. The Lung Association led a Declaration on Climate Change and Health with more than a dozen other leading national health organizations laying out five requirements for climate action. The nation needs climate policies that:

- Adopt science-based targets to prevent climate change above 1.5o C.
- Maximize benefits to health, reducing carbon and methane pollution at the same time that they reduce other dangerous emissions from polluting sources.
- Ensure pollution is cleaned up in all communities, including those near polluting sources that have historically borne a disproportionate burden from air pollution.
- Leave the Clean Air Act fully in place. Any policy to address climate change must not weaken or delay the Clean Air Act or the authority that it gives EPA to reduce carbon emissions.
- Ensure communities have the tools and resources to identify, prepare for and adapt to the unique health impacts of climate change in their communities.
 - The nation's public and environmental health systems must have adequate resources to **assist** communities by identifying, preparing for and responding to the health impacts of climate change.
 - Community leaders must be able to adequately protect those whose health is most at risk, and provide access to uninterrupted, quality healthcare during and after disasters.

What you can do:

- Urge your members of Congress to support climate action to protect health, including the Climate Change Health Protection and Promotion Act. Take action now.

Congress must make certain that the Clean Air Act remains strong, fully implemented and fully enforced.

Threat 1: Weakening the Clean Air Act

The Clean Air Act remains a strong public health law put in place by an overwhelming bipartisan majority in Congress 50 years ago. Congress wrote the Clean Air Act to set up science-based, technology-fostering steps to protect public health by reducing pollution. Under the Clean Air Act, Congress directed EPA and each state to take steps to clean up the air to protect public health. For years, the “State of the Air” report chronicled the slow but steady improvement in the nation’s air quality thanks to the Clean Air Act.

Now, that positive trend is threatened. Climate change is making pollution cleanup more difficult, and unfortunately, some in Congress seek changes to the Clean Air Act that would dismantle key provisions of the law and threaten the progress made over five decades.

Undermining the Act itself is one of the fundamental goals of polluters and their allies. They have repeatedly challenged Clean Air Act provisions in court, and have repeatedly lost, so now they seek to weaken the law. Proposed efforts include exempting certain polluting facilities from some emissions controls, delaying science-based updates to air pollution standards, and undermining public health as the core premise of the Act’s key pollution limits.

Another emerging threat is the idea that legislation to address climate change must come at the price of weakening the Clean Air Act. Several bills have been introduced that would put a fee or price on carbon, but would also postpone or permanently restrict EPA’s ability to reduce greenhouse gas emissions. We don’t accept this trade-off. The Clean Air Act can and should work hand-in-hand with new laws in Congress to address climate change. Now is not the time to remove tools from the nation’s toolbox to address this urgent challenge.

To protect the lives and health of millions of Americans, the Lung Association calls on Congress to reject attempts to weaken the Clean Air Act and make certain the law remains strong, fully implemented and fully enforced.

What you can do:

- Spread the word that some climate change legislation would actually weaken the Clean Air Act. [Learn more here.](#)

Threat 2: Considering outdated particle and ozone pollution limits

A fundamental reason for the success of the Clean Air Act is the requirement that EPA base decisions and actions on up-to-date science to protect public health. EPA has to periodically review its national limits on ozone and particle pollution (as well as four other pollutants) based on the current science and update them if necessary to reflect how much of each pollutant is safe to breathe. This requires ensuring that independent expert scientists regularly analyze current, peer-reviewed research and then provide their conclusions and perspectives to the EPA staff scientists and the Administrator. This process is critical. Over the years, research has shown that these pollutants are more dangerous than was known previously. In this way, the Clean Air Act requires EPA to make sure the national ozone and particle pollution standards protect Americans’ health.

However, in 2018, the agency put forward a very aggressive timeline for completing a full review of both the ozone and particulate matter standards before the end of 2020.¹ Such a shortened review has severely limited what has historically been a thorough assessment of the science. The current EPA also removed independent science advisors from key advisory committees, including the Clean Air Scientific Advisory Committee (CASAC), and replaced them with people with far less experience in the research or who were paid by polluting industries.² EPA also dismissed a panel of experts that had been providing advice based on their deep understanding of the complex research on particle pollution. Many former participants and independent

health and medical groups, including the Lung Association, urged EPA to reinstitute the panel.³ Former chairs and members of CASAC have raised concerns about the lack of scientific expertise in the new members of the committee, as well as the dramatically reduced capacity for scientific reviews.⁴

With these changes to the process, in 2020, the EPA Administrator is expected to keep the current limits on particle and ozone pollution in place—despite the fact that science has shown for years that these limits are too weak.

What you can do:

- Tell EPA today that they need to set strong limits on particle and ozone pollution that protect the public. Take action now.

Threat 3: Dramatically weakening Cleaner Cars Standards

In 2020, EPA and the Department of Transportation finalized rules to weaken limits on greenhouse gas emissions from cars, SUVs and personal trucks for model year 2021-2026 vehicles. Weakening these cleaner cars standards will not only greatly slow progress in cleaning up climate pollution from the transportation sector, but will also cause additional premature deaths from air pollution.

Even more drastically, in 2019, the Administration decided to attack the rights states have to set stronger standards to protect their residents. Under the Clean Air Act, California has the right to establish its own, stronger emissions standards for cars and trucks, and other states have the option of adopting California's standards. The Administration formally revoked California's permission to set its own limits on greenhouse gas emissions for cars, SUVs and light trucks, setting off a heated legal battle.

California's Clean Air Act authority to set more protective emissions standards has helped drive lifesaving reductions in harmful pollution from vehicles nationwide; maintaining this authority is critical. The Lung Association strongly opposed these rollbacks and recruited nearly 100 national, state and local health organizations to join comments to EPA in opposition.⁵

What you can do:

- Drive less. Combine trips, walk, bike, carpool or vanpool, and use buses, subways or other alternatives to driving.
- Support community plans that provide ways to get around that don't require a car, such as more sidewalks, bike trails and transit systems.

Threat 4: Putting limits on mercury and air toxics at risk

In late 2018, EPA issued a proposal that could undermine the Mercury and Air Toxics Standards, lifesaving protections that are fully implemented, widely supported, and successful in reducing a long list of dangerous emissions. In its proposal, EPA deliberately undercounted the benefits of these protections.

EPA adopted the Mercury and Air Toxics Standards in 2011 to limit emissions of mercury and other hazardous air pollutants, including carcinogens, like arsenic, acid gases and other dangerous toxins. Reducing these emissions from power plants results in the reduction of other harmful emissions at the same time. Since then, the standards have not only slashed mercury and air toxics emissions but have also reduced particulate matter, preventing thousands of premature deaths and asthma attacks every year. EPA has proposed not to count the benefits stemming from reductions of particulate matter and other pollutants not explicitly covered by the rule, which artificially tips the balance to make the rule appear less cost-effective than it is. This approach to calculating benefits, by design, obscures the enormous positive health impacts resulting from the Mercury and Air Toxics Standards.

What you can do:

- Call on your members of Congress to oppose EPA's proposal that threatens to undermine the Mercury and Air Toxics Standards. The standards have bipartisan

support, and your representative and senators need to hear from you so they speak up about this critical issue.

Threat 5: Censoring the science available for EPA's decisions

In March 2020, EPA issued a proposal that resurrected a dangerous effort at the agency to suppress sound science, misleadingly labeled “Strengthening Transparency in Regulatory Science.” The proposed rule, which the Lung Association has deemed the “Censoring Science” proposal, would permit EPA to restrict the scientific studies the agency considers when it makes policy.

EPA's effort is under the guise of transparency because the proposal would undervalue or block studies based on data that, for privacy reasons, can't be made public. However, this effort is disingenuous. The proposed rule would exclude sound research from informing regulations or important scientific information. The rule would ignore or discount key health studies that show that particle pollution, for example, can cause premature death—because those health studies are based on personal medical data that cannot and should not be released.

Many databases that scientists use today do allow unrestricted access to their information, but others do not because of the need for patient confidentiality for subjects included in the research. The studies are available and transparent, but the private health data they are based on must be protected. Blocking the use of these key studies that have been through multiple independent reviews and show widespread harm from outdoor air pollutants introduces dangerous bias that could limit the evidence, risking weaker air pollution safeguards.

Even in the midst of the COVID-19 crisis, EPA is pushing ahead with the Censoring Science proposal. The Lung Association is leading health, medical, scientific and academic organizations in pushing back.

What you can do:

- Raise your voice. There's still time to sign our petition opposing EPA's efforts to censor science. Join us at www.lung.org/savescience

Threat 6: Replacing the Clean Power Plan with dangerously weak standards

Climate change is a public health emergency. To address it, the nation must dramatically cut greenhouse gases, including carbon pollution. Power plants comprise the largest stationary source of carbon pollution in the United States. The electric sector produced 28 percent of all U.S. greenhouse gas emissions in 2017.⁶ Unfortunately, the current EPA repealed a sweeping plan to limit carbon pollution from power plants, the Clean Power Plan, and has now finalized a new rule that will not only fail to meaningfully cut carbon, but could actually increase harmful emissions.

The now-repealed Clean Power Plan was the only nationwide plan to clean up carbon pollution from power plants. Adopted in 2015, it would have delivered a flexible, practical toolkit for states to reduce carbon from power plants approximately 32 percent (below 2005 levels) by 2030. States could have chosen a variety of ways to cut carbon, including requiring cleaner fuels for existing utilities, improving energy efficiency, producing more clean energy or partnering with other states to jointly reduce carbon pollution. This would have not only tackled climate change, but would have also reduced ozone, particle pollution, and other air pollutants and immediately benefited people's health.

Even though EPA repealed the Clean Power Plan, the Clean Air Act still requires that the agency reduce carbon pollution from power plants. In 2019, EPA finalized into law a dangerous replacement, called the “Affordable Clean Energy” (ACE) Rule. The ACE rule rejects the strong menu of options to reduce emissions that states had under the Clean Power Plan. Instead, it only sets minimal, totally inadequate limits on carbon emissions at power plants themselves. Worse, independent scientists found that this rule could result

“EPA's replacement for the Clean Power Plan could be worse than doing nothing at all.”

in dirtier power plants running more often, which would actually increase air pollution emissions and the risk of premature deaths.⁷ In short, EPA's replacement for the Clean Power Plan could be worse than doing nothing at all.

The Lung Association led national health and medical organizations in speaking out in opposition to the ACE rule⁸ and is suing the Administration to stop it.⁹ The Clean Air Act requires that EPA address carbon pollution in a way that protects public health. The nation urgently needs a system-wide reduction in carbon dioxide emissions from power plants and other sources to combat climate change.

What you can do:

- **Raise your voice.** The Lung Association is taking EPA to court to get them to clean up climate pollution from power plants, but they're not the only ones who can act. Call on your states and local governments to switch to clean, renewable electricity to address climate change and protect public health.
- **Reduce your electricity use.** Turn off the lights and unplug appliances when you're not using them. Switch to more energy-efficient electric appliances. If you have the option in your community, buy power from clean, renewable sources.

Threat 7: Removing limits on methane emissions from the oil and gas industry

Natural gas is far from clean. Oil and gas production wells, processing plants, transmission pipelines and storage units emit harmful gases, including volatile organic compounds and methane, a potent greenhouse gas. For the last few years, "State of the Air" has reported elevated levels of unhealthy ozone in places where oil and gas production has expanded, even in largely rural counties in the West.

Despite this, EPA has taken multiple steps to weaken pollution limits for the industry that were set in 2016.¹⁰ Most recently, the agency proposed in 2019 to entirely roll back methane standards for new oil and gas sources, which would also result in other dangerous pollution that could have been prevented. EPA's proposal would also prevent any limits on existing oil and gas industry sources, despite the fact that they are currently a major source of air pollution, including methane. We led hundreds of health professionals in raising their voices in opposition to EPA's efforts.¹¹

What you can do:

- **Raise your voice.** Producing and burning natural gas for electricity creates air pollution and causes climate change. Call on your state and local governments to switch to clean, renewable electricity to address climate change and protect public health.
- **Reduce your electricity use.** Turn off the lights and unplug appliances when you're not using them. Switch to more energy-efficient electric appliances. If you have the option in your community, buy power from clean, renewable sources.

Threat 8: Cutting funding needed to clean up the air

The Clean Air Act set up smart, open processes for protecting Americans from air pollution, which have enabled the U.S. to reduce some of the most common pollutants by more than 70 percent. Still, these processes only work if EPA and state, local and tribal air agencies have the funding and staffing they need to implement and enforce the law. The Trump Administration has consistently proposed budgets that would greatly reduce the ability of EPA to protect public health, including slashing overall funding for the agency and reducing grants to support the work of state and local agencies and tribes to implement the requirements of the Clean Air Act and other critical laws.

The Lung Association calls on Congress to ensure that EPA has sufficient funding to protect public health with the full range of programs, including state, local and tribal grants. In many cases, key EPA and other public health programs need funding increases to keep pace with their role in protecting the public. Investment in clean air and public health protections is critical.

The Trump Administration's proposed budget would greatly reduce the ability of EPA to protect public health.

Threat 9: Chipping away at air pollution enforcement

EPA has issued several directives to roll back or undermine steps to implement the Clean Air Act's requirements for reducing major air pollutants, weakening both current pollution cleanup and likely future air pollution standards, including for ozone and particulate matter.

EPA proposed weakening "New Source Review" requirements, which would allow new polluting sources to add to the burden of unhealthy air in communities in several ways. The proposal would allow emissions to be calculated at an hourly rate as opposed to an annual one. The result would be that emissions could increase dramatically, but facilities would not have to install and operate modern pollution controls as long as their hourly rate of emissions did not increase. A similar bill, HR 172, has also been introduced in Congress.

In 2019, EPA finalized guidance that redefined "ambient air" to allow industries to pollute more at their own facilities. This decision reversed a decades-old policy that narrowed the area that an industry could use, which helped limit public exposure to its emissions.¹² The change will allow the industry to produce more emissions.

EPA also announced an end to its decades-old "Once-In, Always-In" policy, allowing facilities to increase toxic air emissions.¹³ Under the old policy, if a facility emitted toxic air pollution above a certain threshold, it had to install and keep running strong pollution controls in the future. EPA's reversal weakened the requirements that these facilities keep running their controls, potentially resulting in some of them increasing their pollution to just under the legal threshold.

Finally, amidst the COVID-19 crisis, polluting industries have sought, and EPA has granted, compliance waivers. We strongly oppose a widespread relaxation of Clean Air Act compliance and enforcement. The COVID-19 pandemic and its disproportionate impacts on people with lung disease and other chronic conditions make the continued reduction of air pollution more important, not less.

What You Can Do

We at the Lung Association are long-time champions for healthy air! You can help reduce air pollution outdoors by taking these steps:

Speak Up Today:

Tell EPA to set stronger limits on particle and ozone pollution. The science is clear: the nation needs stronger limits on ozone and particle pollution to safeguard health. The current National Ambient Air Quality Standards for particulate matter and ozone are not sufficient to protect public health. Every family has the right to breathe healthy air—and the right to know when air pollution levels are unhealthy. [Tell the Environmental Protection Agency to follow the science and set stronger limits on particle and ozone pollution.](#)

Other Ways You Can Help:

Share your story. Do you or any member of your family have a personal reason to fight for healthier, cleaner air? [Let us know why clean air matters to you.](#) Your story helps us remind decision makers what is at stake when it comes to clean air.

Speak up to Congress. Urge your members of Congress to oppose EPA's proposal that could undermine the Mercury and Air Toxics Standards, to oppose legislation that would weaken the Clean Air Act, and to support climate action to protect health, including the Climate Change Health Protection and Promotion Act. [Take action on climate and health now.](#)

Support strong science. Sign our petition opposing EPA's efforts to censor science. Join us at www.lung.org/savescience

Get involved locally. Participate in state and local efforts to clean up air pollution and address climate change, including by supporting clean, renewable electricity and cleaner vehicles. To find your local air pollution control agency, go to www.4cleanair.org.

Step up to Curb Pollution in Your Community:

Drive less. Once stay-at-home orders are lifted, combine trips, walk, bike, carpool or vanpool, and use buses, subways or other alternatives to driving. Vehicle emissions are a major source of air pollution. Support community plans that provide ways to get around that don't require a car, such as more sidewalks, protected bike lanes and transit systems. If you must drive, switch to electric vehicles.

Use less electricity. Turn out the lights and use energy-efficient electric appliances. Generating electricity is one of the biggest sources of pollution, particularly in the eastern United States. If you have the option in your community, buy power from clean, renewable sources.

Don't burn wood or trash. Burning firewood and trash is among the largest sources of particle pollution in many parts of the country. If you must use a fireplace or stove for heat, convert your woodstove to natural gas, which has far fewer polluting emissions. Compost and recycle as much as possible and dispose of other waste properly; don't burn it. Support efforts in your community to ban outdoor burning of construction and yard wastes. Avoid the use of outdoor hydronic heaters, also called outdoor wood boilers, which are frequently much more polluting than woodstoves.

Make sure your local school system requires cleaner school buses, which includes replacing them with electric buses or retrofitting old school buses with filters and other equipment to reduce emissions. Make sure your local schools don't idle their buses; this step can immediately reduce emissions. Parents shouldn't idle in their cars outside of schools either.

Thank you for being a champion for healthy air.

Endnotes

1. Memo from Scott Pruitt, EPA Administrator, Re: Back-to-Basics Process for Reviewing National Ambient Air Quality Standards, May 9, 2018.
2. Memo from EPA Administrator Scott Pruitt. Subject: Strengthening and Improving Membership on EPA Federal Advisory Committees. October 31, 2017.
3. The testimony took place at the December 12, 2018 meeting of the Chartered Clean Air Scientific Advisory Committee (CASAC) Public Meeting on Particulate Matter. All testimony is posted on that site.
4. Letter to Tony Cox, Chair Clean Air Scientific Advisory Committee from H. Christopher Frey, Jonathan M. Samet, et al. RE: CASAC Advice on the EPA's Integrated Review Plan for the Ozone National Ambient Air Quality Standards (External Review Draft). November 26, 2018.
5. Letter from health and medical organizations opposing EPA's proposed SAFE rule. <https://www.lung.org/getmedia/7bcf3cd4-1d8b-4dfa-9acb-77d470e8654c/letter-from-health-orgs-cars.pdf.pdf>
6. U.S. Environmental Protection Agency. *Inventory of Greenhouse Gas Emissions and Sinks: 1990-2016*. Washington, DC: U.S. EPA, 2017. Accessed at <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions#electricity> .
7. Driscoll C, Buonocore J, Levy J, Lambert K, et al. 2015 US power plant carbon standards and clean air and health co-benefits. *Nature Climate Change* 5: 525-540. Schwartz J, Buonocore J, Levy J, Driscoll C, Fallon Lambert K, and Reid S. *Health Co-Benefits of Carbon Standard for existing Power Plants: Part 2 of the Co-Benefits of Carbon Standards Study*. September 30, 2014. Harvard School of Public Health, Syracuse University, Boston University. Available at [Health Co-Benefits of Carbon Standards for Existing Power Plants](#).
8. These comments are available at <http://www.lung.org/get-involved/become-an-advocate/advocacy-archive.html>.
9. U.S. Court of Appeals for the District of Columbia. Case # 19-1140. *American Lung Association, et al. v. EPA*.
10. U.S. EPA. Proposed Improvements 2016 New Source Performance Standards, September 11, 2018.
11. Letter from More than 660 Health Professionals in support of Existing Methane Standard. <https://www.lung.org/getmedia/3cdda4b9-4e2f-4697-bd02-b4e2ab302d9a/letter-from-more-than-660.pdf.pdf>
12. U.S. EPA. Draft Guidance: Revised Policy on Exclusions from "Ambient Air." November 2018.
13. U.S. EPA. News Release: Reducing Regulatory Burdens: EPA withdraws "once in always in" policy for major sources under Clean Air Act. January 25, 2018.

People at Risk from Short-Term Particle Pollution (24-Hour PM_{2.5})

| In Counties where the Grades were: | Chronic Diseases | | | | | Age Groups | | Ever Smoked | Poverty | People of Color | Total Population | Number of Counties |
|---|------------------|------------------|------------|-------------|------------|------------|-------------|-------------|------------|-----------------|------------------|--------------------|
| | Adult Asthma | Pediatric Asthma | COPD | Lung Cancer | CV Disease | Under 18 | 65 and Over | | | | | |
| Grade A (0.0) | 6,771,123 | 1,540,293 | 5,031,440 | 54,370 | 6,467,143 | 19,623,845 | 14,558,915 | 28,761,321 | 11,548,118 | 35,476,477 | 89,725,896 | 297 |
| Grade B (0.3-0.9) | 3,395,014 | 825,353 | 2,534,578 | 28,260 | 3,264,583 | 10,789,019 | 7,142,293 | 14,992,254 | 6,255,351 | 22,545,548 | 48,238,919 | 146 |
| Grade C (1.0-2.0) | 1,667,126 | 453,027 | 1,170,274 | 12,828 | 1,576,668 | 5,899,670 | 3,304,468 | 7,263,158 | 3,592,833 | 13,274,054 | 24,844,467 | 45 |
| Grade D (2.1-3.2) | 297,273 | 78,677 | 227,604 | 2,422 | 293,574 | 1,006,718 | 647,467 | 1,353,195 | 533,123 | 1,220,236 | 4,261,043 | 20 |
| Grade F (3.3+) | 3,650,451 | 805,614 | 2,072,796 | 22,256 | 2,943,875 | 12,296,306 | 7,698,577 | 14,323,380 | 6,472,755 | 29,407,484 | 53,316,714 | 86 |
| National Population in Counties with PM _{2.5} Monitors | 16,365,270 | 3,835,792 | 11,435,112 | 124,583 | 15,088,287 | 51,343,463 | 34,641,698 | 69,123,521 | 29,256,648 | 104,469,732 | 228,178,923 | 645 |

People at Risk from Year-Round Particle Pollution (Annual PM_{2.5})

| In Counties where the Grades were: | Chronic Diseases | | | | | Age Groups | | Ever Smoked | Poverty | People of Color | Total Population | Number of Counties |
|---|------------------|------------------|------------|-------------|------------|------------|-------------|-------------|------------|-----------------|------------------|--------------------|
| | Adult Asthma | Pediatric Asthma | COPD | Lung Cancer | CV Disease | Under 18 | 65 and Over | | | | | |
| Pass | 13,797,857 | 3,247,886 | 9,842,855 | 106,862 | 12,901,183 | 42,746,567 | 29,184,251 | 58,662,062 | 24,290,620 | 84,732,794 | 191,137,371 | 519 |
| Fail | 1,399,442 | 323,798 | 767,735 | 8,595 | 1,098,607 | 5,048,346 | 2,913,516 | 5,499,833 | 3,112,327 | 14,329,923 | 21,224,804 | 19 |
| National Population in Counties with PM _{2.5} Monitors | 16,365,270 | 3,835,792 | 11,435,112 | 124,583 | 15,088,287 | 51,343,463 | 34,641,698 | 69,123,521 | 29,256,648 | 104,469,732 | 228,178,923 | 645 |

People at Risk from Ozone

| In Counties where the Grades were: | Chronic Diseases | | | | Age Groups | | Poverty | People of Color | Total Population | Number of Counties |
|---|------------------|------------------|------------|------------|------------|-------------|------------|-----------------|------------------|--------------------|
| | Adult Asthma | Pediatric Asthma | COPD | CV Disease | Under 18 | 65 and Over | | | | |
| Grade A (0.0) | 1,485,752 | 361,796 | 1,149,162 | 1,520,167 | 4,612,771 | 3,484,440 | 2,872,939 | 7,809,825 | 20,784,760 | 170 |
| Grade B (0.3-0.9) | 1,949,843 | 446,903 | 1,580,840 | 2,067,129 | 5,690,920 | 4,802,293 | 3,020,587 | 8,174,133 | 26,703,636 | 156 |
| Grade C (1.0-2.0) | 2,646,783 | 609,876 | 2,023,691 | 2,615,173 | 7,893,302 | 5,762,978 | 4,256,792 | 12,510,496 | 35,749,159 | 162 |
| Grade D (2.1-3.2) | 1,548,364 | 344,073 | 1,093,194 | 1,439,274 | 4,628,217 | 3,330,503 | 2,336,936 | 9,669,752 | 21,124,073 | 71 |
| Grade F (3.3+) | 9,684,568 | 2,320,597 | 6,462,926 | 8,607,973 | 31,417,262 | 19,906,283 | 17,458,838 | 68,018,031 | 137,058,693 | 205 |
| National Population in Counties with Ozone Monitors | 17,448,325 | 4,115,709 | 12,413,590 | 16,386,810 | 54,651,603 | 37,598,655 | 30,170,408 | 106,556,189 | 243,244,612 | 803 |

Note: "State of the Air" 2020 covers the period 2016-2018. The Appendix provides a full discussion of the methodology.

People at Risk In 25 U.S. Cities Most Polluted by Short-Term Particle Pollution (24-hour PM_{2.5})

| 2020 Rank ¹ | Metropolitan Statistical Areas | Total Population ² | Under 18 ³ | 65 and Over ³ | Pediatric Asthma ^{4,6} | Adult Asthma ^{5,6} | COPD ⁷ | Lung Cancer ⁸ | CV Disease ⁹ | Ever Smoked ¹⁰ | People of Color ¹¹ | Poverty ¹² |
|------------------------|---|-------------------------------|-----------------------|--------------------------|---------------------------------|-----------------------------|-------------------|--------------------------|-------------------------|---------------------------|-------------------------------|-----------------------|
| 1 | Fresno-Madera-Hanford, CA | 1,303,438 | 366,122 | 159,680 | 22,603 | 79,423 | 41,465 | 505 | 59,329 | 307,787 | 913,514 | 264,309 |
| 2 | Bakersfield, CA | 896,764 | 259,180 | 98,347 | 16,001 | 53,894 | 27,503 | 348 | 39,003 | 208,055 | 596,328 | 177,021 |
| 3 | San Jose-San Francisco-Oakland, CA | 9,666,055 | 2,083,848 | 1,441,150 | 128,651 | 647,292 | 353,447 | 3,744 | 513,313 | 2,532,824 | 5,940,594 | 910,851 |
| 4 | Fairbanks, AK | 98,971 | 23,861 | 10,204 | 1,708 | 6,791 | 4,061 | 55 | 4,617 | 31,974 | 30,429 | 8,104 |
| 5 | Yakima, WA | 251,446 | 74,480 | 34,524 | 5,444 | 16,911 | 8,764 | 135 | 13,490 | 66,527 | 144,155 | 40,961 |
| 6 | Los Angeles-Long Beach, CA | 18,764,814 | 4,270,638 | 2,583,214 | 263,657 | 1,234,623 | 662,425 | 7,264 | 956,017 | 4,815,313 | 13,006,958 | 2,440,945 |
| 7 | Missoula, MT | 118,791 | 22,315 | 18,506 | 1,189 | 9,790 | 5,034 | 62 | 7,707 | 41,975 | 12,853 | 14,719 |
| 7 | Redding-Red Bluff, CA | 243,956 | 53,947 | 49,942 | 3,331 | 16,467 | 9,990 | 94 | 15,013 | 65,808 | 57,523 | 37,668 |
| 7 | Salt Lake City-Provo-Orem, UT | 2,606,548 | 775,252 | 263,814 | 42,545 | 170,894 | 75,292 | 664 | 104,041 | 457,968 | 603,254 | 217,929 |
| 10 | Phoenix-Mesa, AZ | 4,911,851 | 1,164,393 | 775,920 | 93,868 | 379,311 | 261,519 | 2,194 | 337,858 | 1,505,840 | 2,203,881 | 600,386 |
| 11 | Sacramento-Roseville, CA | 2,619,754 | 599,091 | 414,668 | 36,986 | 173,009 | 96,594 | 1,013 | 141,372 | 679,845 | 1,234,160 | 338,884 |
| 12 | Visalia, CA | 465,861 | 142,848 | 53,292 | 8,819 | 27,348 | 14,170 | 181 | 20,216 | 105,845 | 335,036 | 102,451 |
| 13 | Logan, UT-ID | 140,794 | 42,891 | 13,952 | 2,427 | 8,983 | 3,916 | 39 | 5,308 | 25,208 | 22,401 | 17,024 |
| 14 | Spokane-Spokane Valley-Coeur d'Alene, WA-ID | 721,396 | 160,636 | 124,491 | 11,686 | 52,584 | 30,239 | 379 | 46,302 | 215,142 | 102,458 | 87,827 |
| 14 | Seattle-Tacoma, WA | 4,853,364 | 1,036,349 | 704,616 | 75,755 | 365,436 | 187,900 | 2,611 | 286,299 | 1,434,277 | 1,687,561 | 424,549 |
| 16 | Pittsburgh-New Castle-Weirton, PA-OH-WV | 2,612,492 | 493,652 | 526,956 | 47,773 | 214,077 | 160,936 | 1,678 | 219,828 | 920,378 | 363,815 | 291,201 |
| 17 | Chico, CA | 231,256 | 46,213 | 42,992 | 2,853 | 15,844 | 9,018 | 90 | 13,309 | 62,372 | 65,598 | 42,016 |
| 18 | Medford-Grants Pass, OR | 306,957 | 62,363 | 70,945 | 4,521 | 28,323 | 18,493 | 155 | 26,297 | 108,610 | 54,567 | 46,792 |
| 19 | Salinas, CA | 435,594 | 113,834 | 59,201 | 7,028 | 27,378 | 14,688 | 169 | 21,215 | 106,690 | 306,813 | 55,614 |
| 20 | El Centro, CA | 181,827 | 51,765 | 23,580 | 3,196 | 11,043 | 5,862 | 71 | 8,440 | 42,925 | 162,999 | 37,014 |
| 21 | Santa Maria-Santa Barbara, CA | 446,527 | 98,787 | 68,465 | 6,099 | 29,547 | 15,916 | 173 | 23,056 | 115,063 | 249,761 | 54,029 |
| 22 | Eugene-Springfield, OR | 379,611 | 69,868 | 73,392 | 5,065 | 36,150 | 21,366 | 192 | 29,676 | 133,980 | 70,215 | 67,217 |
| 23 | Reno-Carson City-Fernley, NV | 629,453 | 132,368 | 114,311 | 9,214 | 39,394 | 37,442 | 319 | 47,976 | 208,837 | 216,972 | 63,145 |
| 24 | Portland-Vancouver-Salem, OR-WA | 3,239,335 | 704,918 | 498,715 | 51,192 | 288,636 | 159,742 | 1,659 | 222,293 | 1,060,542 | 870,251 | 340,971 |
| 25 | Las Vegas-Henderson, NV | 2,276,993 | 525,247 | 342,326 | 36,562 | 139,723 | 124,078 | 1,152 | 156,491 | 722,232 | 1,300,943 | 314,702 |

Notes:

1. Cities are ranked using the highest weighted average for any county within that Combined Metropolitan Statistical Area or Metropolitan Statistical Area.
2. Total Population represents the at-risk populations for all counties within the respective Combined Metropolitan Statistical Area or Metropolitan Statistical Area.
3. Those **under 18** and **65 and over** are vulnerable to PM_{2.5} and are, therefore, included. They should not be used as population denominators for disease estimates.
4. **Pediatric asthma** estimates are for those under 18 years of age and represent the **estimated** number of people who had asthma in 2018 based on state rates (BRFSS) applied to population estimates (U.S. Census).
5. **Adult asthma** estimates are for those 18 years and older and represent the **estimated** number of people who had asthma in 2018 based on state rates (BRFSS) applied to population estimates (U.S. Census).
6. Adding across rows does not produce valid estimates. Adding the disease categories (asthma, COPD, etc.) will double-count people who have been diagnosed with more than one disease.
7. **COPD** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
8. **Lung cancer** estimates are the number of new cases diagnosed in 2016.
9. **CV disease** is cardiovascular disease and estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
10. **Ever smoked** estimates are for adults 18 and over who have ever smoked 100 or more cigarettes in their life, based on state rates (BRFSS) applied to population estimates (U.S. Census).
11. **People of color** are anyone of Hispanic ethnicity or a race other than white.
12. **Poverty** estimates come from the U.S. Census Bureau and are for all ages.

People at Risk In 25 U.S. Cities Most Polluted by Year-Round Particle Pollution (Annual PM_{2.5})

| 2020 Rank ¹ | Metropolitan Statistical Areas | Total Population ² | Under 18 ³ | 65 and Over ³ | Pediatric Asthma ^{4,6} | Adult Asthma ^{5,6} | COPD ⁷ | Lung Cancer ⁸ | CV Disease ⁹ | Ever Smoked ¹⁰ | People of Color ¹¹ | Poverty ¹² |
|------------------------|---|-------------------------------|-----------------------|--------------------------|---------------------------------|-----------------------------|-------------------|--------------------------|-------------------------|---------------------------|-------------------------------|-----------------------|
| 1 | Bakersfield, CA | 896,764 | 259,180 | 98,347 | 16,001 | 53,894 | 27,503 | 348 | 39,003 | 208,055 | 596,328 | 177,021 |
| 2 | Fresno-Madera-Hanford, CA | 1,303,438 | 366,122 | 159,680 | 22,603 | 79,423 | 41,465 | 505 | 59,329 | 307,787 | 913,514 | 264,309 |
| 3 | Visalia, CA | 465,861 | 142,848 | 53,292 | 8,819 | 27,348 | 14,170 | 181 | 20,216 | 105,845 | 335,036 | 102,451 |
| 4 | Los Angeles-Long Beach, CA | 18,764,814 | 4,270,638 | 2,583,214 | 263,657 | 1,234,623 | 662,425 | 7,264 | 956,017 | 4,815,313 | 13,006,958 | 2,440,945 |
| 5 | San Jose-San Francisco-Oakland, CA | 9,666,055 | 2,083,848 | 1,441,150 | 128,651 | 647,292 | 353,447 | 3,744 | 513,313 | 2,532,824 | 5,940,594 | 910,851 |
| 6 | Fairbanks, AK | 98,971 | 23,861 | 10,204 | 1,708 | 6,791 | 4,061 | 55 | 4,617 | 31,974 | 30,429 | 8,104 |
| 7 | Phoenix-Mesa, AZ | 4,911,851 | 1,164,393 | 775,920 | 93,868 | 379,311 | 261,519 | 2,194 | 337,858 | 1,505,840 | 2,203,881 | 600,386 |
| 8 | El Centro, CA | 181,827 | 51,765 | 23,580 | 3,196 | 11,043 | 5,862 | 71 | 8,440 | 42,925 | 162,999 | 37,014 |
| 8 | Pittsburgh-New Castle-Weirton, PA-OH-WV | 2,612,492 | 493,652 | 526,956 | 47,773 | 214,077 | 160,936 | 1,678 | 219,828 | 920,378 | 363,815 | 291,201 |
| 10 | Detroit-Warren-Ann Arbor, MI | 5,353,002 | 1,167,571 | 878,042 | 100,227 | 467,545 | 361,975 | 3,258 | 405,383 | 1,903,919 | 1,711,850 | 766,528 |
| 11 | Cleveland-Akron-Canton, OH | 3,599,264 | 762,709 | 665,627 | 59,285 | 266,809 | 248,192 | 2,369 | 303,425 | 1,308,507 | 862,428 | 482,828 |
| 12 | McAllen-Edinburg, TX | 930,464 | 303,179 | 103,338 | 23,991 | 46,626 | 37,355 | 460 | 54,456 | 221,989 | 875,994 | 278,136 |
| 12 | Philadelphia-Reading-Camden, PA-NJ-DE-MD | 7,204,035 | 1,563,815 | 1,172,273 | 137,782 | 546,942 | 367,327 | 4,448 | 505,159 | 2,313,363 | 2,755,807 | 863,095 |
| 14 | Birmingham-Hoover-Talladega, AL | 1,315,071 | 299,130 | 216,148 | 39,477 | 107,332 | 104,605 | 863 | 131,219 | 445,278 | 458,703 | 188,402 |
| 14 | Cincinnati-Wilmington-Maysville, OH-KY-IN | 2,272,152 | 531,476 | 347,135 | 39,399 | 171,496 | 158,664 | 1,608 | 181,756 | 812,130 | 462,928 | 262,757 |
| 16 | Indianapolis-Carmel-Muncie, IN | 2,431,361 | 587,696 | 347,061 | 51,145 | 182,624 | 164,004 | 1,743 | 195,671 | 830,603 | 618,582 | 297,292 |
| 16 | Missoula, MT | 118,791 | 22,315 | 18,506 | 1,189 | 9,790 | 5,034 | 62 | 7,707 | 41,975 | 12,853 | 14,719 |
| 16 | Sacramento-Roseville, CA | 2,619,754 | 599,091 | 414,668 | 36,986 | 173,009 | 96,594 | 1,013 | 141,372 | 679,845 | 1,234,160 | 338,884 |
| 16 | Shreveport-Bossier City-Minden, LA | 436,341 | 104,477 | 72,410 | 9,142 | 29,706 | 33,398 | 282 | 39,553 | 144,433 | 203,797 | 85,607 |
| 20 | Chicago-Naperville, IL-IN-WI | 9,866,910 | 2,241,630 | 1,451,741 | 140,534 | 673,886 | 510,490 | 6,298 | 633,418 | 2,960,335 | 4,578,321 | 1,110,613 |
| 20 | Medford-Grants Pass, OR | 306,957 | 62,363 | 70,945 | 4,521 | 28,323 | 18,493 | 155 | 26,297 | 108,610 | 54,567 | 46,792 |
| 22 | Houston-The Woodlands, TX | 7,183,143 | 1,897,159 | 809,495 | 150,125 | 395,360 | 317,983 | 3,559 | 462,780 | 1,889,107 | 4,591,549 | 1,018,964 |
| 23 | Atlanta-Athens-Clarke County-Sandy Springs, GA-AL | 6,775,511 | 1,642,659 | 855,689 | 124,911 | 461,612 | 374,851 | 4,240 | 461,776 | 1,931,461 | 3,450,999 | 803,621 |
| 23 | Chico, CA | 231,256 | 46,213 | 42,992 | 2,853 | 15,844 | 9,018 | 90 | 13,309 | 62,372 | 65,598 | 42,016 |
| 25 | Brownsville-Harlingen-Raymondville, TX | 445,423 | 133,641 | 60,430 | 10,575 | 23,290 | 19,934 | 220 | 29,290 | 112,466 | 406,442 | 123,562 |
| 25 | St. Louis-St. Charles-Farmington, MO-IL | 2,909,777 | 643,945 | 483,131 | 50,287 | 208,874 | 193,154 | 1,965 | 220,425 | 969,825 | 748,141 | 337,275 |

- Notes:**
1. Cities are ranked using the highest weighted average for any county within that Combined Metropolitan Statistical Area or Metropolitan Statistical Area.
 2. Total Population represents the at-risk populations for all counties within the respective Combined Metropolitan Statistical Area or Metropolitan Statistical Area.
 3. Those under 18 and 65 and over are vulnerable to PM_{2.5} and are, therefore, included. They should not be used as population denominators for disease estimates.
 4. **Pediatric asthma** estimates are for those under 18 years of age and represent the **estimated** number of people who had asthma in 2018 based on state rates (BRFSS) applied to population estimates (U.S. Census).
 5. **Adult asthma** estimates are for those 18 years and older and represent the **estimated** number of people who had asthma in 2018 based on state rates (BRFSS) applied to population estimates (U.S. Census).
 6. Adding across rows does not produce valid estimates. Adding the disease categories (asthma, COPD, etc.) will double-count people who have been diagnosed with more than one disease.
 7. **COPD** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
 8. **Lung cancer** estimates are the number of new cases diagnosed in 2016.
 9. **CV disease** is cardiovascular disease and estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
 10. **Ever smoked** estimates are for adults 18 and over who have ever smoked 100 or more cigarettes in their life, based on state rates (BRFSS) applied to population estimates (U.S. Census).
 11. **People of color** are anyone of Hispanic ethnicity or a race other than white.
 12. **Poverty** estimates come from the U.S. Census Bureau and are for all ages.

People at Risk In 25 Most Ozone-Polluted Cities

| 2020 Rank ¹ | Metropolitan Statistical Areas | Total Population ² | Under 18 ³ | 65 and Over ³ | Pediatric Asthma ^{4,6} | Adult Asthma ^{5,6} | COPD ⁷ | CV Disease ⁸ | People of Color ⁹ | Poverty ¹⁰ |
|------------------------|--|-------------------------------|-----------------------|--------------------------|---------------------------------|-----------------------------|-------------------|-------------------------|------------------------------|-----------------------|
| 1 | Los Angeles-Long Beach, CA | 18,764,814 | 4,270,638 | 2,583,214 | 263,657 | 1,234,623 | 662,425 | 956,017 | 13,006,958 | 4,815,313 |
| 2 | Visalia, CA | 465,861 | 142,848 | 53,292 | 8,819 | 27,348 | 14,170 | 20,216 | 335,036 | 105,845 |
| 3 | Bakersfield, CA | 896,764 | 259,180 | 98,347 | 16,001 | 53,894 | 27,503 | 39,003 | 596,328 | 208,055 |
| 4 | Fresno-Madera-Hanford, CA | 1,303,438 | 366,122 | 159,680 | 22,603 | 79,423 | 41,465 | 59,329 | 913,514 | 307,787 |
| 5 | Sacramento-Roseville, CA | 2,619,754 | 599,091 | 414,668 | 36,986 | 173,009 | 96,594 | 141,372 | 1,234,160 | 679,845 |
| 6 | San Diego-Chula Vista-Carlsbad, CA | 3,343,364 | 722,408 | 469,454 | 44,599 | 222,727 | 118,450 | 170,564 | 1,832,022 | 866,445 |
| 7 | Phoenix-Mesa, AZ | 4,911,851 | 1,164,393 | 775,920 | 93,868 | 379,311 | 261,519 | 337,858 | 2,203,881 | 1,505,840 |
| 8 | San Jose-San Francisco-Oakland, CA | 9,666,055 | 2,083,848 | 1,441,150 | 128,651 | 647,292 | 353,447 | 513,313 | 5,940,594 | 2,532,824 |
| 9 | Las Vegas-Henderson, NV | 2,276,993 | 525,247 | 342,326 | 36,562 | 139,723 | 124,078 | 156,491 | 1,300,943 | 722,232 |
| 10 | Denver-Aurora, CO | 3,572,798 | 803,973 | 464,674 | 57,540 | 250,127 | 117,348 | 156,017 | 1,239,843 | 1,115,483 |
| 11 | Salt Lake City-Provo-Orem, UT | 2,606,548 | 775,252 | 263,814 | 42,545 | 170,894 | 75,292 | 104,041 | 603,254 | 457,968 |
| 12 | New York-Newark, NY-NJ-CT-PA | 22,679,948 | 4,852,039 | 3,601,621 | 332,013 | 1,727,257 | 999,220 | 1,399,513 | 11,714,237 | 6,555,824 |
| 13 | Redding-Red Bluff, CA | 243,956 | 53,947 | 49,942 | 3,331 | 16,467 | 9,990 | 15,013 | 57,523 | 65,808 |
| 14 | Houston-The Woodlands, TX | 7,183,143 | 1,897,159 | 809,495 | 150,125 | 395,360 | 317,983 | 462,780 | 4,591,549 | 1,889,107 |
| 15 | El Centro, CA | 181,827 | 51,765 | 23,580 | 3,196 | 11,043 | 5,862 | 8,440 | 162,999 | 42,925 |
| 16 | Chicago-Naperville, IL-IN-WI | 9,866,910 | 2,241,630 | 1,451,741 | 140,534 | 673,886 | 510,490 | 633,418 | 4,578,321 | 2,960,335 |
| 17 | El Paso-Las Cruces, TX-NM | 1,063,075 | 282,247 | 138,167 | 22,128 | 61,919 | 47,098 | 67,360 | 905,812 | 285,690 |
| 18 | Chico, CA | 231,256 | 46,213 | 42,992 | 2,853 | 15,844 | 9,018 | 13,309 | 65,598 | 62,372 |
| 19 | Fort Collins, CO | 350,518 | 68,703 | 54,938 | 4,917 | 25,460 | 12,323 | 16,693 | 61,373 | 114,131 |
| 20 | Washington-Baltimore-Arlington, DC-MD-VA-WV-PA | 9,796,147 | 2,213,754 | 1,378,591 | 170,198 | 715,068 | 458,462 | 617,799 | 4,798,740 | 2,794,310 |
| 21 | Dallas-Fort Worth, TX-OK | 7,948,477 | 2,051,630 | 931,511 | 162,557 | 442,787 | 361,074 | 526,069 | 4,201,204 | 2,120,744 |
| 22 | Sheboygan, WI | 115,456 | 25,431 | 20,789 | 2,146 | 8,211 | 4,980 | 7,138 | 18,681 | 38,889 |
| 23 | Philadelphia-Reading-Camden, PA-NJ-DE-MD | 7,204,035 | 1,563,815 | 1,172,273 | 137,782 | 546,942 | 367,327 | 505,159 | 2,755,807 | 2,313,363 |
| 24 | Milwaukee-Racine-Waukesha, WI | 2,049,391 | 464,985 | 326,928 | 39,235 | 145,433 | 83,225 | 116,927 | 619,356 | 676,594 |
| 25 | Hartford-East Hartford, CT | 1,473,084 | 293,974 | 258,397 | 28,550 | 121,927 | 63,740 | 89,946 | 467,678 | 468,975 |

Notes:

1. Cities are ranked using the highest weighted average for any county within that Combined Metropolitan Statistical Area or Metropolitan Statistical Area.
2. **Total Population** represents the at-risk populations for all counties within the respective Combined Metropolitan Statistical Area or Metropolitan Statistical Area.
3. Those **under 18** and **65 and over** are vulnerable to PM_{2.5} and are, therefore, included. They should not be used as population denominators for disease estimates.
4. **Pediatric asthma** estimates are for those under 18 years of age and represent the **estimated** number of people who had asthma in 2018 based on state rates (BRFSS) applied to population estimates (U.S. Census).
5. **Adult asthma** estimates are for those 18 years and older and represent the **estimated** number of people who had asthma in 2018 based on state rates (BRFSS) applied to population estimates (U.S. Census).
6. Adding across rows does not produce valid estimates. Adding the disease categories (asthma, COPD, etc.) will double-count people who have been diagnosed with more than one disease.
7. **COPD** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
8. **CV disease** is cardiovascular disease and estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
9. **People of color** are anyone of Hispanic ethnicity or a race other than white.
10. **Poverty** estimates come from the U.S. Census Bureau and are for all ages.

People at Risk in 25 Counties Most Polluted by Short-Term Particle Pollution (24-hour PM_{2.5})

| 2020 Rank ¹ | County | ST | Total Population ² | At-Risk Groups | | | | | | | | | High PM _{2.5} Days in Unhealthy Ranges, 2016–2018 | | |
|------------------------|------------------------------|----|-------------------------------|-----------------------|--------------------------|---------------------------------|-----------------------------|-------------------|--------------------------|-------------------------|---------------------------|-------------------------------|--|-----------------------------|---------------------|
| | | | | Under 18 ³ | 65 and Over ³ | Pediatric Asthma ^{4,6} | Adult Asthma ^{5,6} | COPD ⁷ | Lung Cancer ⁸ | CV Disease ⁹ | Ever Smoked ¹⁰ | People of Color ¹¹ | Poverty ¹² | Weighted Avg. ¹³ | Grade ¹⁴ |
| 1 | Fresno | CA | 994,400 | 281,819 | 122,113 | 17,399 | 60,395 | 31,587 | 385 | 45,226 | 234,129 | 705,643 | 208,627 | 37.8 | F |
| 2 | Kings | CA | 151,366 | 40,964 | 15,516 | 2,529 | 9,283 | 4,580 | 59 | 6,416 | 35,590 | 103,277 | 25,481 | 36.2 | F |
| 3 | Kern | CA | 896,764 | 259,180 | 98,347 | 16,001 | 53,894 | 27,503 | 348 | 39,003 | 208,055 | 596,328 | 177,021 | 35.8 | F |
| 4 | Stanislaus | CA | 549,815 | 148,801 | 72,319 | 9,187 | 34,134 | 18,290 | 213 | 26,395 | 133,042 | 323,635 | 84,744 | 26.7 | F |
| 5 | Fairbanks North Star Borough | AK | 98,971 | 23,861 | 10,204 | 1,708 | 6,791 | 4,061 | 55 | 4,617 | 31,974 | 30,429 | 8,104 | 26.5 | F |
| 6 | San Joaquin | CA | 752,660 | 204,316 | 95,916 | 12,614 | 46,649 | 24,840 | 292 | 35,760 | 181,645 | 519,021 | 105,351 | 21.5 | F |
| 7 | Ravalli | MT | 43,172 | 8,246 | 11,138 | 439 | 3,398 | 2,415 | 23 | 3,745 | 15,880 | 3,154 | 6,628 | 19.8 | F |
| 8 | Merced | CA | 274,765 | 80,588 | 30,845 | 4,975 | 16,418 | 8,420 | 107 | 11,965 | 63,423 | 200,196 | 56,863 | 19.7 | F |
| 9 | Yakima | WA | 251,446 | 74,480 | 34,524 | 5,444 | 16,911 | 8,764 | 135 | 13,490 | 66,527 | 144,155 | 40,961 | 17.8 | F |
| 9 | Lewis and Clark | MT | 68,700 | 14,770 | 12,903 | 787 | 5,395 | 3,278 | 36 | 4,971 | 24,014 | 6,059 | 7,061 | 17.8 | F |
| 11 | Madera | CA | 157,672 | 43,339 | 22,051 | 2,676 | 9,745 | 5,298 | 61 | 7,688 | 38,068 | 104,594 | 30,201 | 17.2 | F |
| 11 | Siskiyou | CA | 43,724 | 8,802 | 11,160 | 543 | 3,062 | 1,998 | 17 | 3,066 | 12,428 | 10,636 | 7,396 | 17.2 | F |
| 13 | Plumas | CA | 18,804 | 3,173 | 5,345 | 196 | 1,378 | 927 | 7 | 1,435 | 5,635 | 3,123 | 2,317 | 16.2 | F |
| 14 | Okanogan | WA | 42,132 | 9,769 | 9,094 | 714 | 3,150 | 1,916 | 23 | 3,087 | 12,841 | 14,878 | 7,049 | 14.8 | F |
| 15 | Lincoln | MT | 19,794 | 3,609 | 5,670 | 192 | 1,557 | 1,182 | 10 | 1,840 | 7,431 | 1,491 | 3,964 | 14.3 | F |
| 16 | Los Angeles | CA | 10,105,518 | 2,188,893 | 1,375,957 | 135,136 | 673,459 | 358,245 | 3,911 | 515,500 | 2,622,021 | 7,466,160 | 1,409,155 | 13.8 | F |
| 17 | Shoshone | ID | 12,796 | 2,630 | 2,923 | 188 | 866 | 662 | 6 | 988 | 4,079 | 1,140 | 2,371 | 13.3 | F |
| 18 | Missoula | MT | 118,791 | 22,315 | 18,506 | 1,189 | 9,790 | 5,034 | 62 | 7,707 | 41,975 | 12,853 | 14,719 | 12.3 | F |
| 18 | Utah | UT | 622,213 | 207,710 | 48,050 | 11,399 | 38,230 | 15,362 | 159 | 20,064 | 100,766 | 111,686 | 57,136 | 12.3 | F |
| 18 | Tehama | CA | 63,916 | 15,363 | 12,389 | 948 | 4,205 | 2,533 | 25 | 3,797 | 16,786 | 20,718 | 10,749 | 12.3 | F |
| 21 | Colusa | CA | 21,627 | 5,907 | 3,163 | 365 | 1,344 | 745 | 8 | 1,087 | 5,273 | 14,202 | 2,350 | 12.0 | F |
| 22 | Pinal | AZ | 447,138 | 100,778 | 91,129 | 8,124 | 34,832 | 26,058 | 201 | 34,552 | 142,549 | 194,203 | 54,399 | 11.5 | F |
| 22 | Salt Lake | UT | 1,152,633 | 312,889 | 125,157 | 17,171 | 78,549 | 35,187 | 294 | 49,059 | 211,172 | 338,240 | 102,660 | 11.5 | F |
| 24 | Sacramento | CA | 1,540,975 | 363,909 | 217,601 | 22,467 | 100,345 | 54,282 | 596 | 78,584 | 391,898 | 859,537 | 217,138 | 11.3 | F |
| 24 | Mendocino | CA | 87,606 | 18,713 | 19,366 | 1,155 | 5,988 | 3,712 | 34 | 5,617 | 24,035 | 30,951 | 15,140 | 11.3 | F |

- Notes:**
- Counties are ranked by weighted average. See note 13 below.
 - Total Population** represents the at-risk populations in counties with PM_{2.5} monitors.
 - Those **under 18** and **65 and over** are vulnerable to PM_{2.5} and are, therefore, included. They should not be used as population denominators for disease estimates.
 - Pediatric asthma** estimates are for those under 18 years of age and represent the **estimated** number of people who had asthma in 2018 based on state rates (BRFSS) applied to population estimates (U.S. Census).
 - Adult asthma** estimates are for those 18 years and older and represent the **estimated** number of people who had asthma in 2018 based on state rates (BRFSS) applied to population estimates (U.S. Census).
 - Adding across rows does not produce valid estimates. Adding the disease categories (asthma, COPD, etc.) will double-count people who have been diagnosed with more than one disease.
 - COPD** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
 - Lung cancer** estimates are the number of new cases diagnosed in 2016.
 - CV disease** is cardiovascular disease and estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
 - Ever smoked** estimates are for adults 18 and over who have ever smoked 100 or more cigarettes in their life, based on state rates (BRFSS) applied to population estimates (U.S. Census).
 - People of color** are anyone of Hispanic ethnicity or a race other than white.
 - Poverty** estimates come from the U.S. Census Bureau and are for all ages.
 - The **Weighted Average** was derived by counting the number of days in each unhealthy range (orange, red, purple, maroon) in each year (2016–2018), multiplying the total in each range by the assigned standard weights (i.e., 1 for orange, 1.5 for red, 2.0 for purple, 2.5 for maroon), and calculating the average.
 - Grade** is assigned by weighted average as follows: A=0.0, B=0.3–0.9, C=1.0–2.0, D=2.1–3.2, F=3.3+.

People at Risk in 25 Counties Most Polluted by Year-Round Particle Pollution (Annual PM_{2.5})

| 2020 Rank ¹ | County | ST | Total Population ² | At-Risk Groups | | | | | | | | | | PM _{2.5} Annual, 2016–2018 | |
|------------------------|------------------------------|----|-------------------------------|-----------------------|--------------------------|---------------------------------|-----------------------------|-------------------|--------------------------|-------------------------|---------------------------|-------------------------------|-----------------------|-------------------------------------|-------------------------|
| | | | | Under 18 ³ | 65 and Over ³ | Pediatric Asthma ^{4,6} | Adult Asthma ^{5,6} | COPD ⁷ | Lung Cancer ⁸ | CV Disease ⁹ | Ever Smoked ¹⁰ | People of Color ¹¹ | Poverty ¹² | Design Value ¹³ | Pass/Fail ¹⁴ |
| 1 | Kern | CA | 896,764 | 259,180 | 98,347 | 16,001 | 53,894 | 27,503 | 348 | 39,003 | 208,055 | 596,328 | 177,021 | 17.8 | Fail |
| 2 | Kings | CA | 151,366 | 40,964 | 15,516 | 2,529 | 9,283 | 4,580 | 59 | 6,416 | 35,590 | 103,277 | 25,481 | 16.8 | Fail |
| 3 | Tulare | CA | 465,861 | 142,848 | 53,292 | 8,819 | 27,348 | 14,170 | 181 | 20,216 | 105,845 | 335,036 | 102,451 | 16.1 | Fail |
| 4 | Fresno | CA | 994,400 | 281,819 | 122,113 | 17,399 | 60,395 | 31,587 | 385 | 45,226 | 234,129 | 705,643 | 208,627 | 15.0 | Fail |
| 5 | Plumas | CA | 18,804 | 3,173 | 5,345 | 196 | 1,378 | 927 | 7 | 1,435 | 5,635 | 3,123 | 2,317 | 14.7 | Fail |
| 5 | San Bernardino | CA | 2,171,603 | 572,278 | 251,361 | 35,331 | 135,544 | 70,099 | 841 | 99,838 | 524,916 | 1,564,843 | 317,514 | 14.7 | Fail |
| 7 | Stanislaus | CA | 549,815 | 148,801 | 72,319 | 9,187 | 34,134 | 18,290 | 213 | 26,395 | 133,042 | 323,635 | 84,744 | 14.2 | Fail |
| 8 | Riverside | CA | 2,450,758 | 616,126 | 353,122 | 38,038 | 156,550 | 85,478 | 949 | 124,180 | 612,354 | 1,600,121 | 307,511 | 13.9 | Fail |
| 9 | San Joaquin | CA | 752,660 | 204,316 | 95,916 | 12,614 | 46,649 | 24,840 | 292 | 35,760 | 181,645 | 519,021 | 105,351 | 13.8 | Fail |
| 10 | Merced | CA | 274,765 | 80,588 | 30,845 | 4,975 | 16,418 | 8,420 | 107 | 11,965 | 63,423 | 200,196 | 56,863 | 13.4 | Fail |
| 11 | Fairbanks North Star Borough | AK | 98,971 | 23,861 | 10,204 | 1,708 | 6,791 | 4,061 | 55 | 4,617 | 31,974 | 30,429 | 8,104 | 13.1 | Fail |
| 12 | Pinal | AZ | 447,138 | 100,778 | 91,129 | 8,124 | 34,832 | 26,058 | 201 | 34,552 | 142,549 | 194,203 | 54,399 | 13.0 | Fail |
| 13 | Lincoln | MT | 19,794 | 3,609 | 5,670 | 192 | 1,557 | 1,182 | 10 | 1,840 | 7,431 | 1,491 | 3,964 | 12.9 | Fail |
| 14 | Madera | CA | 157,672 | 43,339 | 22,051 | 2,676 | 9,745 | 5,298 | 61 | 7,688 | 38,068 | 104,594 | 30,201 | 12.8 | Fail |
| 15 | Los Angeles | CA | 10,105,518 | 2,188,893 | 1,375,957 | 135,136 | 673,459 | 358,245 | 3,911 | 515,500 | 2,622,021 | 7,466,160 | 1,409,155 | 12.7 | Fail |
| 16 | Allegheny | PA | 1,218,452 | 227,749 | 230,377 | 22,168 | 99,742 | 70,310 | 778 | 96,971 | 424,109 | 263,512 | 138,397 | 12.6 | Fail |
| 16 | Imperial | CA | 181,827 | 51,765 | 23,580 | 3,196 | 11,043 | 5,862 | 71 | 8,440 | 42,925 | 162,999 | 37,014 | 12.6 | Fail |
| 18 | Klamath | OR | 67,653 | 14,706 | 14,340 | 1,066 | 6,153 | 3,903 | 34 | 5,512 | 23,338 | 15,294 | 12,310 | 12.4 | Fail |
| 19 | Hawaii | HI | 200,983 | 43,553 | 42,032 | 4,444 | 14,524 | 6,922 | 92 | 13,054 | 62,784 | 140,018 | 30,903 | 12.3 | Fail |
| 20 | Alameda | CA | 1,666,753 | 342,510 | 230,510 | 21,146 | 112,623 | 59,859 | 645 | 86,118 | 438,363 | 1,148,783 | 147,394 | 12.0 | Pass |
| 21 | Lemhi | ID | 7,961 | 1,488 | 2,409 | 106 | 544 | 458 | 4 | 726 | 2,679 | 533 | 1,154 | 11.4 | Pass |
| 22 | Wayne | MI | 1,753,893 | 414,221 | 270,554 | 35,558 | 150,021 | 113,859 | 1,066 | 126,753 | 607,144 | 886,177 | 376,649 | 11.3 | Pass |
| 23 | Shoshone | ID | 12,796 | 2,630 | 2,923 | 188 | 866 | 662 | 6 | 988 | 4,079 | 1,140 | 2,371 | 11.2 | Pass |
| 24 | Ventura | CA | 850,967 | 194,553 | 132,387 | 12,011 | 56,290 | 31,535 | 329 | 46,171 | 221,522 | 468,345 | 76,206 | 11.0 | Pass |
| 24 | Cuyahoga | OH | 1,243,857 | 257,882 | 225,983 | 20,045 | 92,829 | 84,905 | 817 | 103,312 | 453,134 | 512,719 | 217,166 | 11.0 | Pass |

- Notes:**
- Counties are ranked by Design Value. See note 13 below.
 - Total Population** represents the at-risk populations in counties with PM_{2.5} monitors.
 - Those **under 18** and **65 and over** are vulnerable to PM_{2.5} and are, therefore, included. They should not be used as population denominators for disease estimates.
 - Pediatric asthma** estimates are for those under 18 years of age and represent the **estimated** number of people who had asthma in 2018 based on state rates (BRFSS) applied to population estimates (U.S. Census).
 - Adult asthma** estimates are for those 18 years and older and represent the **estimated** number of people who had asthma in 2018 based on state rates (BRFSS) applied to population estimates (U.S. Census).
 - Adding across rows does not produce valid estimates. Adding the disease categories (asthma, COPD, etc.) will double-count people who have been diagnosed with more than one disease.
 - COPD** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
 - Lung cancer** estimates are the number of new cases diagnosed in 2016.
 - CV disease** is cardiovascular disease and estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
 - Ever smoked** estimates are for adults 18 and over who have ever smoked 100 or more cigarettes in their life, based on state rates (BRFSS) applied to population estimates (U.S. Census).
 - People of color** are anyone of Hispanic ethnicity or a race other than white.
 - Poverty** estimates come from the U.S. Census Bureau and are for all ages.
 - The **Design Value** is the calculated concentration of a pollutant based on the form of the Annual PM_{2.5} National Ambient Air Quality Standard, and is used by EPA to determine whether the air quality in a county meets the current (2012) standard (U.S. EPA).
 - Grades** are based on EPA's determination of meeting or failure to meet the NAAQS for annual PM_{2.5} levels during 2015-2017. Counties meeting the NAAQS received grades of Pass; counties not meeting the NAAQS received grades of Fail.

People at Risk in 25 Most Ozone-Polluted Counties

| 2020 Rank ¹ | County | ST | Total Population ² | At-Risk Groups | | | | | | | High Ozone Days in Unhealthy Ranges, 2016–2018 | | |
|------------------------|----------------|----|-------------------------------|-----------------------|--------------------------|---------------------------------|-----------------------------|-------------------|-------------------------|------------------------------|--|-----------------------------|---------------------|
| | | | | Under 18 ³ | 65 and Over ³ | Pediatric Asthma ^{4,5} | Adult Asthma ^{5,6} | COPD ⁷ | CV Disease ⁸ | People of Color ⁹ | Poverty ¹⁰ | Weighted Avg. ¹¹ | Grade ¹² |
| 1 | San Bernardino | CA | 2,171,603 | 572,278 | 251,361 | 35,331 | 135,544 | 70,099 | 99,838 | 1,564,843 | 317,514 | 174.3 | F |
| 2 | Riverside | CA | 2,450,758 | 616,126 | 353,122 | 38,038 | 156,550 | 85,478 | 124,180 | 1,600,121 | 307,511 | 138.8 | F |
| 3 | Los Angeles | CA | 10,105,518 | 2,188,893 | 1,375,957 | 135,136 | 673,459 | 358,245 | 515,500 | 7,466,160 | 1,409,155 | 111.0 | F |
| 4 | Tulare | CA | 465,861 | 142,848 | 53,292 | 8,819 | 27,348 | 14,170 | 20,216 | 335,036 | 102,451 | 105.2 | F |
| 5 | Kern | CA | 896,764 | 259,180 | 98,347 | 16,001 | 53,894 | 27,503 | 39,003 | 596,328 | 177,021 | 103.2 | F |
| 6 | Fresno | CA | 994,400 | 281,819 | 122,113 | 17,399 | 60,395 | 31,587 | 45,226 | 705,643 | 208,627 | 85.8 | F |
| 7 | Nevada | CA | 99,696 | 17,071 | 27,380 | 1,054 | 7,266 | 4,821 | 7,432 | 15,030 | 10,171 | 51.2 | F |
| 8 | San Diego | CA | 3,343,364 | 722,408 | 469,454 | 44,599 | 222,727 | 118,450 | 170,564 | 1,832,022 | 372,148 | 43.3 | F |
| 9 | Placer | CA | 393,149 | 87,441 | 76,906 | 5,398 | 26,478 | 15,911 | 23,831 | 109,849 | 27,596 | 40.7 | F |
| 10 | El Dorado | CA | 190,678 | 37,821 | 40,389 | 2,335 | 13,335 | 8,279 | 12,506 | 42,700 | 15,401 | 40.2 | F |
| 11 | Maricopa | AZ | 4,410,824 | 1,052,788 | 669,285 | 84,871 | 340,115 | 231,647 | 298,086 | 1,989,191 | 535,183 | 39.8 | F |
| 12 | Kings | CA | 151,366 | 40,964 | 15,516 | 2,529 | 9,283 | 4,580 | 6,416 | 103,277 | 25,481 | 39.5 | F |
| 13 | Stanislaus | CA | 549,815 | 148,801 | 72,319 | 9,187 | 34,134 | 18,290 | 26,395 | 323,635 | 84,744 | 31.8 | F |
| 14 | Tuolumne | CA | 54,539 | 9,158 | 14,279 | 565 | 3,969 | 2,562 | 3,923 | 11,026 | 6,417 | 31.7 | F |
| 15 | Madera | CA | 157,672 | 43,339 | 22,051 | 2,676 | 9,745 | 5,298 | 7,688 | 104,594 | 30,201 | 31.0 | F |
| 16 | Clark | NV | 2,231,647 | 517,629 | 328,692 | 36,032 | 136,812 | 120,615 | 151,858 | 1,289,911 | 307,977 | 30.2 | F |
| 17 | Jefferson | CO | 580,233 | 114,515 | 95,477 | 8,196 | 41,776 | 21,576 | 29,476 | 127,678 | 39,799 | 29.2 | F |
| 18 | Salt Lake | UT | 1,152,633 | 312,889 | 125,157 | 17,171 | 78,549 | 35,187 | 49,059 | 338,240 | 102,660 | 25.7 | F |
| 19 | Sacramento | CA | 1,540,975 | 363,909 | 217,601 | 22,467 | 100,345 | 54,282 | 78,584 | 859,537 | 217,138 | 25.0 | F |
| 20 | Fairfield | CT | 943,823 | 212,038 | 149,918 | 20,593 | 76,126 | 39,383 | 54,861 | 363,243 | 92,971 | 23.0 | F |
| 21 | Tehama | CA | 63,916 | 15,363 | 12,389 | 948 | 4,205 | 2,533 | 3,797 | 20,718 | 10,749 | 22.5 | F |
| 21 | Mariposa | CA | 17,471 | 2,828 | 4,882 | 175 | 1,289 | 859 | 1,325 | 3,551 | 2,569 | 22.5 | F |
| 23 | Harris | TX | 4,698,619 | 1,251,684 | 494,264 | 99,047 | 257,086 | 201,143 | 291,795 | 3,331,840 | 767,367 | 22.3 | F |
| 24 | Merced | CA | 274,765 | 80,588 | 30,845 | 4,975 | 16,418 | 8,420 | 11,965 | 200,196 | 56,863 | 22.0 | F |
| 25 | Imperial | CA | 181,827 | 51,765 | 23,580 | 3,196 | 11,043 | 5,862 | 8,440 | 162,999 | 37,014 | 19.7 | F |
| 25 | Douglas | CO | 342,776 | 88,978 | 40,935 | 6,368 | 22,775 | 11,168 | 14,826 | 61,999 | 8,975 | 19.7 | F |

- Notes:**
- Counties are ranked by weighted average. See note 11 below.
 - Total Population** represents the at-risk populations in counties with PM_{2.5} monitors.
 - Those **under 18** and **65 and over** are vulnerable to PM_{2.5} and are, therefore, included. They should not be used as population denominators for disease estimates.
 - Pediatric asthma** estimates are for those under 18 years of age and represent the **estimated** number of people who had asthma in 2018 based on state rates (BRFSS) applied to population estimates (U.S. Census).
 - Adult asthma** estimates are for those 18 years and older and represent the **estimated** number of people who had asthma in 2018 based on state rates (BRFSS) applied to population estimates (U.S. Census).
 - Adding across rows does not produce valid estimates. Adding the disease categories (asthma, COPD, etc.) will double-count people who have been diagnosed with more than one disease.
 - COPD** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
 - CV disease** is cardiovascular disease and estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
 - People of color** are anyone of Hispanic ethnicity or a race other than white.
 - Poverty** estimates come from the U.S. Census Bureau and are for all ages.
 - The **Weighted Average** was derived by counting the number of days in each unhealthy range (orange, red, purple) in each year (2016–2018), multiplying the total in each range by the assigned standard weights (i.e., 1 for orange, 1.5 for red, 2.0 for purple), and calculating the average.
 - Grade** is assigned by weighted average as follows: A=0.0, B=0.3–0.9, C=1.0–2.0, D=2.1–3.2, F=3.3+.

Cleanest U.S. Cities for Short-Term Particle Pollution (24-hour PM_{2.5})¹

| Metropolitan Statistical Area | Population | Metropolitan Statistical Area | Population | Metropolitan Statistical Area | Population |
|---|------------|--|------------|--------------------------------------|------------|
| Albany-Schenectady, NY | 1,171,593 | Grand Island, NE | 75,808 | Peoria, IL | 403,217 |
| Albuquerque-Santa Fe-Las Vegas, NM | 1,156,187 | Grand Rapids-Kentwood-Muskegon, MI | 1,406,918 | Portland-Lewiston-South Portland, ME | 643,099 |
| Alexandria, LA | 153,044 | Green Bay-Shawano, WI | 367,045 | Richmond, VA | 1,282,442 |
| Appleton-Oshkosh-Neenah, WI | 408,544 | Greenville-Kinston-Washington, NC | 282,969 | Roanoke, VA | 314,172 |
| Bangor, ME | 151,096 | Harrisonburg-Staunton, VA | 258,284 | Rochester-Batavia-Seneca Falls, NY | 1,162,893 |
| Birmingham-Hoover-Talladega, AL | 1,315,071 | Hartford-East Hartford, CT | 1,473,084 | Rockford-Freeport-Rochelle, IL | 433,334 |
| Bloomington-Bedford, IN | 213,430 | Hot Springs-Malvern, AR | 132,855 | Saginaw-Midland-Bay City, MI | 377,932 |
| Bloomington-Pontiac, IL | 208,589 | Houma-Thibodaux, LA | 209,136 | Salisbury-Cambridge, MD-DE | 441,977 |
| Boston-Worcester-Providence, MA-RI-NH-CT | 8,285,407 | Huntsville-Decatur, AL | 614,739 | Scranton--Wilkes-Barre, PA | 555,485 |
| Bowling Green-Glasgow, KY | 231,638 | Jackson-Brownsville, TN | 195,589 | Sierra Vista-Douglas, AZ | 126,770 |
| Buffalo-Cheektowaga-Olean, NY | 1,206,992 | Johnstown-Somerset, PA | 205,682 | Sioux Falls, SD | 265,653 |
| Burlington-Fort Madison-Keokuk, IA-IL-MO | 104,588 | Kalamazoo-Battle Creek-Portage, MI | 504,022 | Springfield, MA | 702,724 |
| Burlington-South Burlington-Barre, VT | 279,223 | Kokomo-Peru, IN | 117,933 | Springfield, MO | 466,978 |
| Champaign-Urbana, IL | 226,379 | La Crosse-Onalaska, WI-MN | 136,808 | Springfield-Jacksonville-Lincoln, IL | 308,124 |
| Charlotte-Concord, NC-SC | 2,753,810 | Lafayette-Opelousas-Morgan City, LA | 621,902 | St. George, UT | 171,700 |
| Charlottesville, VA | 218,233 | Lafayette-West Lafayette-Frankfort, IN | 262,341 | Syracuse-Auburn, NY | 727,647 |
| Cincinnati-Wilmington-Maysville, OH-KY-IN | 2,272,152 | Lansing-East Lansing, MI | 550,085 | Tallahassee, FL | 385,145 |
| Clarksville, TN-KY | 305,825 | Lawton, OK | 126,198 | Tampa-St. Petersburg-Clearwater, FL | 3,142,663 |
| Cleveland-Akron-Canton, OH | 3,599,264 | Lexington-Fayette-Richmond-Frankfort, KY | 743,778 | Terre Haute, IN | 186,652 |
| Corpus Christi-Kingsville-Alice, TX | 536,555 | Lima-Van Wert-Celina, OH | 217,707 | Topeka, KS | 232,594 |
| Davenport-Moline, IA-IL | 470,898 | Lincoln-Beatrice, NE | 356,083 | Tuscaloosa, AL | 251,808 |
| Dayton-Springfield-Kettering, OH | 1,079,837 | Little Rock-North Little Rock, AR | 909,346 | Urban Honolulu, HI | 980,080 |
| Decatur, IL | 104,712 | Louisville/Jefferson County-Elizabethtown-Bardstown, KY-IN | 1,488,015 | Virginia Beach-Norfolk, VA-NC | 1,854,604 |
| Eau Claire-Menomonie, WI | 213,800 | Lynchburg, VA | 263,353 | Waterloo-Cedar Falls, IA | 169,659 |
| Edwards-Glenwood Springs, CO | 132,713 | Memphis-Forrest City, TN-MS-AR | 1,367,788 | Wheeling, WV-OH | 140,045 |
| Elmira-Corning, NY | 180,050 | Mobile-Daphne-Fairhope, AL | 648,157 | Wichita-Winfield, KS | 672,796 |
| Erie-Meadville, PA | 357,124 | Monroe-Ruston, LA | 249,399 | Wilmington, NC | 294,436 |
| Fayetteville-Sanford-Lumberton, NC | 848,083 | Montgomery-Selma-Alexander City, AL | 462,747 | | |
| Fayetteville-Springdale-Rogers, AR | 526,050 | Morgantown-Fairmont, WV | 196,356 | | |
| Florence, SC | 204,961 | New Orleans-Metairie-Hammond, LA-MS | 1,506,145 | | |
| Florence-Muscle Shoals, AL | 147,149 | North Port-Sarasota, FL | 1,044,060 | | |
| Fort Smith, AR-OK | 250,148 | Orlando-Lakeland-Deltona, FL | 4,096,575 | | |
| Fort Wayne-Huntington-Auburn, IN | 606,645 | Owensboro, KY | 119,114 | | |
| Gadsden, AL | 102,501 | Palm Bay-Melbourne-Titusville, FL | 596,849 | | |
| Gainesville-Lake City, FL | 399,485 | Parkersburg-Marietta-Vienna, WV-OH | 150,188 | | |
| | | Pensacola-Ferry Pass, FL-AL | 531,631 | | |

Note:

1. Monitors in these cities reported no days when PM_{2.5} levels reached the unhealthy range using the Air Quality Index based on the 2006 NAAQS.

Top 25 Cleanest U.S. Cities for Year-Round Particle Pollution (Annual PM_{2.5})¹

| 2020 Rank ² | Design Value ³ | Metropolitan Statistical Area | Population |
|------------------------|---------------------------|---------------------------------------|------------|
| 1 | 3.6 | Urban Honolulu, HI | 980,080 |
| 2 | 4.1 | Kahului-Wailuku-Lahaina, HI | 167,207 |
| 3 | 4.4 | Cheyenne, WY | 98,976 |
| 4 | 4.7 | Elmira-Corning, NY | 180,050 |
| 5 | 4.9 | Wilmington, NC | 294,436 |
| 6 | 5.0 | Casper, WY | 79,115 |
| 7 | 5.1 | Syracuse-Auburn, NY | 727,647 |
| 7 | 5.1 | Bellingham, WA | 225,685 |
| 9 | 5.2 | Springfield, MA | 702,724 |
| 9 | 5.2 | St. George, UT | 171,700 |
| 9 | 5.2 | Duluth, MN-WI | 289,457 |
| 12 | 5.3 | Bismarck, ND | 128,320 |
| 13 | 5.5 | Pueblo-Cañon City, CO | 215,550 |
| 14 | 5.7 | Palm Bay-Melbourne-Titusville, FL | 596,849 |
| 14 | 5.7 | Burlington-South Burlington-Barre, VT | 279,223 |
| 16 | 5.8 | Bangor, ME | 151,096 |
| 16 | 5.8 | Anchorage, AK | 399,148 |
| 18 | 5.9 | Grand Junction, CO | 153,207 |
| 18 | 5.9 | Sioux Falls, SD | 265,653 |
| 18 | 5.9 | Pittsfield, MA | 126,348 |
| 18 | 5.9 | Grand Island, NE | 75,808 |
| 22 | 6.0 | Colorado Springs, CO | 738,939 |
| 23 | 6.3 | Appleton-Oshkosh-Neenah, WI | 408,544 |
| 23 | 6.3 | Gainesville-Lake City, FL | 399,485 |
| 23 | 6.3 | Salinas, CA | 435,594 |

Notes:

1. This list represents cities with the lowest levels of annual PM_{2.5} air pollution.
2. Cities are ranked by using the highest design value for any county within that metropolitan area.
3. The Design Value is the calculated concentration of a pollutant based on the form of the Annual PM_{2.5} National Ambient Air Quality Standard, and is used by EPA to determine whether the air quality in a county meets the current (2012) standard (U.S. EPA).

Cleanest U.S. Cities for Ozone Air Pollution¹

| Metropolitan Statistical Area | Population |
|--|------------|
| Anchorage, AK | 399,148 |
| Bangor, ME | 151,096 |
| Bismarck, ND | 128,320 |
| Bowling Green-Glasgow, KY | 231,638 |
| Brownsville-Harlingen-Raymondville, TX | 445,423 |
| Brunswick, GA | 118,456 |
| Burlington-South Burlington-Barre, VT | 279,223 |
| Casper, WY | 79,115 |
| Clarksville, TN-KY | 305,825 |
| Corpus Christi-Kingsville-Alice, TX | 536,555 |
| Crestview-Fort Walton Beach-Destin, FL | 278,644 |
| Dothan-Ozark, AL | 197,201 |
| Duluth, MN-WI | 289,457 |
| Fairbanks, AK | 98,971 |
| Fargo-Wahpeton, ND-MN | 267,964 |
| Fayetteville-Sanford-Lumberton, NC | 848,083 |
| Fayetteville-Springdale-Rogers, AR | 526,050 |
| Florence, SC | 204,961 |
| Fort Smith, AR-OK | 250,148 |
| Gadsden, AL | 102,501 |
| Hickory-Lenoir-Morganton, NC | 368,416 |
| Houma-Thibodaux, LA | 209,136 |
| Jackson-Vicksburg-Brookhaven, MS | 678,169 |
| Joplin-Miami, MO-OK | 210,077 |
| La Crosse-Onalaska, WI-MN | 136,808 |
| Laredo, TX | 275,910 |
| Lincoln-Beatrice, NE | 356,083 |
| Longview, TX | 286,143 |
| McAllen-Edinburg, TX | 930,464 |

| Metropolitan Statistical Area | Population |
|---|------------|
| Missoula, MT | 118,791 |
| Monroe-Ruston, LA | 249,399 |
| Morgantown-Fairmont, WV | 196,356 |
| Myrtle Beach-Conway, SC-NC | 543,140 |
| New Bern-Morehead City, NC | 194,743 |
| Panama City, FL | 185,287 |
| Rapid City-Spearfish, SD | 165,764 |
| Roanoke, VA | 314,172 |
| Rochester-Austin, MN | 259,813 |
| Rocky Mount-Wilson-Roanoke Rapids, NC | 297,726 |
| Salinas, CA | 435,594 |
| Savannah-Hinesville-Statesboro, GA | 577,093 |
| Scottsboro-Fort Payne, AL | 123,121 |
| Shreveport-Bossier City-Minden, LA | 436,341 |
| Springfield, MO | 466,978 |
| Tallahassee, FL | 385,145 |
| Topeka, KS | 232,594 |
| Tupelo-Corinth, MS | 202,792 |
| Urban Honolulu, HI | 980,080 |
| Wausau-Stevens Point-Wisconsin Rapids, WI | 307,114 |
| Wilmington, NC | 294,436 |

Notes:

1. This list represents cities with no monitored ozone air pollution in unhealthy ranges using the Air Quality Index based on 2015 NAAQS.

Cleanest Counties for Short-Term Particle Pollution (24-hour PM_{2.5})¹

| County | State | MSAs and Respective CSA ² |
|--------------|-------|--|
| Baldwin | AL | Mobile-Daphne-Fairhope, AL |
| Clay | AL | |
| Colbert | AL | Florence-Muscle Shoals, AL |
| Etowah | AL | Gadsden, AL |
| Jefferson | AL | Birmingham-Hoover-Talladega, AL |
| Madison | AL | Huntsville-Decatur, AL |
| Mobile | AL | Mobile-Daphne-Fairhope, AL |
| Montgomery | AL | Montgomery-Selma-Alexander City, AL |
| Morgan | AL | Huntsville-Decatur, AL |
| Russell | AL | Columbus-Auburn-Opelika, GA-AL |
| Tuscaloosa | AL | Tuscaloosa, AL |
| Arkansas | AR | |
| Crittenden | AR | Memphis-Forrest City, TN-MS-AR |
| Garland | AR | Hot Springs-Malvern, AR |
| Jackson | AR | |
| Polk | AR | |
| Pulaski | AR | Little Rock-North Little Rock, AR |
| Washington | AR | Fayetteville-Springdale-Rogers, AR |
| Apache | AZ | |
| Cochise | AZ | Sierra Vista-Douglas, AZ |
| La Paz | AZ | |
| Del Norte | CA | |
| Garfield | CO | Edwards-Glenwood Springs, CO |
| Rio Blanco | CO | |
| Fairfield | CT | New York-Newark, NY-NJ-CT-PA |
| Hartford | CT | Hartford-East Hartford, CT |
| New Haven | CT | New York-Newark, NY-NJ-CT-PA |
| New London | CT | Hartford-East Hartford, CT |
| Kent | DE | Philadelphia-Reading-Camden, PA-NJ-DE-MD |
| Sussex | DE | Salisbury-Cambridge, MD-DE |
| Alachua | FL | Gainesville-Lake City, FL |
| Brevard | FL | Palm Bay-Melbourne-Titusville, FL |
| Broward | FL | Miami-Port St. Lucie-Fort Lauderdale, FL |
| Escambia | FL | Pensacola-Ferry Pass, FL-AL |
| Hillsborough | FL | Tampa-St. Petersburg-Clearwater, FL |
| Leon | FL | Tallahassee, FL |
| Orange | FL | Orlando-Lakeland-Deltona, FL |
| Palm Beach | FL | Miami-Port St. Lucie-Fort Lauderdale, FL |
| Pinellas | FL | Tampa-St. Petersburg-Clearwater, FL |
| Polk | FL | Orlando-Lakeland-Deltona, FL |
| Sarasota | FL | North Port-Sarasota, FL |
| Seminole | FL | Orlando-Lakeland-Deltona, FL |
| Volusia | FL | Orlando-Lakeland-Deltona, FL |
| Honolulu | HI | Urban Honolulu, HI |

| County | State | MSAs and Respective CSA ² |
|-------------|-------|--|
| Kauai | HI | |
| Black Hawk | IA | Waterloo-Cedar Falls, IA |
| Clinton | IA | Davenport-Moline, IA-IL |
| Johnson | IA | Cedar Rapids-Iowa City, IA |
| Lee | IA | Burlington-Fort Madison-Keokuk, IA-IL-MO |
| Montgomery | IA | |
| Muscatine | IA | Davenport-Moline, IA-IL |
| Palo Alto | IA | |
| Scott | IA | Davenport-Moline, IA-IL |
| Van Buren | IA | |
| Woodbury | IA | Sioux City, IA-NE-SD |
| Champaign | IL | Champaign-Urbana, IL |
| DuPage | IL | Chicago-Naperville, IL-IN-WI |
| Hamilton | IL | |
| Jersey | IL | St. Louis-St. Charles-Farmington, MO-IL |
| Kane | IL | Chicago-Naperville, IL-IN-WI |
| Macon | IL | Decatur, IL |
| McHenry | IL | Chicago-Naperville, IL-IN-WI |
| McLean | IL | Bloomington-Pontiac, IL |
| Peoria | IL | Peoria, IL |
| Randolph | IL | |
| Rock Island | IL | Davenport-Moline, IA-IL |
| Sangamon | IL | Springfield-Jacksonville-Lincoln, IL |
| St. Clair | IL | St. Louis-St. Charles-Farmington, MO-IL |
| Will | IL | Chicago-Naperville, IL-IN-WI |
| Winnebago | IL | Rockford-Freeport-Rochelle, IL |
| Allen | IN | Fort Wayne-Huntington-Auburn, IN |
| Clark | IN | Louisville/Jefferson County--Elizabethtown--Bardstown, KY-IN |
| Dubois | IN | |
| Floyd | IN | Louisville/Jefferson County--Elizabethtown--Bardstown, KY-IN |
| Greene | IN | |
| Howard | IN | Kokomo-Peru, IN |
| LaPorte | IN | Chicago-Naperville, IL-IN-WI |
| Monroe | IN | Bloomington-Bedford, IN |
| Spencer | IN | |
| St. Joseph | IN | South Bend-Elkhart-Mishawaka, IN-MI |
| Tippecanoe | IN | Lafayette-West Lafayette-Frankfort, IN |
| Vanderburgh | IN | Evansville, IN-KY |
| Vigo | IN | Terre Haute, IN |
| Whitley | IN | Fort Wayne-Huntington-Auburn, IN |
| Johnson | KS | Kansas City-Overland Park-Kansas City, MO-KS |
| Neosho | KS | |
| Sedgwick | KS | Wichita-Winfield, KS |

Notes:

1. Monitors in these counties reported no days when PM_{2.5} levels reached the unhealthful range using the Air Quality Index based on the 2006 NAAQS
2. MSA and CSA are terms used by the U.S. Office of Management and Budget for statistical purposes. MSA stands for Metropolitan Statistical Area. CSA stands for Combined Statistical Area, which may include multiples and individual counties.

Cleanest Counties for Short-Term Particle Pollution (24-hour PM_{2.5})¹ (cont.)

| County | State | MSAs and Respective CSA ² |
|-------------------------|-------|--|
| Shawnee | KS | Topeka, KS |
| Sumner | KS | Wichita-Winfield, KS |
| Trego | KS | |
| Boyd | KY | Charleston-Huntington-Ashland, WV-OH-KY |
| Campbell | KY | Cincinnati-Wilmington-Maysville, OH-KY-IN |
| Christian | KY | Clarksville, TN-KY |
| Daviess | KY | Owensboro, KY |
| Fayette | KY | Lexington-Fayette--Richmond--Frankfort, KY |
| Hardin | KY | Louisville/Jefferson County--Elizabethtown--Bardstown, KY-IN |
| Jefferson | KY | Louisville/Jefferson County--Elizabethtown--Bardstown, KY-IN |
| Pulaski | KY | |
| Warren | KY | Bowling Green-Glasgow, KY |
| Jefferson Parish | LA | New Orleans-Metairie-Hammond, LA-MS |
| Lafayette Parish | LA | Lafayette-Opelousas-Morgan City, LA |
| Orleans Parish | LA | New Orleans-Metairie-Hammond, LA-MS |
| Ouachita Parish | LA | Monroe-Ruston, LA |
| Rapides Parish | LA | Alexandria, LA |
| St. Bernard Parish | LA | New Orleans-Metairie-Hammond, LA-MS |
| Tangipahoa Parish | LA | New Orleans-Metairie-Hammond, LA-MS |
| Terrebonne Parish | LA | Houma-Thibodaux, LA |
| West Baton Rouge Parish | LA | Baton Rouge, LA |
| Bristol | MA | Boston-Worcester-Providence, MA-RI-NH-CT |
| Essex | MA | Boston-Worcester-Providence, MA-RI-NH-CT |
| Franklin | MA | Springfield, MA |
| Hampden | MA | Springfield, MA |
| Hampshire | MA | Springfield, MA |
| Plymouth | MA | Boston-Worcester-Providence, MA-RI-NH-CT |
| Suffolk | MA | Boston-Worcester-Providence, MA-RI-NH-CT |
| Worcester | MA | Boston-Worcester-Providence, MA-RI-NH-CT |
| Baltimore | MD | Washington-Baltimore-Arlington, DC-MD-VA-WV-PA |
| Cecil | MD | Philadelphia-Reading-Camden, PA-NJ-DE-MD |
| Dorchester | MD | Salisbury-Cambridge, MD-DE |
| Garrett | MD | |
| Howard | MD | Washington-Baltimore-Arlington, DC-MD-VA-WV-PA |
| Kent | MD | |
| Montgomery | MD | Washington-Baltimore-Arlington, DC-MD-VA-WV-PA |
| Prince George's | MD | Washington-Baltimore-Arlington, DC-MD-VA-WV-PA |
| Androscoggin | ME | Portland-Lewiston-South Portland, ME |
| Cumberland | ME | Portland-Lewiston-South Portland, ME |
| Hancock | ME | |

| County | State | MSAs and Respective CSA ² |
|-------------|-------|--|
| Kennebec | ME | |
| Oxford | ME | |
| Penobscot | ME | Bangor, ME |
| Allegan | MI | Grand Rapids-Kentwood-Muskegon, MI |
| Bay | MI | Saginaw-Midland-Bay City, MI |
| Chippewa | MI | |
| Genesee | MI | Detroit-Warren-Ann Arbor, MI |
| Ingham | MI | Lansing-East Lansing, MI |
| Kalamazoo | MI | Kalamazoo-Battle Creek-Portage, MI |
| Kent | MI | Grand Rapids-Kentwood-Muskegon, MI |
| Lenawee | MI | Detroit-Warren-Ann Arbor, MI |
| Macomb | MI | Detroit-Warren-Ann Arbor, MI |
| Manistee | MI | |
| Missaukee | MI | |
| Oakland | MI | Detroit-Warren-Ann Arbor, MI |
| St. Clair | MI | Detroit-Warren-Ann Arbor, MI |
| Washtenaw | MI | Detroit-Warren-Ann Arbor, MI |
| Becker | MN | |
| Cook | MN | |
| Lake | MN | Duluth, MN-WI |
| Scott | MN | Minneapolis-St. Paul, MN-WI |
| Stearns | MN | Minneapolis-St. Paul, MN-WI |
| Washington | MN | Minneapolis-St. Paul, MN-WI |
| Cass | MO | Kansas City-Overland Park-Kansas City, MO-KS |
| Cedar | MO | |
| Greene | MO | Springfield, MO |
| St. Louis | MO | St. Louis-St. Charles-Farmington, MO-IL |
| DeSoto | MS | Memphis-Forrest City, TN-MS-AR |
| Grenada | MS | |
| Harrison | MS | Gulfport-Biloxi, MS |
| Jackson | MS | Gulfport-Biloxi, MS |
| Cumberland | NC | Fayetteville-Sanford-Lumberton, NC |
| Davidson | NC | Greensboro--Winston-Salem--High Point, NC |
| Forsyth | NC | Greensboro--Winston-Salem--High Point, NC |
| Mecklenburg | NC | Charlotte-Concord, NC-SC |
| Montgomery | NC | |
| New Hanover | NC | Wilmington, NC |
| Pitt | NC | Greenville-Kinston-Washington, NC |
| Hall | NE | Grand Island, NE |
| Lancaster | NE | Lincoln-Beatrice, NE |
| Washington | NE | Omaha-Council Bluffs-Fremont, NE-IA |
| Belknap | NH | Boston-Worcester-Providence, MA-RI-NH-CT |
| Cheshire | NH | |
| Grafton | NH | |

Notes:

1. Monitors in these counties reported no days when PM_{2.5} levels reached the unhealthful range using the Air Quality Index based on the 2006 NAAQS
2. MSA and CSA are terms used by the U.S. Office of Management and Budget for statistical purposes. MSA stands for Metropolitan Statistical Area. CSA stands for Combined Statistical Area, which may include multiples and individual counties.

Cleanest Counties for Short-Term Particle Pollution (24-hour PM_{2.5})¹ (cont.)

| County | State | MSAs and Respective CSA ² |
|--------------|-------|---|
| Hillsborough | NH | Boston-Worcester-Providence, MA-RI-NH-CT |
| Rockingham | NH | Boston-Worcester-Providence, MA-RI-NH-CT |
| Atlantic | NJ | Philadelphia-Reading-Camden, PA-NJ-DE-MD |
| Cumberland | NJ | Philadelphia-Reading-Camden, PA-NJ-DE-MD |
| Essex | NJ | New York-Newark, NY-NJ-CT-PA |
| Gloucester | NJ | Philadelphia-Reading-Camden, PA-NJ-DE-MD |
| Hudson | NJ | New York-Newark, NY-NJ-CT-PA |
| Hunterdon | NJ | New York-Newark, NY-NJ-CT-PA |
| Mercer | NJ | New York-Newark, NY-NJ-CT-PA |
| Middlesex | NJ | New York-Newark, NY-NJ-CT-PA |
| Morris | NJ | New York-Newark, NY-NJ-CT-PA |
| Ocean | NJ | New York-Newark, NY-NJ-CT-PA |
| Passaic | NJ | New York-Newark, NY-NJ-CT-PA |
| Warren | NJ | Allentown-Bethlehem-Easton, PA-NJ |
| Bernalillo | NM | Albuquerque-Santa Fe-Las Vegas, NM |
| Albany | NY | Albany-Schenectady, NY |
| Bronx | NY | New York-Newark, NY-NJ-CT-PA |
| Chautauqua | NY | |
| Erie | NY | Buffalo-Cheektowaga-Olean, NY |
| Essex | NY | |
| Kings | NY | New York-Newark, NY-NJ-CT-PA |
| Monroe | NY | Rochester-Batavia-Seneca Falls, NY |
| Onondaga | NY | Syracuse-Auburn, NY |
| Orange | NY | New York-Newark, NY-NJ-CT-PA |
| Queens | NY | New York-Newark, NY-NJ-CT-PA |
| Richmond | NY | New York-Newark, NY-NJ-CT-PA |
| Steuben | NY | Elmira-Corning, NY |
| Suffolk | NY | New York-Newark, NY-NJ-CT-PA |
| Allen | OH | Lima-Van Wert-Celina, OH |
| Athens | OH | |
| Belmont | OH | Wheeling, WV-OH |
| Butler | OH | Cincinnati-Wilmington-Maysville, OH-KY-IN |
| Clark | OH | Dayton-Springfield-Kettering, OH |
| Cuyahoga | OH | Cleveland-Akron-Canton, OH |
| Greene | OH | Dayton-Springfield-Kettering, OH |
| Hamilton | OH | Cincinnati-Wilmington-Maysville, OH-KY-IN |
| Lake | OH | Cleveland-Akron-Canton, OH |
| Lorain | OH | Cleveland-Akron-Canton, OH |
| Mahoning | OH | Youngstown-Warren, OH-PA |
| Medina | OH | Cleveland-Akron-Canton, OH |
| Montgomery | OH | Dayton-Springfield-Kettering, OH |
| Portage | OH | Cleveland-Akron-Canton, OH |
| Stark | OH | Cleveland-Akron-Canton, OH |
| Summit | OH | Cleveland-Akron-Canton, OH |

| County | State | MSAs and Respective CSA ² |
|--------------|-------|--|
| Comanche | OK | Lawton, OK |
| Oklahoma | OK | Oklahoma City-Shawnee, OK |
| Pittsburg | OK | |
| Sequoyah | OK | Fort Smith, AR-OK |
| Armstrong | PA | Pittsburgh-New Castle-Weirton, PA-OH-WV |
| Bradford | PA | |
| Cambria | PA | Johnstown-Somerset, PA |
| Chester | PA | Philadelphia-Reading-Camden, PA-NJ-DE-MD |
| Erie | PA | Erie-Meadville, PA |
| Greene | PA | |
| Lackawanna | PA | Scranton--Wilkes-Barre, PA |
| Mercer | PA | Youngstown-Warren, OH-PA |
| Monroe | PA | New York-Newark, NY-NJ-CT-PA |
| Philadelphia | PA | Philadelphia-Reading-Camden, PA-NJ-DE-MD |
| Tioga | PA | |
| Washington | PA | Pittsburgh-New Castle-Weirton, PA-OH-WV |
| Westmoreland | PA | Pittsburgh-New Castle-Weirton, PA-OH-WV |
| York | PA | Harrisburg-York-Lebanon, PA |
| Kent | RI | Boston-Worcester-Providence, MA-RI-NH-CT |
| Providence | RI | Boston-Worcester-Providence, MA-RI-NH-CT |
| Washington | RI | Boston-Worcester-Providence, MA-RI-NH-CT |
| Chesterfield | SC | |
| Florence | SC | Florence, SC |
| Oconee | SC | Greenville-Spartanburg-Anderson, SC |
| Spartanburg | SC | Greenville-Spartanburg-Anderson, SC |
| Brookings | SD | |
| Minnehaha | SD | Sioux Falls, SD |
| Dyer | TN | |
| Lawrence | TN | Nashville-Davidson--Murfreeseboro, TN |
| Madison | TN | Jackson-Brownsville, TN |
| Maury | TN | Nashville-Davidson--Murfreeseboro, TN |
| Montgomery | TN | Clarksville, TN-KY |
| Putnam | TN | |
| Shelby | TN | Memphis-Forrest City, TN-MS-AR |
| Sumner | TN | Nashville-Davidson--Murfreeseboro, TN |
| Nueces | TX | Corpus Christi-Kingsville-Alice, TX |
| Tarrant | TX | Dallas-Fort Worth, TX-OK |
| Uintah | UT | |
| Washington | UT | St. George, UT |
| Albemarle | VA | Charlottesville, VA |
| Charles City | VA | Richmond, VA |
| Chesterfield | VA | Richmond, VA |
| Frederick | VA | Washington-Baltimore-Arlington, DC-MD-VA-WV-PA |

Notes:

1. Monitors in these counties reported no days when PM_{2.5} levels reached the unhealthful range using the Air Quality Index based on the 2006 NAAQS
2. MSA and CSA are terms used by the U.S. Office of Management and Budget for statistical purposes. MSA stands for Metropolitan Statistical Area. CSA stands for Combined Statistical Area, which may include multiples and individual counties.

Cleanest Counties for Short-Term Particle Pollution (24-hour PM_{2.5})¹ (cont.)

| County | State | MSAs and Respective CSA ² |
|---------------------|-------|--|
| Hampton City | VA | Virginia Beach-Norfolk, VA-NC |
| Henrico | VA | Richmond, VA |
| Loudoun | VA | Washington-Baltimore-Arlington, DC-MD-VA-WV-PA |
| Lynchburg City | VA | Lynchburg, VA |
| Norfolk City | VA | Virginia Beach-Norfolk, VA-NC |
| Richmond City | VA | Richmond, VA |
| Roanoke | VA | Roanoke, VA |
| Rockingham | VA | Harrisonburg-Staunton, VA |
| Salem City | VA | Roanoke, VA |
| Virginia Beach City | VA | Virginia Beach-Norfolk, VA-NC |
| Bennington | VT | |
| Chittenden | VT | Burlington-South Burlington-Barre, VT |
| Rutland | VT | |
| Ashland | WI | |
| Brown | WI | Green Bay-Shawano, WI |
| Eau Claire | WI | Eau Claire-Menomonie, WI |
| Forest | WI | |
| Grant | WI | |
| Kenosha | WI | Chicago-Naperville, IL-IN-WI |
| La Crosse | WI | La Crosse-Onalaska, WI-MN |
| Milwaukee | WI | Milwaukee-Racine-Waukesha, WI |
| Outagamie | WI | Appleton-Oshkosh-Neenah, WI |
| Ozaukee | WI | Milwaukee-Racine-Waukesha, WI |
| Sauk | WI | Madison-Janesville-Beloit, WI |
| Taylor | WI | |
| Vilas | WI | |
| Waukesha | WI | Milwaukee-Racine-Waukesha, WI |
| Berkeley | WV | Washington-Baltimore-Arlington, DC-MD-VA-WV-PA |
| Brooke | WV | Pittsburgh-New Castle-Weirton, PA-OH-WV |
| Cabell | WV | Charleston-Huntington-Ashland, WV-OH-KY |
| Hancock | WV | Pittsburgh-New Castle-Weirton, PA-OH-WV |
| Harrison | WV | |
| Kanawha | WV | Charleston-Huntington-Ashland, WV-OH-KY |
| Marion | WV | Morgantown-Fairmont, WV |
| Marshall | WV | Wheeling, WV-OH |
| Monongalia | WV | Morgantown-Fairmont, WV |
| Ohio | WV | Wheeling, WV-OH |
| Wood | WV | Parkersburg-Marietta-Vienna, WV-OH |
| Sweetwater | WV | |

Notes:

1. Monitors in these counties reported no days when PM_{2.5} levels reached the unhealthful range using the Air Quality Index based on the 2006 NAAQS
2. MSA and CSA are terms used by the U.S. Office of Management and Budget for statistical purposes. MSA stands for Metropolitan Statistical Area. CSA stands for Combined Statistical Area, which may include multiples and individual counties.

Top 25 Cleanest Counties for Year-Round Particle Pollution (Annual PM_{2.5})¹

| 2020 Rank ² | County | State | Design Value ³ |
|------------------------|--------------|-------|---------------------------|
| 1 | Burke | ND | 2.9 |
| 1 | Kauai | HI | 2.9 |
| 3 | Hillsborough | NH | 3.4 |
| 3 | Lake | MN | 3.4 |
| 5 | Essex | NY | 3.6 |
| 5 | Custer | SD | 3.6 |
| 5 | Honolulu | HI | 3.6 |
| 8 | Hancock | ME | 3.7 |
| 8 | Jackson | SD | 3.7 |
| 10 | Mercer | ND | 3.8 |
| 10 | Billings | ND | 3.8 |
| 12 | Gallatin | MT | 4.0 |
| 12 | Hughes | SD | 4.0 |
| 14 | Maui | HI | 4.1 |
| 15 | Litchfield | CT | 4.2 |
| 15 | McKenzie | ND | 4.2 |
| 15 | Ashland | WI | 4.2 |
| 15 | Forest | WI | 4.2 |
| 19 | La Paz | AZ | 4.3 |
| 19 | Park | WY | 4.3 |
| 21 | Laramie | WY | 4.4 |
| 21 | Cook | MN | 4.4 |
| 23 | Campbell | WY | 4.5 |
| 23 | Williams | ND | 4.5 |
| 23 | Belknap | NH | 4.5 |
| 23 | Vilas | WI | 4.5 |

Notes:

1. This list represents counties with the lowest levels of monitored long term PM_{2.5} air pollution.
2. Counties are ranked by Design Value.
3. The Design Value is the calculated concentration of a pollutant based on the form of the Annual PM_{2.5} National Ambient Air Quality Standard, and is used by EPA to determine whether the air quality in a county meets the current (2012) standard (U.S. EPA).

Cleanest Counties for Ozone Air Pollution¹

| County | State | Metropolitan Statistical Area |
|------------------------------|-------|--|
| Denali Borough | AK | |
| Fairbanks North Star Borough | AK | Fairbanks, AK |
| Matanuska-Susitna Borough | AK | Anchorage, AK |
| DeKalb | AL | Scottsboro-Fort Payne, AL |
| Elmore | AL | Montgomery-Selma-Alexander City, AL |
| Etowah | AL | Gadsden, AL |
| Houston | AL | Dothan-Ozark, AL |
| Morgan | AL | Huntsville-Decatur, AL |
| Russell | AL | Columbus-Auburn-Opelika, GA-AL |
| Sumter | AL | |
| Clark | AR | |
| Newton | AR | |
| Polk | AR | |
| Washington | AR | Fayetteville-Springdale-Rogers, AR |
| Colusa | CA | |
| Glenn | CA | |
| Lake | CA | |
| Marin | CA | San Jose-San Francisco-Oakland, CA |
| Mendocino | CA | |
| Monterey | CA | Salinas, CA |
| San Francisco | CA | San Jose-San Francisco-Oakland, CA |
| Baker | FL | Jacksonville-St. Marys-Palatka, FL-GA |
| Bay | FL | Panama City, FL |
| Collier | FL | Cape Coral-Fort Myers-Naples, FL |
| Columbia | FL | Gainesville-Lake City, FL |
| Flagler | FL | Orlando-Lakeland-Deltona, FL |
| Holmes | FL | |
| Leon | FL | Tallahassee, FL |
| Liberty | FL | |
| Okaloosa | FL | Crestview-Fort Walton Beach-Destin, FL |
| Santa Rosa | FL | Pensacola-Ferry Pass, FL-AL |
| Volusia | FL | Orlando-Lakeland-Deltona, FL |
| Wakulla | FL | Tallahassee, FL |
| Chatham | GA | Savannah-Hinesville-Statesboro, GA |
| Chattooga | GA | Chattanooga-Cleveland-Dalton, TN-GA |
| Glynn | GA | Brunswick, GA |
| Honolulu | HI | Urban Honolulu, HI |
| Montgomery | IA | |
| Van Buren | IA | |
| Johnson | KS | Kansas City-Overland Park-Kansas City, MO-KS |
| Leavenworth | KS | Kansas City-Overland Park-Kansas City, MO-KS |
| Neosho | KS | |
| Shawnee | KS | Topeka, KS |
| Sumner | KS | Wichita-Winfield, KS |
| Trego | KS | |

| County | State | Metropolitan Statistical Area |
|------------------|-------|--|
| Bell | KY | |
| Carter | KY | Charleston-Huntington-Ashland, WV-OH-KY |
| Christian | KY | Clarksville, TN-KY |
| Edmonson | KY | Bowling Green-Glasgow, KY |
| Fayette | KY | Lexington-Fayette--Richmond--Frankfort, KY |
| Perry | KY | |
| Pike | KY | |
| Pulaski | KY | |
| Trigg | KY | Clarksville, TN-KY |
| Warren | KY | Bowling Green-Glasgow, KY |
| Bossier Parish | LA | Shreveport-Bossier City-Minden, LA |
| Caddo Parish | LA | Shreveport-Bossier City-Minden, LA |
| Lafourche Parish | LA | Houma-Thibodaux, LA |
| Ouachita Parish | LA | Monroe-Ruston, LA |
| St. James Parish | LA | New Orleans-Metairie-Hammond, LA-MS |
| Garrett | MD | |
| Androscoggin | ME | Portland-Lewiston-South Portland, ME |
| Aroostook | ME | |
| Kennebec | ME | |
| Oxford | ME | |
| Penobscot | ME | Bangor, ME |
| Becker | MN | |
| Carlton | MN | Duluth, MN-WI |
| Crow Wing | MN | |
| Hennepin | MN | Minneapolis-St. Paul, MN-WI |
| Lake | MN | Duluth, MN-WI |
| Lyon | MN | |
| Mille Lacs | MN | Minneapolis-St. Paul, MN-WI |
| Olmsted | MN | Rochester-Austin, MN |
| St. Louis | MN | Duluth, MN-WI |
| Washington | MN | Minneapolis-St. Paul, MN-WI |
| Cedar | MO | |
| Greene | MO | Springfield, MO |
| Jasper | MO | Joplin-Miami, MO-OK |
| Hancock | MS | Gulfport-Biloxi, MS |
| Hinds | MS | Jackson-Vicksburg-Brookhaven, MS |
| Lauderdale | MS | |
| Lee | MS | Tupelo-Corinth, MS |
| Yalobusha | MS | |
| Flathead | MT | |
| Lewis and Clark | MT | |
| Missoula | MT | Missoula, MT |
| Phillips | MT | |
| Richland | MT | |
| Rosebud | MT | |
| Alexander | NC | Hickory-Lenoir-Morganton, NC |
| Caldwell | NC | Hickory-Lenoir-Morganton, NC |
| Carteret | NC | New Bern-Morehead City, NC |

Notes:

1. This list represents counties with no monitored ozone air pollution in unhealthy ranges using the Air Quality Index based on 2008 NAAQS.

Cleanest Counties for Ozone Air Pollution¹ (cont.)

| County | State | Metropolitan Statistical Area |
|-------------|-------|--|
| Caswell | NC | |
| Cumberland | NC | Fayetteville-Sanford-Lumberton, NC |
| Durham | NC | Raleigh-Durham-Cary, NC |
| Edgecombe | NC | Rocky Mount-Wilson-Roanoke Rapids, NC |
| Granville | NC | Raleigh-Durham-Cary, NC |
| Johnston | NC | Raleigh-Durham-Cary, NC |
| Lee | NC | Fayetteville-Sanford-Lumberton, NC |
| Martin | NC | |
| Montgomery | NC | |
| New Hanover | NC | Wilmington, NC |
| Pitt | NC | Greenville-Kinston-Washington, NC |
| Rowan | NC | Charlotte-Concord, NC-SC |
| Swain | NC | |
| Billings | ND | |
| Burke | ND | |
| Burleigh | ND | Bismarck, ND |
| Cass | ND | Fargo-Wahpeton, ND-MN |
| Dunn | ND | |
| McKenzie | ND | |
| Mercer | ND | |
| Oliver | ND | Bismarck, ND |
| Williams | ND | |
| Lancaster | NE | Lincoln-Beatrice, NE |
| Belknap | NH | Boston-Worcester-Providence, MA-RI-NH-CT |
| Grafton | NH | |
| Merrimack | NH | Boston-Worcester-Providence, MA-RI-NH-CT |
| Mahoning | OH | Youngstown-Warren, OH-PA |
| Portage | OH | Cleveland-Akron-Canton, OH |
| Adair | OK | |
| Ottawa | OK | Joplin-Miami, MO-OK |
| Sequoyah | OK | Fort Smith, AR-OK |
| Bradford | PA | |
| Cambria | PA | Johnstown-Somerset, PA |
| Franklin | PA | Washington-Baltimore-Arlington, DC-MD-VA-WV-PA |
| Aiken | SC | Augusta-Richmond County, GA-SC |
| Anderson | SC | Greenville-Spartanburg-Anderson, SC |
| Berkeley | SC | Charleston-North Charleston, SC |
| Colleton | SC | |
| Darlington | SC | Florence, SC |
| Horry | SC | Myrtle Beach-Conway, SC-NC |
| Custer | SD | |
| Jackson | SD | |
| Meade | SD | Rapid City-Spearfish, SD |
| Anderson | TN | Knoxville-Morristown-Sevierville, TN |
| DeKalb | TN | |
| Brewster | TX | |
| Cameron | TX | Brownsville-Harlingen-Raymondville, TX |
| Gregg | TX | Longview, TX |

| County | State | Metropolitan Statistical Area |
|------------|-------|--|
| Harrison | TX | Longview, TX |
| Hidalgo | TX | McAllen-Edinburg, TX |
| Nueces | TX | Corpus Christi-Kingsville-Alice, TX |
| Polk | TX | |
| Webb | TX | Laredo, TX |
| San Juan | UT | |
| Fauquier | VA | Washington-Baltimore-Arlington, DC-MD-VA-WV-PA |
| Frederick | VA | Washington-Baltimore-Arlington, DC-MD-VA-WV-PA |
| Roanoke | VA | Roanoke, VA |
| Rockbridge | VA | |
| Wythe | VA | |
| Chittenden | VT | Burlington-South Burlington-Barre, VT |
| Rutland | VT | |
| Clallam | WA | |
| Skagit | WA | Seattle-Tacoma, WA |
| Ashland | WI | |
| Forest | WI | |
| La Crosse | WI | La Crosse-Onalaska, WI-MN |
| Marathon | WI | Wausau-Stevens Point-Wisconsin Rapids, WI |
| Taylor | WI | |
| Vilas | WI | |
| Greenbrier | WV | |
| Monongalia | WV | Morgantown-Fairmont, WV |
| Big Horn | WY | |
| Carbon | WY | |
| Converse | WY | |
| Fremont | WY | |
| Natrona | WY | Casper, WY |
| Teton | WY | Teton WY |
| Weston | WY | |

Notes:

1. This list represents counties with no monitored ozone air pollution in unhealthy ranges using the Air Quality Index based on 2008 NAAGS.

Health Effects of Ozone and Particle Pollution

Two types of air pollution dominate in the U.S.: ozone and particle pollution.¹ These two pollutants threaten the health and the lives of millions of Americans. Thanks to the Clean Air Act, the U.S. has far less of both pollutants now than in the past. Still, nearly 150 million people live in counties where monitors show unhealthy levels of one or both—meaning the air a family breathes could shorten life, cause lung cancer or other harmful effects.

So what are particle pollution and ozone?

Particle Pollution

Ever look at dirty tailpipe exhaust?

The dirty, smoky part of that stream of exhaust is made of particle pollution. Overwhelming evidence shows that particle pollution—like that coming from that exhaust smoke—can kill. Particle pollution can increase the risk of heart disease, lung cancer and asthma attacks and can interfere with the growth and work of the lungs.

What Is Particle Pollution?

Particle pollution refers to a mix of tiny solid and liquid particles that are in the air we breathe. Many of the particles are so small as to be invisible, but when levels are high, the air becomes opaque. Nothing about particle pollution is simple. In fact, it is so dangerous that it can shorten your life.

Size matters. Particles themselves are different sizes. Some are one-tenth the diameter of a strand of hair. Many are even tinier; some are so small they can only be seen with an electron microscope. Because of their size, you cannot see the individual particles. You can only see the haze that forms when millions of particles blur the spread of sunlight.

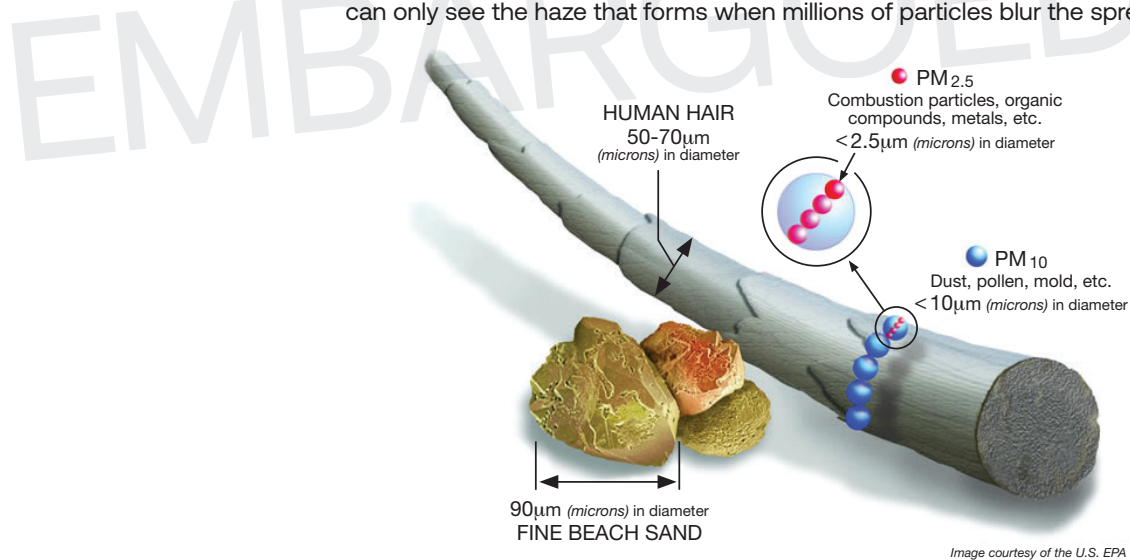


Image courtesy of the U.S. EPA

Researchers categorize particles according to size, grouping them as coarse, fine and ultrafine. Coarse particles (shown as blue dots in the illustration) fall between 2.5 microns and 10 microns in diameter and are called PM_{10-2.5}. Fine particles (shown as pink dots in the illustration) are 2.5 microns in diameter or smaller and are called PM_{2.5}. Ultrafine particles (not shown) are smaller than 0.1 micron in diameter² and are small enough to pass through the lung tissue into the blood stream, circulating like the oxygen molecules themselves. No matter what the size, particles can harm your health.

The differences in size make a big difference in where particles affect us. Our natural defenses help us to cough or sneeze some coarse particles out of our bodies. However, those defenses do not keep out smaller fine or ultrafine particles. These particles get trapped in the lungs, while the smallest are so minute that they can pass through the lungs into the bloodstream, just like the essential oxygen molecules we need to survive.

“A mixture of mixtures.” Because particles form in so many ways, they can be composed of many different compounds. Although we often think of particles as solids, not all are. Some are liquid; some are solids suspended in liquids. As EPA put it, particles are really “a mixture of mixtures.”³

The mixtures differ between different regions in the United States and in different times of the year. Much of that comes from the sources that produce the particles. For example, nitrate particles from motor vehicle exhaust form a larger proportion of the unhealthy mix in the winter in western states, especially California and portions of the Midwest. By contrast, Eastern states have more sulfate particles than the West on average, largely due to the high levels of sulfur dioxide emitted by large, coal-fired power plants.⁴

Who Is at Risk?

Anyone who lives where particle pollution levels are high is at risk. Some people face higher risk, however. People at the greatest risk from particle pollution exposure include:

- Infants, children and teens;⁵
- People with lung disease, especially asthma, but also people with chronic obstructive pulmonary disease;⁶
- People with cardiovascular disease⁷
- People of color⁸,
- Current or former smokers⁹
- People with low incomes;¹⁰ and
- People who are obese.¹¹

People with lung cancer also appear to be at higher risk from particle pollution, according to a 2016 study of more than 350,000 patients in California. Researchers looked at the exposure they experienced between 1988 and 2011 and found that where higher concentrations of particle pollution existed, people with lung cancer had poorer survival.¹²

EPA had concluded in the past the people with diabetes are also at higher risk of harm from particle pollution. In their most recent review of people at risk, they revised that decision. The evidence of increased risk remains strong, especially given the increased risk of cardiovascular disease from diabetes. Research has found evidence that long-term exposure to particle pollution may increase the risk of developing diabetes. Two independent reviews of published research found that particle pollution may increase the risk of developing type 2 diabetes mellitus.¹³

What Can Particles Do to Your Health?

Particle pollution can be very dangerous to breathe depending on the level. Breathing particle pollution may trigger illness, hospitalization and premature death, risks that are showing up in new studies that validate earlier research.

Thanks to steps taken to reduce particle pollution, good news is growing from researchers who study the drop in year-round levels of particle pollution.

- Looking at air quality in 545 counties in the U.S. between 2000 and 2007, researchers found that people had approximately four months added to their life expectancy on average due to cleaner air. Women and people who lived in urban and densely populated counties benefited the most.¹⁴
- Another long-term study of people in six U.S. cities tracked from 1974 to 2009 added more evidence of the benefits. The findings suggest that cleaning up particle pollution had almost immediate health benefits. The researchers estimated that the U.S. could prevent approximately 34,000 premature deaths a year if the nation could lower annual levels of particle pollution by 1 $\mu\text{g}/\text{m}^3$.¹⁵

These studies add to the growing research that cleaning up air pollution improves life and health.

Short-Term Exposure Can Be Deadly

First, short-term exposure to particle pollution can kill.¹⁶ Peaks or spikes in particle pollution can last from hours to days. Premature deaths from breathing these particles can occur on the very day that particle levels are high, or within one to two months afterward. Particle pollution does not just make people die a few days earlier than they might otherwise—these deaths would not have occurred so early if the air were cleaner.

Even low levels of particles can be deadly. A 2016 study found that people aged 65 and older in New England faced a higher risk of premature death from particle pollution, even in places that met current standards for short-term particle pollution.¹⁷ Another study in 2017 looked more closely at Boston and found a similar higher risk of premature death from particle pollution in a city that meets current limits on short-term particle pollution.¹⁸ Looking nationwide in a 2017 study, researchers found more evidence that older adults faced a higher risk of premature death even when levels of short-term particle pollution remained well below the current national standards. This was consistent whether the older adults lived in cities, suburbs or rural areas.¹⁹ Some of the strongest research has documented that short-term exposure to particle pollution causes premature death from respiratory and cardiovascular causes.²⁰

Particle pollution also has many other harmful effects, ranging from decreased lung function to heart attacks. Extensive research has linked short-term increases in particle pollution to:

- increased mortality in infants;²¹
- increased hospital admissions for cardiovascular disease, including heart attacks and ischemic heart disease;²²
- increased hospital admissions and emergency department visits for COPD;²³
- increased hospitalization for asthma among children;²⁴ and
- increased severity of asthma attacks in children.²⁵

A 2008 study of lifeguards in Galveston, Texas, provided evidence of the impact of short-term exposure to particle pollution on healthy, active adults. Testing the breathing capacity of these outdoor workers several times a day, researchers found that many lifeguards had reduced lung volume when fine particle levels were high. Because of this research, Galveston became the first city in the nation to install an air quality warning flag system on the beach.²⁶

Year-Round Exposure

Breathing high levels of particle pollution day in and day out can also be deadly, as landmark studies in the 1990s conclusively showed²⁷ and as later studies verified.²⁸ Recent research has confirmed that long-term exposure to particle pollution still kills, even with the declining levels in the U.S. since 2000²⁹ and even in areas, such as New England, that currently meet the official limit, or standard, for year-round particle pollution.³⁰

In 2013, the International Agency for Research on Cancer (known as IARC), part of the World Health Organization, concluded that particle pollution causes lung cancer. The IARC based its decision on the review of multiple studies from the U.S., Europe, and Asia and the presence of carcinogens on the particles.³¹

Research has also linked year-round exposure to particle pollution to:

- development of asthma in children;³²
- worsening of COPD in adults;³³
- slowed lung function growth in children and teenagers;³⁴

- increased risk of death from cardiovascular disease;³⁵ and
- increased risk of heart attacks and strokes.³⁶

Studies examining the impact on the nervous system of long-term exposure to particle pollution have found links to cognitive affects in adults including reduced brain volume, cognitive decrements and dementia.³⁷ Scientists have found evidence that particle pollution may impact pregnancy and birth outcomes, such as preterm birth, low birth weight as well as fetal and infant mortality.³⁸

The EPA is conducting their new review of the current research on particle pollution. Their findings from the last review, completed in December 2019,³⁹ are highlighted in the box below.

EPA Concludes Fine Particle Pollution Poses Serious Health Threats (2019)

- Causes early death (both short-term and long-term exposure)
- Causes cardiovascular harm (e.g., heart attacks, strokes, heart disease, congestive heart failure)
- Likely to cause respiratory harm (e.g., worsened asthma, worsened COPD, inflammation)
- Likely to cause cancer
- Likely to cause harm to the nervous system (e.g. reduced brain volume, cognitive effects)
- May cause reproductive and developmental harm

—U.S. Environmental Protection Agency, Integrated Science Assessment for Particulate Matter, December 2019. EPA 600/R-19/188

Where Does Particle Pollution Come From?

Particle pollution forms through two separate processes—mechanical and chemical.

Mechanical processes break down bigger bits into smaller bits with the material remaining essentially the same, only becoming smaller. Dust storms, construction and demolition, mining operations, and agriculture are among the activities that produce particles. Tire, brake pad and road wear can also create particles.

Combustion of carbon-based fuels generates most of the fine particles in our atmosphere. Burning wood in residential fireplaces and wood stoves as well as wildfires, agricultural fires and prescribed fires are some of the largest sources. Wildfires are growing, particularly in the mountain west because of climate change. These processes create about 36 percent of fine particles.⁴⁰ Burning fossil fuels in factories, power plants, diesel- and gasoline-powered motor vehicles (cars and trucks) and equipment emit a large part of the raw materials for fine particles.

Chemical processes in the atmosphere create most of the tiniest fine and ultrafine particles in the air. Burning fuels or other human activity or by natural sources emit gases that form particles in the air. These gases can oxidize and then condense to become a particle of a simple chemical compound. Or they can react with other gases or particles in the atmosphere to form a particle of a different or of multiple chemical compounds. Particles formed by this latter process come from the reaction of elemental carbon (soot), heavy metals, sulfur dioxide (SO₂), nitrogen oxides (NO_x), ammonia (NH₃) and volatile organic compounds with water and other compounds in the atmosphere.⁴¹

Are Some Particles More Dangerous Than Others?

With so many sources of particles, researchers want to know if some particles pose greater risk than others. Researchers are exploring possible differences in health effects of the sizes of particles and particles from different sources, such as diesel particles from trucks and buses or sulfates from coal-fired power plants. Recent studies have tried to answer this question. So far, the answers are complicated.

Each particle may have many different components. The building blocks of each can include several biological and chemical components. Bacteria, pollen and other biological ingredients can combine in the particle with chemical agents, such as heavy metals, elemental carbon, dust and secondary species like sulfates and nitrates. These combinations mean that particles can have complex effects on the body.⁴²

Some studies have found different kinds of particles may have greater risk for different health outcomes.^{43,44,45}

Other studies have identified the challenges of exploring all the kinds of particles and their health effects with the limited monitoring across the nation.^{46,47} Some particles serve as carriers for other chemicals that are also toxic, and the combination may worsen the impact.^{48,49}

The best evidence shows that having less of all types of particles in the air leads to better health and longer lives.

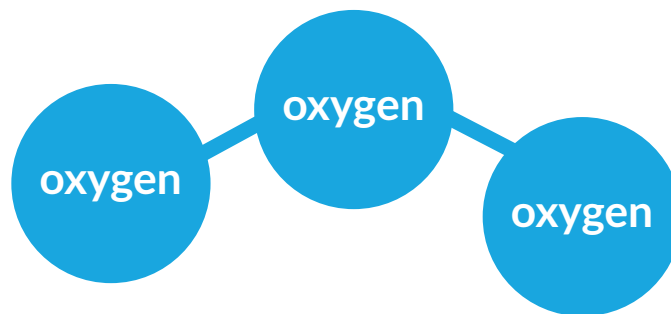
Ozone

It may be hard to imagine that pollution could be invisible, but ozone begins that way. As ozone concentrates and mixes with other pollutants, we often call it by its older, more common name—smog. It is currently one of the least well-controlled pollutants in the United States.⁵⁰ And it is also one of the most dangerous.

Scientists have studied the effects of ozone on health for decades. Hundreds of research have confirmed that ozone harms people at levels currently found in the United States. In the last decade, we have learned that it can also be deadly.

What Is Ozone?

Ozone (O₃) is a gas molecule composed of three oxygen atoms. Often called “smog,” ozone is harmful to breathe. Ozone aggressively attacks lung tissue by reacting chemically with it. When ozone is present, there are other harmful pollutants created by the same processes that make ozone.



The ozone layer found high in the upper atmosphere (the stratosphere) shields us from much of the sun’s ultraviolet radiation. However, ozone air pollution at ground level where we can breathe it (in the troposphere) causes serious health problems.

Where Does Ozone Come From?

Ozone develops in the atmosphere from gases that come out of tailpipes, smokestacks and many other sources. When these gases come in contact with sunlight, they react and form ozone smog.

The essential raw ingredients for ozone are nitrogen oxides (NO_x) and volatile organic compounds (VOCs). They are produced primarily when fossil fuels like gasoline, oil or coal are burned or when some chemicals, like solvents, evaporate. NO_x is emitted from power plants, motor vehicles and other sources of high-heat combustion. VOCs are emitted from motor vehicles, chemical plants, refineries, factories, gas stations, paint and other sources.⁵¹

If the ingredients are present under the right conditions, they react to form ozone. Sunlight is key. And because the reaction takes place in the atmosphere, the ozone often shows up downwind of the sources of the original gases. In addition, winds can carry ozone far from where it formed, even internationally across borders and even across the oceans.



You may have wondered why “ozone action day” warnings are sometimes followed by recommendations to avoid activities such as mowing your lawn or driving your car. Lawn mower exhaust and gasoline vapors contain nitrogen oxides (NOx) and volatile organic compounds (VOCs) that are key to the formation of ozone in the presence of heat and sunlight.

Who Is at Risk from Breathing Ozone?

Anyone who spends time outdoors where ozone pollution levels are high may be at risk. Five groups of people are especially vulnerable to the effects of breathing ozone:

- children and teens⁵²;
- anyone 65 and older⁵³;
- people with existing lung diseases, such as asthma and chronic obstructive pulmonary disease (also known as COPD, which includes emphysema and chronic bronchitis⁵⁴; and
- people who work or exercise outdoors.⁵⁵

In addition, some evidence suggests that other groups—including women, people who suffer from obesity and low income people—may also face higher risk from ozone.⁵⁶ More research is needed to confirm these findings.

The impact on your health can depend on many factors, however. For example, the risks would be greater if ozone levels are higher, if you are breathing faster because you’re working or exercising outdoors or if you spend more time outdoors.

Again, the impact of even short-term exposure to ozone pollution on healthy adults was demonstrated in the Galveston lifeguard study. In addition to the harmful effects of particle pollution, lifeguards had greater obstruction of their airways at the end of the day when ozone levels were high.⁵⁷

How Ozone Pollution Harms Your Health

Premature death. Breathing ozone can shorten your life. Strong evidence exists of the deadly impact of ozone from large studies conducted in cities across the U.S., in Europe and in Asia. Researchers repeatedly found that the risk of premature death increased with higher levels of ozone.⁵⁸ Newer research has confirmed that ozone increased the risk of premature death even when other pollutants also exist.⁵⁹

Immediate breathing problems. Many areas in the United States produce enough ozone during the summer months to cause health problems that can be felt right away. Immediate problems—in addition to increased risk of premature death—include:

- shortness of breath, wheezing and coughing;
- asthma attacks;
- increased risk of respiratory infections;

- increased susceptibility to pulmonary inflammation; and
- increased need for people with lung diseases, like asthma or chronic obstructive pulmonary disease (COPD), to receive medical treatment and to go to the hospital.^{60,61,62}

Long-term exposure risks. New studies warn of serious effects from breathing ozone over longer periods. With more long-term data, scientists are finding that long-term exposure—that is, for periods longer than eight hours, including days, months or years—may increase the risk of early death.

- Examining the records from a long-term national database, researchers found a higher risk of death from respiratory diseases associated with increases in ozone.⁶³
- New York researchers looking at hospital records for children’s asthma found that the risk of admission to hospitals for asthma increased with chronic exposure to ozone. Younger children and children from low-income families were more likely than other children to need hospital admissions even during the same time periods.⁶⁴
- California researchers analyzing data from their long-term Southern California Children’s Health Study found that some children with certain genes were more likely to develop asthma as adolescents in response to the variations in ozone levels in their communities.⁶⁵
- Studies link lower birth weight and decreased lung function in newborns to ozone levels in their community.⁶⁶ This research provides increasing evidence that ozone may harm newborns.

Breathing other pollutants in the air may make your lungs more responsive to ozone—and breathing ozone may increase your body’s response to other pollutants. For example, research warns that breathing sulfur dioxide and nitrogen oxide—two pollutants common in the eastern U.S.—can make the lungs react more strongly than just breathing ozone alone. Breathing ozone may also increase the response to allergens in people with allergies. A large study published in 2009 found that children were more likely to suffer from hay fever and respiratory allergies when ozone and PM_{2.5} levels were high.⁶⁷

Research shows lower level of ozone causes harm. The EPA released their latest complete review of the current research on ozone pollution in February 2013.⁶⁸ The EPA had engaged a panel of expert scientists, the Clean Air Scientific Advisory Committee, to help them assess the evidence that was brought together by the EPA; in particular, they examined research published between 2006 and 2012. The experts on the committee and EPA concluded that ozone pollution posed multiple, serious threats to health. Their findings are highlighted in the box below. Based on that review, EPA strengthened the official limit on ozone, called the National Ambient Air Quality Standard, in 2015.

However, new research provides evidence that ozone can cause serious harm even at much lower levels. In a 2017 scientific paper, researchers further evidence in a nationwide study that older adults faced a higher risk of premature death even when levels of ozone pollution remained well below the current national standard.⁶⁹

EPA Concludes Ozone Pollution Poses Serious Health Threats (2013)

- Causes respiratory harm (e.g., worsened asthma, worsened COPD, inflammation)
- Likely to cause early death (both short-term and long-term exposure)
- Likely to cause cardiovascular harm (e.g., heart attacks, strokes, heart disease, congestive heart failure)
- May cause harm to the central nervous system
- May cause reproductive and developmental harm

—U.S. Environmental Protection Agency, *Integrated Science Assessment for Ozone and Related Photochemical Oxidants*, 2013. EPA/600/R-10/076F.

Focusing on Children's Health

Children face special risks from air pollution because their lungs are growing and because they are so active and breathe in a great deal of air.

Just like the arms and legs, the largest portion of a child's lungs will grow long after he or she is born. Eighty percent of their tiny air sacs develop after birth. Those sacs, called the alveoli, are where the life-sustaining transfer of oxygen to the blood takes place. The lungs and their alveoli aren't fully grown until children become adults.⁷⁰ In addition, the body's defenses that help adults fight off infections are still developing in young bodies.⁷¹ Children have more respiratory infections than adults, which also seems to increase their susceptibility to air pollution.⁷²

Furthermore, children don't behave like adults, and their behavior also affects their vulnerability. They are outside for longer periods and are usually more active when outdoors. Consequently, they inhale more polluted outdoor air than adults typically do.⁷³

Air Pollution Affects Children Before They Are Born

Several studies have found air pollution linked to harm to children while they are still in the womb. A large study in California found that higher particle pollution levels increased the risk of preterm birth.⁷⁴ Pregnant women exposed to even low levels of particle pollution had higher risk for preterm birth in a Boston study.⁷⁵ Preterm births occurred more frequently when particle pollution spiked, as an Australian study found, even when they controlled for other risk factors.⁷⁶

Air Pollution Limits Lung Growth in Children

The Southern California Children's Health study looked at the long-term effects of air pollution on children and teenagers. Tracking 1,759 children who were between ages 10 and 18 from 1993 to 2001, researchers found that those who grew up in more polluted areas face the increased risk of having reduced lung growth, which may never recover to their full capacity. The average drop in lung function was similar to the impact of growing up in a home with parents who smoked.⁷⁷

Community health studies are pointing to less obvious, but serious effects from year-round exposure to ozone, especially for children. Scientists followed 500 Yale University students and determined that living just four years in a region with high levels of ozone and related co-pollutants was associated with diminished lung function and frequent reports of respiratory symptoms.⁷⁸ Another earlier report from the Children's Health study of 3,300 schoolchildren in Southern California found reduced lung function in girls with asthma and boys who spent more time outdoors in areas with high levels of ozone.⁷⁹

Cleaning Up Pollution Can Reduce Risk to Children

There is also real-world evidence that reducing air pollution can help protect children.

A 2015 follow-up to the Southern California Children's Health study showed that reducing pollution could improve children's health. They compared the children who had been part of their earlier studies to a new group of 863 children living in the same area, but growing up between 2007 and 2011, when the air in Southern California was much cleaner. Children growing up in the cleaner air had much greater lung function growth, a benefit that may help them throughout their lives. As the researchers noted, their study suggested that "all children have the potential to benefit from improvements in air quality."⁸⁰

Further evidence that cleaner air provides real benefits to children's health came in a 2016 report from the same study exploring changes to 4,602 children's respiratory symptoms such as coughing, congestion and phlegm. The study looked at the changes in these symptoms in three groups of children living in Southern California over different periods of time when air quality also differed (1993-2001, 1996-2004, and 2003-2012).

As air quality improved, the children in the study suffered fewer bronchial symptoms whether they had asthma or not. In communities where the air quality improved the most, the children experienced even fewer symptoms.⁸¹

So, does cleaning up the air really improve children's health? In 2017, the researchers reviewed these long-term studies of children in Southern California and the impact of improvements in air quality on their health. They concluded that the 20 years of collected data provided strong evidence of the potential to improve children's health by reducing some of the most common outdoor air pollutants.⁸²

The U.S. is not alone in this finding. In Switzerland, particle pollution dropped during a period in the 1990s. Researchers there tracked 9,000 children over a nine-year period, following their respiratory symptoms. After taking other factors such as family characteristics and indoor air pollution into account, the researchers noted that during the years with less pollution, the children had fewer episodes of chronic cough, bronchitis, common cold and conjunctivitis symptoms.⁸³

Disparities in the Impact of Air Pollution

The burden of air pollution is not evenly shared. Poorer people and some racial and ethnic groups are among those who often face higher exposure to pollutants and who may experience greater responses to such pollution. Many studies have explored the differences in harm from air pollution to racial or ethnic groups and people who are in a low socioeconomic position, have less education, or live nearer to major sources,⁸⁴ including a workshop the American Lung Association held in 2001 that focused on urban air pollution and health inequities.⁸⁵ The most recent EPA review of the research on the health effects of particle pollution concluded that nonwhite populations, especially blacks, faced higher risk from particle pollution.⁸⁶

Many studies have looked at differences in the impact of air pollution on premature death. Recent studies have looked at the mortality in the Medicaid population and found that those who live in predominately black or African American populations suffered greater risk of premature death from particle pollution than those who live in communities that were predominately white.⁸⁷ Another large study found that Hispanics and Asians, but especially blacks, had a higher risk of premature death from particle pollution than whites did. This study found that income did not drive the differences. Higher income blacks who had higher income than many whites still faced greater risk than those whites, suggesting that the impact of other factors such as chronic stress as a result of discrimination may be playing a role.⁸⁸ Other researchers have found greater risk for African Americans from hazardous air pollutants, including those pollutants that also come from traffic sources.⁸⁹ Due to decades of residential segregation, African Americans tend to live where there is greater exposure to air pollution.⁹⁰

Socioeconomic position also appears tied to greater harm from air pollution. Multiple large studies show evidence of that link. Low socioeconomic status consistently increased the risk of premature death from fine particle pollution among 13.2 million Medicare recipients studied in the largest examination of particle pollution-related mortality nationwide.⁹¹ In a 2008 study that found greater risk for premature death for communities with higher African American populations, researchers also found greater risk for people living in areas with higher unemployment or higher use of public transportation.⁹² A 2008 study of Washington, DC, found that while poor air quality and worsened asthma went hand in hand in areas where Medicaid enrollment was high, the areas with the highest Medicaid enrollment did not always have the strongest association of high air pollution and asthma attacks.⁹³ A 2016 study of New Jersey residents found that the risk of dying early from long-term exposure to particle pollution was higher in communities with larger African-American populations, lower home values and lower median income.⁹⁴ Studies of Atlanta, Georgia, found that particle pollution increased the risk of asthma attacks for zip codes where poverty was high and among

people eligible for Medicaid.⁹⁵

Scientists have speculated that there are three broad reasons why disparities may exist. First, groups may face greater exposure to pollution because of factors ranging from racism to class bias to housing market dynamics and land costs. For example, pollution sources tend to be located near disadvantaged communities, increasing exposure to harmful pollutants. Second, low social position may make some groups more susceptible to health threats because of factors related to their disadvantage. Lack of access to health care, grocery stores and good jobs; poorer job opportunities; dirtier workplaces or higher traffic exposure are among the factors that could handicap groups and increase the risk of harm. Finally, existing health conditions, behaviors or traits may predispose some groups to greater risk. For example, people of color are among the groups most at risk from air pollutants, and the elderly, African Americans, Mexican Americans and people living near a central city have higher incidence of diabetes.

People of color also may be more likely to live in counties with higher levels of pollution. Non-Hispanic blacks and Hispanics were more likely to live in counties that had worse problems with particle pollution, researchers found in a 2011 analysis. Non-Hispanic blacks were also more likely to live in counties with worse ozone pollution. Income groups, by contrast, differed little in these exposures. However, since few rural counties have monitors, the primarily older, non-Hispanic white residents of those counties lack information about the air quality in their communities.⁹⁶

Unemployed people, those with low income or low education and non-Hispanic blacks were found to be more likely to live in areas with higher exposures to particle pollution in a 2012 study. However, the different racial/ethnic and income groups were often breathing very different kinds of particles; the different composition and structure of these particles may have different health impacts.⁹⁷

Highways May Be Especially Dangerous for Breathing

Being in heavy traffic or living near a road with heavy traffic may be risky compared with being in other places in a community. Growing evidence shows that many different pollutants along busy highways may be higher than in the community as a whole, increasing the risk of harm to people who live or work near busy roads.

The number of people living “next to a busy road” may include 30 to 45 percent of the urban population in North America, according to the most recent comprehensive review of the evidence. In January 2010, the Health Effects Institute published a major review of the evidence put together by a panel of expert scientists. The panel looked at over 700 studies from around the world, examining the health effects of traffic pollution. They concluded that traffic pollution causes asthma attacks in children, and may cause a wide range of other effects including the onset of childhood asthma, impaired lung function, premature death and death from cardiovascular diseases, and cardiovascular morbidity. The area most affected, they concluded, was roughly the band within 0.2 to 0.3 miles (300 to 500 meters) of the highway.⁹⁸

Children and teenagers are among the most vulnerable—though not the only ones at risk. A Danish study found that long-term exposure to traffic air pollution may increase the risk of developing chronic obstructive pulmonary disease (COPD). They found that those most at risk were people who already had asthma or diabetes.⁹⁹ Studies have found increased risk of premature death from living near a major highway or an urban road.¹⁰⁰ Another study found an increase in risk of heart attacks from being in traffic, whether driving or taking public transportation.¹⁰¹ Urban women in a Boston study experienced decreased lung function associated with traffic-related pollution.¹⁰²

Adults living closer to the road—within 300 meters—may risk dementia. In 2017, a study of residents of Ontario, Canada, found that those who lived close to heavy traffic had a higher risk of dementia, although not for Parkinson’s disease or multiple sclerosis.

Researchers found the strongest association among those who lived closest to the roads (less than 50 meters), who had never moved and who lived in major cities.¹⁰³ A study of older men in 2011 also found that long-term exposure to traffic pollution increased their risk of having poor cognition.¹⁰⁴

How to Protect Yourself from Ozone and Particle Pollution

To minimize your exposure to ozone and particle pollution:

- Pay attention to forecasts for high air pollution days to know when to take precautions;
- Avoid exercising near high-traffic areas;
- Avoid exercising outdoors when pollution levels are high, or substitute an activity that requires less exertion;
- Do not let anyone smoke indoors and support measures to make all places smoke-free;
- Reduce the use of fireplaces and wood-burning stoves; and
- Consider getting a portable air cleaner with a HEPA filter if you live in an area prone to wildfire smoke (do not get an air cleaner that generates ozone).

Bottom line: Help yourself and everyone else breathe easier. Support national, state and local efforts to clean up sources of pollution. Your life and the life of someone you love may depend on it.

EMBARGOED

Endnotes

- 1 Ozone and particle pollution are the most widespread, but they aren't the only serious air pollutants. Others include carbon monoxide, lead, nitrogen dioxide and sulfur dioxide, as well as scores of toxins such as mercury, arsenic, benzene, formaldehyde and acid gases. However, the monitoring networks are not as widespread nationwide for these other pollutants.
- 2 U.S. EPA. Integrated Science Assessment for Particulate Matter (Final Report). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-08/139F, 2009. Available at <http://cfpub.epa.gov/ncea/cfm/recorddisplay.cfm?deid=216546>.
- 3 U.S. EPA. Air Quality Criteria for Particulate Matter, October 2004.
- 4 U.S. EPA. Integrated Science Assessment for Particulate Matter, December 2019. EPA/600/R-19/188.
- 5 U.S. EPA, 2019. Section 12.5.1.1.
- 6 U.S. EPA, 2019, Section 12.3.5
- 7 U.S. EPA 2019, Section 12.3.1.
- 8 U.S. EPA 2019, Section 12.5.4.
- 9 U.S. EPA 2019, Section 12.6.1.
- 10 U.S. EPA 2019, Section 12.5.3.
- 11 U.S. EPA 2019, Section 12.3.3.
- 12 Eckel SP, Cockburn M, Shu YH, Deng H, Lurmann FW, Liu L, Gilliland FD. Air pollution affects lung cancer survival. *Thorax*, 2016; 71:891-898.
- 13 Rao X, Patel P, Puett R and Rajogpalan S. Air pollution as a risk factor for type 2 diabetes. *Toxicological Sciences*. 2015; 143 (2): 231-241; Eze IC, Hemkens LG, Bucher HC, Hoffman B, et al. Association between ambient air pollution and diabetes mellitus in Europe and North America: Systematic review and meta-analysis. *Environ Health Perspect*. 2015; 123 (5): 381-389.
- 14 Correia AW, Pope CA III, Dockery DW, Wang Y, Ezzati M, Dominici F. Effect of air pollution control on life expectancy in the United States: An analysis of 545 U.S. Counties for the period from 2000 to 2007. *Epidemiology*. 2013; 24(1): 23-31.
- 15 Lepeule J, Laden F, Dockery D, Schwartz J. Chronic exposure to fine particles and mortality: An extended follow-up of the Harvard Six Cities Study from 1974 to 2009. *Environ Health Perspect*. 2012; 120: 965-970.
- 16 U.S. EPA, 2019, Section 6.1.9.
- 17 Shi L, Zanobetti A, Kloog I, Coull BA, Koutrakis P, Melly SJ, Schwartz JD. Low-concentration PM_{2.5} and mortality: estimating acute and chronic effects in a population-based study. *Environ Health Perspect*. 2016; 124:46-52. <http://dx.doi.org/10.1289/ehp.1409111>.
- 18 Schwartz J, Bind MA, Koutrakis P. Estimating causal effects of local air pollution on daily deaths: Effect of low levels. *Environ Health Perspect*. 2017; 125:23-29. <http://dx.doi.org/10.1289/EHP232>.
- 19 Di Q, Dai L, Wang Y, Zanobetti A, Choirat C, Schwartz JD, Dominici F. Association of Short-Term Exposure to Air Pollution with Mortality in Older Adults. *JAMA*. 2017; 318: 2446-2456.
- 20 U.S. EPA, 2019, Section 11.1
- 21 U.S. EPA, 2019, Section 9.1.2.6/
- 22 U.S. EPA, 2019. Section 6.1.2.
- 23 U.S. EPA, 2019, Section 5.1.2.1.1.
- 24 U.S. EPA, 2019. Section 5.1.2.1.
- 25 U.S. EPA, 2019. Section 5.1.2.2.1.
- 26 Thaller EI, Petronell SA, Hochman D, Howard S, Chhikara RS, Brooks EG. Moderate increases in ambient PM_{2.5} and ozone are associated with lung function decreases in beach lifeguards. *J Occup Environ Med*. 2008; 50: 202-211.
- 27 Dockery DW et al. An association between air pollution and mortality in six U.S. cities. *N Engl J Med*. 1993; 329: 1753-1759. Pope CA et al. Particulate air pollution as a predictor of mortality in a prospective study of U.S. adults. *Am J Respir Crit Care Med*. 1995; 151: 669-674.
- 28 U.S. EPA, 2019. Section 11.2.2.1.
- 29 Thurston GD, Ahn J, Cromar KR, Shao Y, Reynolds H, et al. Ambient particulate matter air pollution exposure and mortality in the NIH-AARP Diet and Health Cohort. *Environ Health Perspect*. 2015. 124: 484-490; Lepeule J, Laden F, Douglas Dockery D, and Schwartz J. Chronic exposure to fine particles and mortality: An extended follow-up of the Harvard Six Cities Study from 1974 to 2009. *Environ Health Perspect*. 2012; 120: 965-970.
- 30 Shi L, Zanobetti A, et al. Low-concentration PM_{2.5} and mortality: estimating acute and chronic effects in a population-based study. *Environ Health Perspect*. 2015; 124: 46-52.
- 31 Hamra GB, Guha N, Cohen A, Laden F, Raaschou-Nielsen O, Samet JM, Vineis P, Forastiere F, Saldiva P, Yorifuji T, and Loomis D. Outdoor particulate matter exposure and lung cancer: A systematic review and meta-analysis. *Environ Health Perspect*. 2014; 122: 906-911.
- 32 U.S. EPA, 2019. Section 5.2.3.1.
- 33 U.S. EPA, 2019. Section 5.2.5.
- 34 U.S. EPA, 2019. Section 5.2.2.2.1.
- 35 U.S. EPA, 2019. Section 6.2.10
- 36 U.S. EPA, 2019. Section 6.2.2 and Section 6.2.3.
- 37 U.S. EPA, 2019. Section 8.2.9
- 38 U.S. EPA, 2019. Section 9.1.2, especially Section 9.1.2.3.1. and Section 9.1.2.6.
- 39 U.S. EPA, 2019.
- 40 U.S. EPA, 2019, Section 2.3.1.1.
- 41 U.S. EPA, 2019, Section 2.3.2.
- 42 Morakinyo OM, Mokgobu MI, Mukhola MS, Hunter RP. Review: Health outcomes of exposure to biological and chemical components of inhalable and respirable particulate matter. *Int. J. Environ. Res. Public Health*. 2016; 592.
- 43 Thurston GD, et al. Ischemic heart disease mortality and long-term exposure to source-related components of U.S. fine particle air pollution. *Environ Health Perspect*; 2016; 124:785-794. <http://dx.doi.org/10.1289/ehp.1509777>.

- 44 Bell ML, et al. Associations of PM_{2.5} constituents and sources with hospital admissions: analysis of four counties in Connecticut and Massachusetts (USA) for persons ≥ 65 years of age. *Environ Health Perspect*. 2014; 122: 138–144; <http://dx.doi.org/10.1289/ehp.1306656>.
- 45 Ebisu K, Bell ML. Airborne PM_{2.5} chemical components and low birth weight in the Northeastern and Mid-Atlantic regions of the United States. *Environ Health Perspect*. 2012; 120: 1746–1752; <http://dx.doi.org/10.1289/ehp.1104763>.
- 46 Levy JI, Diez D, Dou Y, Barr CD, Dominici F. A meta-analysis and multisite time-series analysis of the differential toxicity of major fine particulate matter constituents. *Am J Epidemiology*. 2012; 175(11): 1091–1099. doi:10.1093/aje/kwr457.
- 47 Dai L, Zanobetti A, Koutrakis P, Schwartz JD. Associations of fine particulate matter species with mortality in the United States: A multicity time-series analysis. *Environ Health Perspect*. 2014; 122(8): 837–842. doi:10.1289/ehp.1307568.
- 48 Morakinyo et al., 2016
- 49 Cassee FR, Héroux M-E, Gerlofs-Nijland ME, Kelly FJ. Particulate matter beyond mass: recent health evidence on the role of fractions, chemical constituents and sources of emission. *Inhalation Toxicology*. 2013; 25(14): 802–812. doi:10.3109/08958378.2013.850127.
- 50 U.S. EPA. 2017. Nonattainment Areas for Criteria Pollutants (Green Book). Accessed at <https://www.epa.gov/green-book>. Data updated as of January 31, 2018.
- 51 U.S. Environmental Protection Agency. *Integrated Science Assessment of Ozone and Related Photochemical Oxidants (Final Report)*. U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-10/076F, 2013.
- 52 U.S. EPA, 2013, Section 8.3.1.1;
- 53 U.S. EPA, 2013, Section 8.3.1.2. Medina-Ramón M, Schwartz J. Who is more vulnerable to die from ozone air pollution? *Epidemiology*. 2008; 19: 672–679.
- 54 U.S. EPA, 2013. Section 8.2.2 and 8.2.3.
- 55 U.S. EPA, 2013. Section 8.4.4.
- 56 U.S. EPA, 2013, Section 8.3.2, 8.3.3, and 8.4.2..
- 57 Thaller, et al., 2008.
- 58 U.S. EPA, 2013, Section 6.2.
- 59 Di Q, Wang Y, Zanobetti A, et al. Air Pollution and Mortality in the Medicare Population. *N Engl J Med*. 2017; 376:2513–2522.
- 60 Mar TF, Koenig JQ. Relationship between visits to emergency departments for asthma and ozone exposure in greater Seattle, Washington. *Ann Allergy Asthma Immunol*. 2009; 103: 474–479 Strickland MJ, Darrow LA, et al. Short-term associations between ambient air pollutants and pediatric asthma emergency department visits. *A J Respir Critical Care Med*, 2010, 182:307–316.
- 61 Desqueyroux H, Pujat JC, Prosper M, Squinazi F, Momas I. Short-Term Effects of Low-Level Air Pollution on Respiratory Health of Adults Suffering from Moderate to Severe Asthma. *Environ Res*. 2002; 89:29–37.
- 62 Lin S, Liu X, Le LH, Hwang SA. Chronic exposure to ambient ozone and asthma hospital admissions among children. *Environ Health Perspect*. 2008; 116: 1725–1730. Medina-Ramón, et al., 2006
- 63 Jerrett M, Burnett RT, et al. Long-term ozone exposure and mortality. *N Engl J Med*. 2009: 1085–1095.
- 64 Lin S, Liu X, Le LH, and Hwang S-A. Chronic exposure to ambient ozone and asthma hospital admissions among children. *Environ Health Perspect*. 2008; 116:1725–1730.
- 65 Islam T, McConnell R, Gauderman WJ, Avol E, Peters JM, and Gilliland F. Ozone, oxidant defense genes, and risk of asthma during adolescence. *Am J Respir Crit Care Med*. 2009; 177(4):388–395.
- 66 Salam MT, Millstein J, Li YF, Lurmann FW, Margolis HG, Gilliland FD. Birth outcomes and prenatal exposure to ozone, carbon monoxide, and particulate matter: Results from the Children's Health Study. *Environ Health Perspect*. 2005; 113: 1638–1644; Morello-Frosch R, Jesdale BM, Sadd JL, Pastor M. Ambient air pollution exposure and full-term birth weight in California. *Environ Health*. 2010; 9: 44.
- 67 Parker JD, Akinbami LJ, Woodruff TJ. Air Pollution and Childhood Respiratory Allergies in the United States. *Environ Health Perspect*. 2009; 117:140–147.
- 68 U.S. EPA, 2013.
- 69 Di Q, Dai L, Wang Y, Zanobetti A, Choirat C, Schwartz JD, Dominici F. Association of Short-Term Exposure to Air Pollution with Mortality in Older Adults. *JAMA*. 2017; 318: 2446–2456.
- 70 American Academy of Pediatrics Committee on Environmental Health, Ambient Air Pollution: Health hazards to children. *Pediatrics*. 2004; 114: 1699–1707. Statement was reaffirmed in 2010. Diert RR, Etzel RA, Chen D, et al. Workshop to identify critical windows of exposure for children's health: Immune and respiratory systems workgroup summary. *Environ Health Perspect*. 2000; 108 (supp 3): 483–490.
- 71 World Health Organization: The effects of air pollution on children's health and development: A review of the evidence E86575. 2005. Available at <http://www.euro.who.int/document/E86575.pdf>.
- 72 WHO, 2005.
- 73 American Academy of Pediatrics, 2004.
- 74 Laurent O, Hu J, Li L, et al. A statewide nested case-control study of preterm birth and air pollution by source and composition: California, 2001–2008. *Environ Health Perspect*. 2016. 124:1479–1486. Doi: 10.1289/ehp.1510133.
- 75 Nach RM, Mao G, Zhang X, et al. Intrauterine inflammation and maternal exposure to ambient PM_{2.5} during preconception and specific periods of pregnancy: the Boston Birth Cohort. *Environ Health Perspect*. 2016. 124:1608–1615; <http://dx.doi.org/10.1289/EHP243>.
- 76 Li S, Guo Y, Williams G. Acute impact of hourly ambient air pollution on preterm birth. *Environ Health Perspect*. 2016. 124:1623–1629; <http://dx.doi.org/10.1289/EHP200>
- 77 Gauderman et al., 2004.
- 78 Galizia A, Kinney PL. Year-round residence in areas of high ozone: Association with respiratory health in a nationwide sample of nonsmoking young adults. *Environ Health Perspect*. 1999; 107: 675–679.
- 79 Peters JM, Avol E, Gauderman WJ, Linn WS, Navidi W, London SJ, Margolis H, Rappaport E, Vora H, Gong H, Thomas DC. A study of twelve southern California communities with differing levels and types of air pollution. II: Effects on pulmonary function. *Am J Respir Crit Care Med*. 1999; 159: 768–775.
- 80 Gauderman WJ, Urman R, Avol E, Berhane K, McConnell R, Rappaport E, Chang R, Lurmann F, Gilliland F. Association of improved air quality with lung development in children. *N Eng J Med*. 2015; 372: 905–913.

- 81 Berhane K, Chang C-C, McConnell R, Gauderman JW, et al. Association of Changes in Air Quality with Bronchitic Symptoms in Children in California, 1993-2012. *JAMA*. 2016; 315: 1491-1501.
- 82 Gilliland F, Avol E, McConnell R, Berhane K, Gauderman WJ, Lurmann FW, et al. 2017. The Effects of Policy-Driven Air Quality Improvements on Children's Respiratory Health. Research Report 190. Boston, MA:Health Effects Institute.
- 83 Bayer-Oglesby L, Grize L, Gassner M, Takken-Sahli K, Sennhauser FH, Neu U, Schindler C, Braun-Fahrlander C. Decline of ambient air pollution levels and improved respiratory health in Swiss children. *Environ Health Perspect*. 2005; 113: 1632-1637.
- 84 Institute of Medicine. Toward Environmental Justice: Research, Education, and Health Policy Needs. Washington, DC: National Academy Press, 1999; O'Neill MS, et al. Health, wealth, and air pollution: Advancing theory and methods. *Environ Health Perspect*. 2003; 111: 1861-1870; Finkelstein et al. Relation between income, air pollution and mortality: A cohort study. *CMAJ*. 2003; 169: 397-402; Zeka A, Zanobetti A, Schwartz J. Short term effects of particulate matter on cause specific mortality: effects of lags and modification by city characteristics. *Occup Environ Med*. 2006; 62: 718-725.
- 85 American Lung Association. Urban air pollution and health inequities: A workshop report. *Environ Health Perspect*. 2001; 109 (suppl 3): 357-374.
- 86 U.S. EPA, 2019, Section 12.5.4.
- 87 Kioumourtzoglou MA, Schwartz J, James P, Dominici F, Zanobetti A. PM_{2.5} and mortality in 207 us cities: Modification by temperature and city characteristics. *Epidemiology*, 2016; 27: 221-227.
- 88 Di Q, et al, *N Engl J Med*, 2017.
- 89 Apelberg BJ, Buckley TJ, White RH. Socioeconomic and racial disparities in cancer risk from air toxics in Maryland. *Environ Health Perspect*. 2005; 113: 693-699.
- 90 Nardone A, Casey JA, Morello-Frosch R, Mujahid M, Balmes JR, Thakur N. Associations between historical residential redlining and current age-adjusted rates of emergency department visits due to asthma across eight cities in California: an ecological study. *Lancet Planet Health*. 2020;4(1):e24-e31.
- 91 Zeger SL, Dominici F, McDermott A, Samet J. Mortality in the Medicare population and chronic exposure to fine particulate air pollution in urban centers (2000-2005). *Environ Health Perspect*. 2008; 116: 1614-1619.
- 92 Bell ML, Dominici F. Effect modification by community characteristics on the short-term effects of ozone exposure and mortality in 98 US communities. *Am J Epidemiol*. 2008; 167: 986-997
- 93 Babin S, Burkom H, Holtry R, Taberner N, Davies-Cole J, Stokes L, Dehaan K, Lee D. Medicaid patient asthma-related acute care visits and their associations with ozone and particulates in Washington, DC, from 1994-2005. *Int J Environ Health Res*. 2008; 18 (3): 209-221.
- 94 Wang Y, Kloog I, Coul BA, Kosheleva A, Zanobetti A, Schwartz JD. Estimating causal effects of long-term PM_{2.5} exposure on mortality in New Jersey. *Environ Health Perspect*. 2016; 124: 1182-1188.
- 95 O'Lenick, CR et al. Assessment of neighbourhood-level socioeconomic status as a modifier of air pollution-asthma associations among children in Atlanta. *J Epi Comm Health*. 2017;71(2):129-136; Strickland MJ, et al. Modification of the effect of ambient air pollution on pediatric asthma emergency visits: susceptible subpopulations. *Epidemiology*. 2014; 25: 843-850;
- 96 Miranda ML, Edwards SE, Keating MH, Paul CJ. Making the environmental justice grade: The relative burden of air pollution exposure in the United States. *Int J Environ Res Public Health*. 2011; 8: 1755-1771.
- 97 Bell ML, Ebisu K. Environmental inequality in exposures to airborne particulate matter component in the United States. *Environ Health Perspect*. 2012; 120: 1699-1704.
- 98 Health Effects Institute Panel on the Health Effects of Traffic-Related Air Pollution, Traffic-Related Air Pollution: A Critical Review of the Literature on Emissions, Exposure, and Health Effects. Health Effects Institute: Boston, 2010. Available at www.healtheffects.org.
- 99 Andersen ZJ, Hvidberg M, Jensen SS, Ketzel M, Loft S, Sørensen M, Tjønneland A, Overvad K, Raaschou-Nielsen O. Chronic obstructive pulmonary disease and long-term exposure to traffic-related air pollution: A cohort study. *Am J Respir Crit Care Med*. 2011; 183: 455-461.
- 100 Finkelstein MM, Jerrett M, Sears MR. Traffic air pollution and mortality rate advancement periods. *Am J Epidemiol*. 2004; 160: 173-177; Hoek G, Brunekreef B, Goldbohn S, Fischer P, van den Brandt. Associations between mortality and indicators of traffic-related air pollution in the Netherlands: a cohort study. *Lancet*. 2002; 360: 1203-1209.
- 101 Peters A, von Klot S, Heier M, Trentinaglia I, Cyrus J, Hormann A, Hauptmann M, Wichmann HE, Lowel H. Exposure to traffic and the onset of myocardial infarction. *N Engl J Med*. 2004; 351: 1721-1730.
- 102 Suglia SF, Gryparis A, Schwartz J, Wright RJ. Association between traffic-related black carbon exposure and lung function among urban women. *Environ Health Perspect*. 2008; 116 (10): 1333-1337.
- 103 Chen H, Kwong JC, Copes R, et al. Living near major roads and the incidence of dementia, Parkinson's disease and multiple sclerosis: a population-based cohort study. *Lancet*. 2017. Published online [https://doi.org/10.1016/S0140-6736\(16\)32399-6](https://doi.org/10.1016/S0140-6736(16)32399-6).
- 104 Power MC, Weisskopf MG, Alexeeff SE, et al. Traffic-related air pollution and cognitive function in a cohort of older men. *Environ Health Perspect* 2011; 119:682-687. doi:10.1289/ehp.1002767.

Statistical Methodology: The Air Quality Data

Data Sources

Ozone and short-term particle pollution. The data on air quality throughout the United States were obtained from the U.S. Environmental Protection Agency's Air Quality System (AQS), formerly called Aerometric Information Retrieval System (AIRS) database. The American Lung Association contracted with Dr. Allen S. Lefohn, A.S.L. & Associates, Helena, Montana, to characterize the hourly averaged ozone concentration information and the 24-hour averaged PM_{2.5} concentration information for the three-year period for 2016-2018 for each monitoring site.

Year-round particle pollution. Design values for the annual PM_{2.5} concentrations by county for the period 2016-2018 were retrieved from data posted on **December 3, 2019**, at the U.S. Environmental Protection Agency's website at https://www.epa.gov/sites/production/files/2019-12/pm25_designvalues_20162018_final_12_03_19.xlsx. One exception is the design value for Whatcom County, Washington, where that the value is based on the combined design value determined by the state and EPA using data from two monitors. That design value was provided by the State of Washington in email communication.

Ozone Data Analysis

The 2016, 2017, and 2018 AQS hourly ozone data were used to calculate the daily 8-hour maximum concentration for each ozone-monitoring site. The hourly averaged ozone data were downloaded on June 26, 2019, following the close of the authorized period for quality review and assurance certification of data. Only the hourly average ozone concentrations derived from FRM and FEM monitors were used in the analysis. The data were considered for a three-year period for the same reason that the EPA uses three years of data to determine compliance with the ozone standard: to prevent a situation in any single year, where anomalies of weather or other factors create air pollution levels, which inaccurately reflect the normal conditions. The highest 8-hour daily maximum concentration in each county for 2016, 2017, and 2018, based on the EPA-defined ozone season, was identified.

The current national ambient air quality standard for ozone is 70 parts per billion (ppb) measured over eight hours. The EPA's Air Quality Index reflects the 70 ppb standard. A.S.L. & Associates prepared a table by county that summarized, for each of the three years, the number of days the ozone level was within the ranges identified by the EPA based on the EPA Air Quality Index:

| 8-hour Ozone Concentration | Air Quality Index Levels |
|----------------------------|---|
| 0 – 54 ppb | ■ Good (Green) |
| 55 – 70 ppb | ■ Moderate (Yellow) |
| 71 – 85 ppb | ■ Unhealthy for Sensitive Groups (Orange) |
| 86 – 105 ppb | ■ Unhealthy (Red) |
| 106 – 200 ppb | ■ Very Unhealthy (Purple) |
| >200 ppb | ■ Hazardous (Maroon) |

The goal of this report was to identify the number of days that 8-hour daily maximum concentrations in each county occurred within the defined ranges. This approach provided an indication of the level of pollution for all monitored days, not just those days that fell under the requirements for attaining the national ambient air quality standards. Therefore, no data capture criteria were applied to eliminate monitoring sites or to require a number of valid days for the ozone season.

The daily maximum 8-hour average concentration for a given day is derived from the highest of the 17 consecutive 8-hour averages beginning with the 8-hour period from 7:00 a.m. to 3:00 p.m. and ending with the 8-hour period from 11:00 p.m. to 7:00 a.m. the following day. This follows the process EPA uses for the current ozone standard adopted in 2015, but differs from the form used under the previous 0.075 ppm 8-hour average ozone standard that was established in 2008. All valid days of data within the ozone season were used in the analysis. However, for computing an 8-hour average, at least 75 percent of the hourly concentrations (i.e., 6-8 hours) had to be available for the 8-hour period. In addition, an 8-hour daily maximum average was identified if valid 8-hour averages were available for at least 75 percent of possible hours in the day (i.e., at least 13 of the possible 17 8-hour averages). Because the EPA includes days with inadequate data (i.e., not 75 percent complete) if the standard value is exceeded, our data capture methodology also included the site's 8-hour value if at least one valid 8-hour period were available, and it was 71 ppb or higher.

As instructed by the Lung Association, A.S.L. & Associates included the exceptional and natural events that were identified in the database and identified for the Lung Association the dates and monitoring sites that experienced such events. Some data have been flagged by the state or local air pollution control agency to indicate that they had raised issues with EPA about those data. For each day across all sites within a specific county, the highest daily maximum 8-hour average ozone concentration was recorded and then the results were summarized by county for the number of days the ozone levels were within the ranges identified above.

Following receipt of the above information, the American Lung Association identified the number of days each county, with at least one ozone monitor, experienced air quality designated as orange (Unhealthy for Sensitive Groups), red (Unhealthy), or purple (Very Unhealthy).

Short-Term Particle Pollution Data Analysis

A.S.L. & Associates identified the maximum daily 24-hour AQS $PM_{2.5}$ concentration for each county in 2016, 2017, and 2018 with monitoring information. The 24-hour $PM_{2.5}$ data were downloaded on August 7, 2019, following the close of the authorized period for quality review and assurance certification of data. In addition, on August 7, 2019, hourly averaged $PM_{2.5}$ concentration data were characterized into 24-hour average $PM_{2.5}$ values by the EPA and provided to A.S.L. & Associates. Using these results, A.S.L. & Associates prepared a table by county that summarized, for each of the three years, the number of days the maximum of the daily $PM_{2.5}$ concentration was within the ranges identified by the EPA based on the EPA Air Quality Index, as adopted by the EPA on December 14, 2012:

| 24-hour $PM_{2.5}$ Concentration | Air Quality Index Levels |
|--|---|
| 0.0 $\mu\text{g}/\text{m}^3$ to 12.0 $\mu\text{g}/\text{m}^3$ | ■ Good (Green) |
| 12.1 $\mu\text{g}/\text{m}^3$ to 35.4 $\mu\text{g}/\text{m}^3$ | ■ Moderate (Yellow) |
| 35.5 $\mu\text{g}/\text{m}^3$ to 55.4 $\mu\text{g}/\text{m}^3$ | ■ Unhealthy for Sensitive Groups (Orange) |
| 55.5 $\mu\text{g}/\text{m}^3$ to 150.4 $\mu\text{g}/\text{m}^3$ | ■ Unhealthy (Red) |
| 150.5 $\mu\text{g}/\text{m}^3$ to 250.4 $\mu\text{g}/\text{m}^3$ | ■ Very Unhealthy (Purple) |
| equal to or greater than 250.5 $\mu\text{g}/\text{m}^3$ | ■ Hazardous (Maroon) |

All previous data collected for 24-hour average $PM_{2.5}$ were characterized using the AQI thresholds listed above.

The goal of this report was to identify the number of days that the maximum in each county of the *daily* PM_{2.5} concentration occurred within the defined ranges. This approach provided an indication of the level of pollution for all monitored days, not just those days that fell under the requirements for attaining the national ambient air quality standards. Therefore, no data capture criteria were used to eliminate monitoring sites. Both 24-hour averaged PM data, as well as hourly averaged PM data averaged over 24 hours were used. Included in the analysis are data collected using only FRM and FEM methods, which reported hourly and 24-hour averaged data. As instructed by the Lung Association, A.S.L. & Associates included the exceptional and natural events that were identified in the database and identified for the Lung Association the dates and monitoring sites that experienced such events. Some data have been flagged by the state or local air pollution control agency to indicate that they had raised issues with EPA about those data. For each day across all sites within a specific county, the highest daily maximum 24-h PM_{2.5} concentration was recorded and then the results were summarized by county for the number of days the concentration levels were within the ranges identified above.

Following receipt of the above information, the American Lung Association identified the number of days each county, with at least one PM_{2.5} monitor, experienced air quality designated as orange (Unhealthy for Sensitive Groups), red (Unhealthy), purple (Very Unhealthy) or maroon (Hazardous).

Description of County Grading System

Ozone and Short-Term Particle Pollution (24-hour PM_{2.5})

The grades for ozone and short-term particle pollution (24-hour PM_{2.5}) were based on a weighted average for each county. To determine the weighted average, the Lung Association followed these steps:

1. First, assigned weighting factors to each category of the Air Quality Index. The number of orange days experienced by each county received a factor of 1; red days, a factor of 1.5; purple days, a factor of 2; and maroon days, a factor of 2.5. This allowed days where the air pollution levels were higher to receive greater weight.
2. Next, multiplied the total number of days within each category by their assigned factor, and then summed all the categories to calculate a total.
3. Finally, divided the total by three to determine the weighted average, since the monitoring data were collected over a three-year period.

The weighted average determined each county's grades for ozone and 24-hour PM_{2.5}.

- All counties with a weighted average of zero (corresponding to no exceedances of the standard over the three-year period) were given a grade of "A."
- For ozone, an "F" grade was set to generally correlate with the number of unhealthy air days that would place a county in nonattainment for the ozone standard.
- For short-term particle pollution, fewer unhealthy air days are required for an F than for nonattainment under the PM_{2.5} standard. The national air quality standard is set to allow two percent of the days during the three years to exceed 35 µg/m³ (called a "98th percentile" form) before violating the standard. That would be roughly 21 unhealthy days in three years. The grading used in this report would allow only about one percent of the days to be over 35 µg/m³ (called a "99th percentile" form) of the PM_{2.5}. The American Lung Association supports using the tighter limits in a 99th percentile form as a more appropriate standard that is intended to protect the public from short-term episodes or spikes in pollution.

| Grading System | | |
|----------------|------------------|--|
| Grade | Weighted Average | Approximate Number of Allowable Orange/Red/Purple/Maroon days |
| A | 0.0 | None |
| B | 0.3 to 0.9 | 1 to 2 orange days with no red |
| C | 1.0 to 2.0 | 3 to 6 days over the standard: 3 to 5 orange with no more than 1 red OR 6 orange with no red |
| D | 2.1 to 3.2 | 7 to 9 days over the standard: 7 total (including up to 2 red) to 9 orange with no red |
| F | 3.3 or higher | 9 days or more over the standard: 10 orange days or 9 total including at least 1 or more red, purple or maroon |

Weighted averages allow comparisons to be drawn based on severity of air pollution. For example, if one county had nine orange days and no red days, it would earn a weighted average of 3.0 and a D grade. However, another county that had only eight orange days but also two red days, which signify days with more serious air pollution, would receive an F. That second county would have a weighted average of 3.7.

Note that this system differs significantly from the methodology the EPA uses to determine violations of both the ozone and the 24-hour $PM_{2.5}$ standards. The EPA determines whether a county violates the standard based on the fourth maximum daily 8-hour ozone reading each year averaged over three years. Multiple days of unhealthy air beyond the highest four in each year are not considered. By contrast, the system used in this report recognizes when a community's air quality repeatedly results in unhealthy air throughout the three years. Consequently, some counties will receive grades of "F" in this report, showing repeated instances of unhealthy air, while still meeting the EPA's 2015 ozone standard. The American Lung Association's position is that the evidence shows that the 2015 ozone standard, although stronger than the 2008 standard, still fails to adequately protect public health.

The Lung Association calculates the county population at risk from these pollutants based on the population from the entire county where the monitor is located. The Lung Association then calculates the metropolitan population at risk based upon the largest metropolitan area that contains that county. Not only do people from that county or metropolitan area circulate within the county and the metropolitan area, the air pollution circulates to that monitor through the county and metropolitan area.

Counties were ranked by weighted average. Metropolitan areas were ranked by the highest weighted average among the counties within a given Metropolitan Statistical Area as of 2019 as defined by the White House Office of Management and Budget (OMB).

Year-Round Particle Pollution (Annual $PM_{2.5}$)

Since no comparable Air Quality Index exists for year-round particle pollution (annual $PM_{2.5}$), the grading was based on the 2012 National Ambient Air Quality Standard for annual $PM_{2.5}$ of $12 \mu\text{g}/\text{m}^3$. Counties that EPA listed as being at or below $12 \mu\text{g}/\text{m}^3$ were given grades of "Pass." Counties EPA listed as being at or above $12.1 \mu\text{g}/\text{m}^3$ were given grades of "Fail." Where insufficient data existed for EPA to determine a design value, those counties received a grade of "Incomplete."

Design value is the calculated concentration of a pollutant based on the form of the national ambient air quality standard and is used by EPA to determine whether the air quality in a county meets the standard. Counties were ranked by design value. Metropolitan areas were ranked by the highest design value among the counties within a given Metropolitan Statistical Area as of 2019 as defined by the OMB.

The Lung Association received critical assistance from members of the National Association of Clean Air Agencies and the Association of Air Pollution Control Agencies. With their assistance, all state and local agencies were provided the opportunity to review and comment on the data in draft tabular form. The Lung Association reviewed all discrepancies with the agencies and, if needed, with Dr. Lefohn at A.S.L. & Associates. The American Lung Association wishes to express its continued appreciation to the state and local air directors for their willingness to assist in ensuring that the characterized data used in this report are correct.

Calculations of Populations at Risk

Presently county-specific measurements of the number of persons with chronic conditions are not generally available. To assess the magnitude of chronic conditions at the state and county levels, we have employed a synthetic estimation technique originally developed by the U.S. Census Bureau. This method uses age-specific national and state estimates of self-reported conditions to project disease prevalence to the county level. The exception to this is poverty, for which estimates are available at the county level.

Population Estimates

The Lung Association includes the total county population in discussions of populations at risk from exposure to pollution in each county. The Lung Association uses that conservative count based on several factors: the recognized limited number and locations of monitors in most counties and metropolitan areas; the movement of the population both in daily activities, including outdoor activities, such as exercise or work; and the transport of emission from sources into and across the county to reach the monitor.

Not only do people from that county or metropolitan area circulate within the county and the metropolitan area, the air pollution circulates to that monitor through the county and metropolitan area. For that reason, the Lung Association calculates the county population at risk from these pollutants based on the population from the entire county where the monitor is located. The Lung Association then calculates the metropolitan population at risk based upon the largest metropolitan area that contains that county.

The counties assigned to a metropolitan area follow the groupings determined by the White House Office of Management and Budget (OMB) and used by the U.S. Census Bureau. The Lung Association uses the largest definition of a metropolitan area for these groupings where at least one urban core of 50,000 people or more is present. The Metropolitan Statistical Areas and Combined Statistical Areas are used as the basis for considering populations at risk in these urban areas because they reflect the “high degree of social and economic interaction as measured by commuting ties,” as OMB describes them.¹ The definitions of these areas reflect review and analysis of such patterns by these agencies.

The U.S. Census Bureau estimated data on the total population of each county in the United States for 2018. The Census Bureau also estimated the age- and race/ethnicity specific breakdown of the population and the number of individuals living in poverty by county. These estimates are the best information on population demographics available between decennial censuses.

People of color are defined as anyone Hispanic or non-Hispanic black, Asian, American Indian/Alaska Native, Native Hawaiian and Other Pacific Islander, or two or more races.

Poverty estimates came from the Census Bureau’s Small Area Income and Poverty Estimates (SAIPE) program. The program does not use direct counts or estimates from sample surveys, as these methods would not provide sufficient data for all counties.

¹ Executive Office of the President, Office of Management and Budget Bulletin No. 18-04. September 14, 2018.

Instead, a model based on estimates of income or poverty from the Annual Social and Economic Supplement (ASEC) to the Current Population Survey (CPS) is used to develop estimates for all states and counties.

Prevalence Estimates

Chronic Obstructive Pulmonary Disease, Cardiovascular Disease, Asthma and Ever Smoked. In 2018, the Behavioral Risk Factor Surveillance System (BRFSS) survey found that approximately 23.1 million (9.3 percent) of adults residing in the United States and 7.2 percent of children from 30 states and Washington D.C. reported currently having asthma. Among adults in the United States in 2018, 17.2 million (6.9 percent) had ever been diagnosed with chronic obstructive pulmonary disease (COPD), 22.5 million (9.1 percent) had ever been diagnosed with cardiovascular disease, and 37.5 million (40.0 percent) had ever smoked at least 100 cigarettes.

The prevalence estimate for pediatric asthma is calculated for those younger than 18 years. Local area prevalence of pediatric asthma is estimated by applying 2018 state prevalence rates, or, if not available, the national rate from the BRFSS to pediatric county-level resident populations obtained from the U.S. Census Bureau website. Pediatric asthma data from the 2018 BRFSS were available for 30 states and Washington D.C., from the 2016 BRFSS for three states, from the 2015 BRFSS for three states, from the 2014 BRFSS for five states, from the 2012 BRFSS for two states, from the 2011 BRFSS for one state, and national data were used for the eight states² that had no data available. Data from earlier years were not used due to changes in the 2011 survey methodology.

The prevalence estimates for COPD, cardiovascular disease, adult asthma and ever smoked are calculated for those aged 18-44 years, 45-64 years and 65 years and older. Local area prevalence is estimated by applying age-specific state prevalence rates from the 2018 BRFSS to age-specific county-level resident populations obtained from the U.S. Census Bureau website. Cardiovascular disease included ever having been diagnosed with a heart attack, angina or coronary heart disease, or stroke.

Incidence Estimates

Lung Cancer. State- and gender-specific lung cancer incidence rates for 2016 were obtained from StateCancerProfiles.gov, a system that provides access to statistics from both the NCI's Surveillance, Epidemiology and End Results (SEER) program and the CDC's National Program of Cancer Registries.

Local area incidence of lung cancer is estimated by applying 2016 age-adjusted and sex-specific incidence rates to 2018 county populations obtained from the U.S. Census Bureau. Thereafter, the incidence estimates for each county within a state are summed to determine overall incidence.

Limitations of Estimates. Since the statistics presented by the BRFSS and SAIPE are based on a sample, they will differ (due to random sampling variability) from figures that would be derived from a complete census or case registry of people in the U.S. with these diseases. The results are also subject to reporting, non-response and processing errors. These types of errors are kept to a minimum by methods built into the survey.

Additionally, a major limitation of the BRFSS is that the information collected represents self-reports of medically diagnosed conditions, which may underestimate disease prevalence since not all individuals with these conditions have been properly diagnosed. However, the BRFSS is the best available source for information on the magnitude of chronic disease at the state level. The conditions covered in the survey may vary considerably in the accuracy and completeness with which they are reported.

² 2016: Arizona, Oklahoma, and Washington. 2015: Louisiana and Texas. 2014: Alabama, North Carolina, Tennessee, and West Virginia. 2012: North Dakota and Wyoming. 2011: Iowa. National: Alaska, Arkansas, Colorado, Delaware, Idaho, South Carolina, South Dakota, and Virginia.

Local estimates of chronic diseases and smoking are scaled in direct proportion to the base population of the county and its age distribution. No adjustments are made for other factors that may affect local prevalence (e.g., local prevalence of cigarette smokers or occupational exposures) since the health surveys that obtain such data are rarely conducted on the county level. Because the estimates do not account for geographic differences in the prevalence of chronic and acute diseases, the sum of the estimates for each of the counties in the United States may not exactly reflect the national or state estimates derived from the BRFSS.

References

- Irwin, R. Guide to Local Area Populations. U.S. Bureau of the Census, Technical Paper Number 39 (1972).
- Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System, 2018.
- StateCancerProfile.gov, 2019. Cancer Incidence by State and Gender, 2016.
- Population Estimates Branch, U.S. Census Bureau. Annual Estimates of the Resident Population by Selected Age Groups and Sex for Counties: April 1, 2010 to July 1, 2018.
- Office of Management and Budget. Revised Delineations of Metropolitan Statistical Areas, Micropolitan Statistical Areas, and Combined Statistical Areas, and Guidance on Uses of the Delineations of These Areas. OMB Bulletin 18-04 September 14, 2018.
- U.S. Census Bureau. Small Area Income and Poverty Estimates. State and County Data, 2018.

EMBARGOED

State Table Notes

A full explanation of the sources of data and methodology is in **Methodology**.

Notes for all state data tables

1. **Total Population** is based on 2018 U.S. Census and represents the at-risk populations in counties with ozone or PM_{2.5} pollution monitors; it does not represent the entire state's sensitive populations.
2. Those **18 & under** and **65 & over** are vulnerable to ozone and PM_{2.5}. Do not use them as population denominators for disease estimates—that will lead to incorrect estimates.
3. **Pediatric asthma** estimates are for those under 18 years of age and represent the estimated number of people who had asthma in 2018 based on the state rates when available or national rates when not (Behavioral Risk Factor Surveillance System, or BRFSS), applied to county population estimates (U.S. Census).
4. **Adult asthma** estimates are for those 18 years and older and represent the estimated number of people who had asthma during 2018 based on state rates (BRFSS) applied to county population estimates (U.S. Census).
5. **COPD** estimates are for adults 18 and over who had ever been diagnosed with chronic obstructive pulmonary disease, which includes chronic bronchitis and emphysema, based on state rates (BRFSS) applied to county population estimates (U.S. Census).
6. **Lung cancer** estimates are for all ages and represent the estimated number of people diagnosed with lung cancer in 2016 based on state rates (StateCancerProfiles.gov) applied to county population estimates (U.S. Census).
7. **Cardiovascular disease** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to county population estimates (U.S. Census). CV disease includes coronary heart disease, stroke and heart attack.
8. **Ever smoked** estimates are for adults 18 and over who have ever smoked 100 or more cigarettes based on state rates (BRFSS) applied to county population estimates (U.S. Census).
9. **Poverty estimates** include all ages and come from the U.S. Census Bureau's Small Area Income and Poverty Estimates program. The estimates are derived from a model using estimates of income or poverty from the Annual Social and Economic Supplement and the Current Population Survey, 2018.
10. **People of color** are defined as anyone Hispanic or non-Hispanic black, Asian, American Indian/Alaska Native, Native Hawaiian and Other Pacific Islander, or two or more races and are based on 2018 county population estimates (U.S. Census).
11. Adding across rows does not produce valid estimates. Adding the at risk categories (asthma, COPD, poverty, etc.) will double-count people who fall into more than one category.

Notes for all state grades tables.

1. Not all counties have monitors for either ozone or particle pollution. If a county does not have a monitor, that county's name is not on the list in these tables. The decision about monitors in the county is made by the state and the U.S. Environmental Protection Agency, not by the American Lung Association.
2. **INC** (Incomplete) indicates that monitoring is underway for that pollutant in that county, but that the data are incomplete for all three years. For particle pollution, some states collected data, but experienced laboratory quality issues that meant the data could not be used for assessing pollution levels.
3. **DNC** (Data Not Collected) indicates that data on that particular pollutant is not collected in that county.
4. The **Weighted Average (Wgt. Avg)** was derived by adding the three years of individual level data (2016-2018), multiplying the sums of each level by the assigned standard weights (i.e. 1=orange, 1.5=red, 2.0=purple and 2.5=maroon) and calculating the average. Grades are assigned based on the weighted averages as follows: A=0.0, B=0.3-0.9, C=1.0-2.0, D=2.1-3.2, F=3.3+.
5. The **Design Value** is the calculated concentration of a pollutant based on the form of the National Ambient Air Quality Standard. EPA uses the design values to determine whether the air quality in a county meets the standard. The numbers refer to micrograms per cubic meter, or µg/m³. Design values for the annual PM_{2.5} concentrations by county for the period 2016-2018 were retrieved from data posted on **December 3, 2019**, at the U.S. Environmental Protection Agency's website at https://www.epa.gov/sites/production/files/2019-12/pm25_designvalues_20162018_final_12_03_19.xlsx. One exception is the design value for Whatcom County, Washington, where that value is based on the combined design value determined by the state and EPA using data from two monitors. That design value was provided by the State of Washington in email communication.
6. The annual average National Ambient Air Quality Standard for PM_{2.5} is 12 µg/m³ as of December 14, 2012. Counties with design values of 12 or lower received a grade of "Pass." Counties with design values of 12.1 or higher received a grade of "Fail."

ALABAMA

American Lung Association in Alabama

www.Lung.org/alabama

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|----------------|----------------|------------------|----------------|----------------|--------------|----------------|------------------|----------------|------------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Baldwin | 218,022 | 47,110 | 44,571 | 6,217 | 18,036 | 18,817 | 143 | 24,290 | 75,937 | 21,069 | 36,821 |
| Clay | 13,275 | 2,688 | 2,751 | 355 | 1,118 | 1,173 | 9 | 1,512 | 4,711 | 2,285 | 2,585 |
| Colbert | 54,762 | 11,370 | 10,914 | 1,501 | 4,577 | 4,692 | 36 | 6,030 | 19,204 | 7,459 | 11,830 |
| DeKalb | 71,385 | 17,188 | 12,322 | 2,268 | 5,726 | 5,719 | 47 | 7,237 | 23,873 | 14,975 | 14,186 |
| Elmore | 81,887 | 18,211 | 12,400 | 2,403 | 6,739 | 6,460 | 54 | 7,997 | 27,836 | 8,559 | 22,116 |
| Etowah | 102,501 | 21,997 | 19,487 | 2,903 | 8,499 | 8,637 | 67 | 11,032 | 35,577 | 17,509 | 22,872 |
| Houston | 104,722 | 24,120 | 18,639 | 3,183 | 8,507 | 8,480 | 69 | 10,767 | 35,475 | 17,032 | 35,272 |
| Jefferson | 659,300 | 150,071 | 104,547 | 19,805 | 53,749 | 51,356 | 431 | 64,175 | 222,224 | 103,604 | 331,629 |
| Madison | 366,519 | 79,966 | 55,125 | 10,553 | 30,350 | 29,165 | 241 | 36,026 | 125,369 | 42,667 | 129,763 |
| Mobile | 413,757 | 96,711 | 67,041 | 12,763 | 33,472 | 32,375 | 271 | 40,606 | 138,707 | 84,539 | 179,067 |
| Montgomery | 225,763 | 52,774 | 34,173 | 6,965 | 18,255 | 17,182 | 147 | 21,366 | 75,260 | 43,567 | 150,610 |
| Morgan | 119,089 | 27,168 | 20,803 | 3,585 | 9,722 | 9,770 | 79 | 12,344 | 40,560 | 15,419 | 29,373 |
| Russell | 57,781 | 13,968 | 8,280 | 1,843 | 4,633 | 4,369 | 38 | 5,392 | 19,085 | 12,384 | 31,211 |
| Shelby | 215,707 | 50,645 | 33,087 | 6,684 | 17,480 | 17,010 | 142 | 21,125 | 72,395 | 16,916 | 48,467 |
| Sumter | 12,691 | 2,407 | 2,286 | 318 | 1,081 | 1,030 | 8 | 1,306 | 4,478 | 4,076 | 9,575 |
| Talladega | 79,828 | 16,918 | 14,370 | 2,233 | 6,651 | 6,682 | 52 | 8,456 | 27,752 | 14,825 | 29,938 |
| Tuscaloosa | 208,911 | 43,761 | 27,743 | 5,775 | 17,384 | 15,192 | 137 | 18,537 | 70,772 | 33,330 | 81,015 |
| Totals | 3,005,900 | 677,073 | 488,539 | 89,354 | 245,979 | 238,108 | 1,972 | 298,197 | 1,019,215 | 460,215 | 1,166,330 |

ALABAMA

American Lung Association in Alabama

www.Lung.org/alabama

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|------------|--------|-----|--------|-----------|-------|
| Baldwin | 1 | 0 | 0 | 0.3 | B |
| Clay | DNC | DNC | DNC | DNC | DNC |
| Colbert | 1 | 0 | 0 | 0.3 | B |
| DeKalb | 0 | 0 | 0 | 0.0 | A |
| Elmore | 0 | 0 | 0 | 0.0 | A |
| Etowah | 0 | 0 | 0 | 0.0 | A |
| Houston | 0 | 0 | 0 | 0.0 | A |
| Jefferson | 12 | 2 | 0 | 5.0 | F |
| Madison | 2 | 0 | 0 | 0.7 | B |
| Mobile | 5 | 0 | 0 | 1.7 | C |
| Montgomery | 1 | 0 | 0 | 0.3 | B |
| Morgan | 0 | 0 | 0 | 0.0 | A |
| Russell | 0 | 0 | 0 | 0.0 | A |
| Shelby | 5 | 0 | 0 | 1.7 | C |
| Sumter | 0 | 0 | 0 | 0.0 | A |
| Talladega | DNC | DNC | DNC | DNC | DNC |
| Tuscaloosa | 1 | 0 | 0 | 0.3 | B |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.3 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.4 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.5 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.6 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.3 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.8 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 10.5 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.5 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.1 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.6 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.5 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| INC | INC | INC | INC | INC | INC | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.8 | PASS |

ALASKA

American Lung Association in Alaska

www.Lung.org/alaska

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|------------------------------|------------------|----------------|---------------|------------------|---------------|---------------|-------------|---------------|----------------|---------------|-----------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Anchorage Municipality | 291,538 | 71,339 | 32,333 | 5,106 | 20,168 | 12,616 | 161 | 14,639 | 95,199 | 27,075 | 124,439 |
| Denali Borough | 2,059 | 384 | 245 | 27 | 158 | 104 | 1 | 122 | 742 | 135 | 412 |
| Fairbanks North Star Borough | 98,971 | 23,861 | 10,204 | 1,708 | 6,791 | 4,061 | 55 | 4,617 | 31,974 | 8,104 | 30,429 |
| Juneau City and Borough | 32,113 | 6,830 | 4,298 | 489 | 2,338 | 1,552 | 18 | 1,850 | 11,130 | 2,299 | 11,476 |
| Matanuska-Susitna Borough | 107,610 | 28,860 | 12,814 | 2,065 | 7,272 | 4,753 | 60 | 5,625 | 34,516 | 10,937 | 22,649 |
| Totals | 532,291 | 131,274 | 59,894 | 9,395 | 36,727 | 23,086 | 295 | 26,854 | 173,561 | 48,550 | 189,405 |

EMBARGOED

ALASKA

American Lung Association in Alaska

www.Lung.org/alaska

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|------------------------------|--------|-----|--------|-----------|-------|
| Anchorage Municipality | DNC | DNC | DNC | DNC | DNC |
| Denali Borough | 0 | 0 | 0 | 0.0 | A |
| Fairbanks North Star Borough | 0 | 0 | 0 | 0.0 | A |
| Juneau City and Borough | DNC | DNC | DNC | DNC | DNC |
| Matanuska-Susitna Borough | 0 | 0 | 0 | 0.0 | A |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 1 | 0 | 0 | 0 | 0.3 | B | 5.8 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 51 | 19 | 0 | 0 | 26.5 | F | 13.1 | FAIL |
| 1 | 0 | 0 | 0 | 0.3 | B | 6.2 | PASS |
| 6 | 1 | 0 | 0 | 2.5 | D | 5.3 | PASS |

EMBARGOED

ARIZONA

American Lung Association in Arizona

www.Lung.org/arizona

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|------------------|------------------|------------------|----------------|----------------|--------------|----------------|------------------|----------------|------------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Apache | 71,818 | 19,518 | 10,986 | 1,573 | 5,322 | 3,728 | 32 | 4,820 | 21,136 | 26,435 | 58,801 |
| Cochise | 126,770 | 27,312 | 28,326 | 2,202 | 10,015 | 7,771 | 57 | 10,389 | 41,425 | 18,273 | 57,227 |
| Coconino | 142,854 | 29,454 | 17,855 | 2,374 | 11,338 | 6,940 | 64 | 8,729 | 43,956 | 20,964 | 65,726 |
| Gila | 53,889 | 10,827 | 15,506 | 873 | 4,363 | 3,814 | 24 | 5,220 | 18,698 | 10,804 | 20,487 |
| La Paz | 21,098 | 3,540 | 8,287 | 285 | 1,733 | 1,698 | 9 | 2,405 | 7,893 | 4,921 | 9,141 |
| Maricopa | 4,410,824 | 1,052,788 | 669,285 | 84,871 | 340,115 | 231,647 | 1,970 | 298,086 | 1,344,593 | 535,183 | 1,989,191 |
| Mohave | 209,550 | 35,739 | 63,526 | 2,881 | 17,610 | 15,506 | 94 | 21,258 | 75,665 | 34,411 | 48,373 |
| Navajo | 110,445 | 29,472 | 20,010 | 2,376 | 8,223 | 6,101 | 49 | 8,024 | 33,302 | 30,876 | 64,394 |
| Pima | 1,039,073 | 216,736 | 205,255 | 17,472 | 82,678 | 60,474 | 464 | 79,742 | 336,049 | 164,927 | 504,663 |
| Pinal | 447,138 | 100,778 | 91,129 | 8,124 | 34,832 | 26,058 | 201 | 34,552 | 142,549 | 54,399 | 194,203 |
| Santa Cruz | 46,511 | 12,435 | 8,421 | 1,002 | 3,455 | 2,555 | 21 | 3,361 | 13,995 | 11,287 | 39,600 |
| Yavapai | 231,993 | 37,687 | 73,278 | 3,038 | 19,703 | 17,642 | 103 | 24,260 | 85,109 | 30,060 | 45,569 |
| Yuma | 212,128 | 53,494 | 39,828 | 4,312 | 15,802 | 11,389 | 95 | 15,050 | 64,422 | 39,648 | 147,604 |
| Totals | 7,124,091 | 1,629,780 | 1,251,692 | 131,385 | 555,189 | 395,322 | 3,183 | 515,896 | 2,228,791 | 982,188 | 3,244,979 |

ARIZONA

American Lung Association in Arizona

www.Lung.org/arizona

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|------------|--------|-----|--------|-----------|-------|
| Apache | DNC | DNC | DNC | DNC | DNC |
| Cochise | 2 | 0 | 0 | 0.7 | B |
| Coconino | 3 | 0 | 0 | 1.0 | C |
| Gila | 30 | 1 | 0 | 10.5 | F |
| La Paz | 6 | 0 | 0 | 2.0 | C |
| Maricopa | 112 | 5 | 0 | 39.8 | F |
| Mohave | DNC | DNC | DNC | DNC | DNC |
| Navajo | 3 | 0 | 0 | 1.0 | C |
| Pima | 14 | 0 | 0 | 4.7 | F |
| Pinal | 44 | 1 | 0 | 15.2 | F |
| Santa Cruz | DNC | DNC | DNC | DNC | DNC |
| Yavapai | 6 | 0 | 0 | 2.0 | C |
| Yuma | 18 | 0 | 0 | 6.0 | F |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 4.3 | PASS |
| 13 | 2 | 2 | 0 | 6.7 | F | 9.9 | PASS |
| INC | INC | INC | INC | INC | INC | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 1 | 0 | 0 | 0 | 0.3 | B | 6.5 | PASS |
| 30 | 3 | 0 | 0 | 11.5 | F | 13.0 | FAIL |
| 3 | 4 | 0 | 0 | 3.0 | D | 9.1 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 5 | 0 | 0 | 0 | 1.7 | C | 8.5 | PASS |

EMBARGOED

ARKANSAS

American Lung Association in Arkansas

www.Lung.org/arkansas

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|----------------|----------------|------------------|---------------|---------------|-------------|----------------|----------------|----------------|-----------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Arkansas | 17,769 | 4,074 | 3,484 | 292 | 1,344 | 1,446 | 14 | 1,943 | 6,521 | 3,120 | 5,427 |
| Ashley | 20,046 | 4,582 | 4,081 | 328 | 1,514 | 1,653 | 16 | 2,230 | 7,378 | 3,876 | 6,354 |
| Clark | 22,061 | 4,184 | 3,687 | 299 | 1,765 | 1,641 | 17 | 2,206 | 8,328 | 3,838 | 6,963 |
| Craighead | 108,558 | 27,090 | 15,030 | 1,939 | 8,093 | 7,489 | 85 | 9,854 | 37,974 | 18,768 | 26,491 |
| Crittenden | 48,342 | 13,076 | 6,838 | 936 | 3,503 | 3,436 | 38 | 4,484 | 16,586 | 9,056 | 28,292 |
| Garland | 99,154 | 19,941 | 23,632 | 1,427 | 7,693 | 8,653 | 77 | 11,919 | 37,920 | 19,844 | 18,046 |
| Jackson | 16,811 | 3,381 | 3,051 | 242 | 1,324 | 1,349 | 13 | 1,798 | 6,344 | 3,732 | 3,934 |
| Newton | 7,805 | 1,502 | 2,069 | 107 | 609 | 719 | 6 | 999 | 3,040 | 1,340 | 506 |
| Polk | 20,049 | 4,567 | 4,611 | 327 | 1,504 | 1,705 | 16 | 2,342 | 7,422 | 3,962 | 2,477 |
| Pulaski | 392,680 | 91,009 | 61,075 | 6,513 | 29,892 | 29,262 | 305 | 38,546 | 141,761 | 64,312 | 188,759 |
| Union | 39,126 | 9,419 | 7,017 | 674 | 2,926 | 3,083 | 31 | 4,101 | 14,109 | 7,000 | 15,358 |
| Washington | 236,961 | 57,728 | 27,809 | 4,132 | 17,895 | 15,419 | 186 | 20,080 | 82,763 | 34,741 | 69,366 |
| Totals | 1,029,362 | 240,553 | 162,384 | 17,216 | 78,062 | 75,854 | 802 | 100,501 | 370,147 | 173,589 | 371,973 |

EMBARGOED

ARKANSAS

American Lung Association in Arkansas

www.Lung.org/arkansas

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|------------|--------|-----|--------|-----------|-------|
| Arkansas | DNC | DNC | DNC | DNC | DNC |
| Ashley | DNC | DNC | DNC | DNC | DNC |
| Clark | 0 | 0 | 0 | 0.0 | A |
| Craighead | DNC | DNC | DNC | DNC | DNC |
| Crittenden | 6 | 1 | 0 | 2.5 | D |
| Garland | DNC | DNC | DNC | DNC | DNC |
| Jackson | DNC | DNC | DNC | DNC | DNC |
| Newton | 0 | 0 | 0 | 0.0 | A |
| Polk | 0 | 0 | 0 | 0.0 | A |
| Pulaski | 3 | 0 | 0 | 1.0 | C |
| Union | DNC | DNC | DNC | DNC | DNC |
| Washington | 0 | 0 | 0 | 0.0 | A |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.1 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 8.2 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| INC | INC | INC | INC | INC | INC | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.4 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.4 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.1 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.3 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 9.7 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 8.9 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.1 | PASS |

EMBARGOED

CALIFORNIA

American Lung Association in California

www.Lung.org/california

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|-----------------|------------------|-----------|-----------|------------------|--------------|---------|-------------|---------------|-------------|-----------|-----------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Alameda | 1,666,753 | 342,510 | 230,510 | 21,146 | 112,623 | 59,859 | 645 | 86,118 | 438,363 | 147,394 | 1,148,783 |
| Amador | 39,383 | 5,914 | 10,633 | 365 | 2,936 | 1,919 | 15 | 2,945 | 11,929 | 4,130 | 8,898 |
| Butte | 231,256 | 46,213 | 42,992 | 2,853 | 15,844 | 9,018 | 90 | 13,309 | 62,372 | 42,016 | 65,598 |
| Calaveras | 45,602 | 7,721 | 12,553 | 477 | 3,340 | 2,233 | 18 | 3,448 | 13,649 | 5,454 | 8,802 |
| Colusa | 21,627 | 5,907 | 3,163 | 365 | 1,344 | 745 | 8 | 1,087 | 5,273 | 2,350 | 14,202 |
| Contra Costa | 1,150,215 | 259,791 | 181,443 | 16,039 | 76,494 | 43,209 | 445 | 63,410 | 301,667 | 88,980 | 652,755 |
| Del Norte | 27,828 | 5,854 | 5,018 | 361 | 1,890 | 1,092 | 11 | 1,616 | 7,478 | 5,065 | 10,472 |
| El Dorado | 190,678 | 37,821 | 40,389 | 2,335 | 13,335 | 8,279 | 74 | 12,506 | 53,670 | 15,401 | 42,700 |
| Fresno | 994,400 | 281,819 | 122,113 | 17,399 | 60,395 | 31,587 | 385 | 45,226 | 234,129 | 208,627 | 705,643 |
| Glenn | 28,047 | 7,453 | 4,453 | 460 | 1,767 | 1,003 | 11 | 1,476 | 6,967 | 4,271 | 13,812 |
| Humboldt | 136,373 | 26,184 | 24,380 | 1,617 | 9,423 | 5,297 | 53 | 7,783 | 37,018 | 27,002 | 35,274 |
| Imperial | 181,827 | 51,765 | 23,580 | 3,196 | 11,043 | 5,862 | 71 | 8,440 | 42,925 | 37,014 | 162,999 |
| Inyo | 17,987 | 3,681 | 4,210 | 227 | 1,249 | 792 | 7 | 1,206 | 5,040 | 2,172 | 6,877 |
| Kern | 896,764 | 259,180 | 98,347 | 16,001 | 53,894 | 27,503 | 348 | 39,003 | 208,055 | 177,021 | 596,328 |
| Kings | 151,366 | 40,964 | 15,516 | 2,529 | 9,283 | 4,580 | 59 | 6,416 | 35,590 | 25,481 | 103,277 |
| Lake | 64,382 | 13,490 | 14,635 | 833 | 4,442 | 2,804 | 25 | 4,261 | 17,916 | 11,689 | 19,519 |
| Los Angeles | 10,105,518 | 2,188,893 | 1,375,957 | 135,136 | 673,459 | 358,245 | 3,911 | 515,500 | 2,622,021 | 1,409,155 | 7,466,160 |
| Madera | 157,672 | 43,339 | 22,051 | 2,676 | 9,745 | 5,298 | 61 | 7,688 | 38,068 | 30,201 | 104,594 |
| Marin | 259,666 | 51,925 | 57,943 | 3,206 | 18,183 | 11,518 | 100 | 17,499 | 73,506 | 16,742 | 74,122 |
| Mariposa | 17,471 | 2,828 | 4,882 | 175 | 1,289 | 859 | 7 | 1,325 | 5,259 | 2,569 | 3,551 |
| Mendocino | 87,606 | 18,713 | 19,366 | 1,155 | 5,988 | 3,712 | 34 | 5,617 | 24,035 | 15,140 | 30,951 |
| Merced | 274,765 | 80,588 | 30,845 | 4,975 | 16,418 | 8,420 | 107 | 11,965 | 63,423 | 56,863 | 200,196 |
| Mono | 14,250 | 2,608 | 2,253 | 161 | 999 | 558 | 6 | 815 | 3,932 | 1,312 | 4,944 |
| Monterey | 435,594 | 113,834 | 59,201 | 7,028 | 27,378 | 14,688 | 169 | 21,215 | 106,690 | 55,614 | 306,813 |
| Napa | 139,417 | 28,800 | 26,665 | 1,778 | 9,552 | 5,640 | 54 | 8,403 | 37,970 | 11,829 | 66,865 |
| Nevada | 99,696 | 17,071 | 27,380 | 1,054 | 7,266 | 4,821 | 39 | 7,432 | 29,614 | 10,171 | 15,030 |
| Orange | 3,185,968 | 698,788 | 470,387 | 43,141 | 212,780 | 117,068 | 1,233 | 170,329 | 834,500 | 330,559 | 1,907,489 |
| Placer | 393,149 | 87,441 | 76,906 | 5,398 | 26,478 | 15,911 | 152 | 23,831 | 105,669 | 27,596 | 109,849 |
| Plumas | 18,804 | 3,173 | 5,345 | 196 | 1,378 | 927 | 7 | 1,435 | 5,635 | 2,317 | 3,123 |
| Riverside | 2,450,758 | 616,126 | 353,122 | 38,038 | 156,550 | 85,478 | 949 | 124,180 | 612,354 | 307,511 | 1,600,121 |
| Sacramento | 1,540,975 | 363,909 | 217,601 | 22,467 | 100,345 | 54,282 | 596 | 78,584 | 391,898 | 217,138 | 859,537 |
| San Benito | 61,537 | 15,827 | 7,937 | 977 | 3,896 | 2,089 | 24 | 3,013 | 15,205 | 5,294 | 40,928 |
| San Bernardino | 2,171,603 | 572,278 | 251,361 | 35,331 | 135,544 | 70,099 | 841 | 99,838 | 524,916 | 317,514 | 1,564,843 |
| San Diego | 3,343,364 | 722,408 | 469,454 | 44,599 | 222,727 | 118,450 | 1,296 | 170,564 | 866,445 | 372,148 | 1,832,022 |
| San Francisco | 883,305 | 118,692 | 138,249 | 7,328 | 64,765 | 34,033 | 343 | 48,859 | 251,054 | 87,596 | 527,131 |
| San Joaquin | 752,660 | 204,316 | 95,916 | 12,614 | 46,649 | 24,840 | 292 | 35,760 | 181,645 | 105,351 | 519,021 |
| San Luis Obispo | 284,010 | 50,000 | 57,040 | 3,087 | 20,105 | 11,680 | 110 | 17,346 | 79,503 | 34,200 | 89,147 |
| San Mateo | 769,545 | 158,383 | 123,921 | 9,778 | 52,381 | 29,308 | 298 | 42,903 | 206,033 | 51,830 | 470,051 |
| Santa Barbara | 446,527 | 98,787 | 68,465 | 6,099 | 29,547 | 15,916 | 173 | 23,056 | 115,063 | 54,029 | 249,761 |
| Santa Clara | 1,937,570 | 424,427 | 261,131 | 26,203 | 128,742 | 68,463 | 752 | 98,491 | 501,284 | 139,074 | 1,335,966 |

CALIFORNIA (cont.)

American Lung Association in California

www.Lung.org/california

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|-------------------|------------------|------------------|------------------|------------------|------------------|---------------|------------------|-------------------|------------------|-------------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Santa Cruz | 274,255 | 52,852 | 45,127 | 3,263 | 18,926 | 10,493 | 106 | 15,327 | 74,236 | 32,027 | 118,323 |
| Shasta | 180,040 | 38,584 | 37,553 | 2,382 | 12,262 | 7,457 | 70 | 11,216 | 49,022 | 26,919 | 36,805 |
| Siskiyou | 43,724 | 8,802 | 11,160 | 543 | 3,062 | 1,998 | 17 | 3,066 | 12,428 | 7,396 | 10,636 |
| Solano | 446,610 | 98,740 | 70,430 | 6,096 | 29,805 | 16,651 | 173 | 24,365 | 117,186 | 34,281 | 278,552 |
| Sonoma | 499,942 | 98,196 | 98,714 | 6,062 | 34,723 | 20,633 | 193 | 30,806 | 138,211 | 48,846 | 184,266 |
| Stanislaus | 549,815 | 148,801 | 72,319 | 9,187 | 34,134 | 18,290 | 213 | 26,395 | 133,042 | 84,744 | 323,635 |
| Sutter | 96,807 | 25,059 | 14,902 | 1,547 | 6,142 | 3,434 | 37 | 5,029 | 24,137 | 13,011 | 52,946 |
| Tehama | 63,916 | 15,363 | 12,389 | 948 | 4,205 | 2,533 | 25 | 3,797 | 16,786 | 10,749 | 20,718 |
| Tulare | 465,861 | 142,848 | 53,292 | 8,819 | 27,348 | 14,170 | 181 | 20,216 | 105,845 | 102,451 | 335,036 |
| Tuolumne | 54,539 | 9,158 | 14,279 | 565 | 3,969 | 2,562 | 21 | 3,923 | 16,064 | 6,417 | 11,026 |
| Ventura | 850,967 | 194,553 | 132,387 | 12,011 | 56,290 | 31,535 | 329 | 46,171 | 221,522 | 76,206 | 468,345 |
| Yolo | 220,408 | 46,233 | 27,535 | 2,854 | 14,649 | 7,339 | 85 | 10,357 | 56,245 | 42,311 | 118,464 |
| Totals | 39,422,802 | 8,958,610 | 5,647,400 | 553,079 | 2,596,984 | 1,405,179 | 15,267 | 2,034,564 | 10,142,484 | 4,951,178 | 24,936,906 |

EMBARGOED

CALIFORNIA

American Lung Association in California

www.Lung.org/california

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|-----------------|--------|-----|--------|-----------|-------|
| Alameda | 20 | 3 | 1 | 8.8 | F |
| Amador | 15 | 0 | 0 | 5.0 | F |
| Butte | 48 | 3 | 0 | 17.5 | F |
| Calaveras | 41 | 3 | 0 | 15.2 | F |
| Colusa | 0 | 0 | 0 | 0.0 | A |
| Contra Costa | 8 | 0 | 0 | 2.7 | D |
| Del Norte | DNC | DNC | DNC | DNC | DNC |
| El Dorado | 87 | 21 | 1 | 40.2 | F |
| Fresno | 191 | 43 | 1 | 85.8 | F |
| Glenn | 0 | 0 | 0 | 0.0 | A |
| Humboldt | 1 | 0 | 0 | 0.3 | B |
| Imperial | 56 | 2 | 0 | 19.7 | F |
| Inyo | 32 | 0 | 0 | 10.7 | F |
| Kern | 257 | 35 | 0 | 103.2 | F |
| Kings | 111 | 5 | 0 | 39.5 | F |
| Lake | 0 | 0 | 0 | 0.0 | A |
| Los Angeles | 207 | 68 | 12 | 111.0 | F |
| Madera | 84 | 6 | 0 | 31.0 | F |
| Marin | 0 | 0 | 0 | 0.0 | A |
| Mariposa | 60 | 5 | 0 | 22.5 | F |
| Mendocino | 0 | 0 | 0 | 0.0 | A |
| Merced | 63 | 2 | 0 | 22.0 | F |
| Mono | DNC | DNC | DNC | DNC | DNC |
| Monterey | 0 | 0 | 0 | 0.0 | A |
| Napa | 2 | 0 | 0 | 0.7 | B |
| Nevada | 110 | 29 | 0 | 51.2 | F |
| Orange | 45 | 4 | 0 | 17.0 | F |
| Placer | 95 | 14 | 3 | 40.7 | F |
| Plumas | DNC | DNC | DNC | DNC | DNC |
| Riverside | 244 | 99 | 12 | 138.8 | F |
| Sacramento | 60 | 10 | 0 | 25.0 | F |
| San Benito | 7 | 0 | 0 | 2.3 | D |
| San Bernardino | 220 | 146 | 42 | 174.3 | F |
| San Diego | 118 | 8 | 0 | 43.3 | F |
| San Francisco | 0 | 0 | 0 | 0.0 | A |
| San Joaquin | 32 | 1 | 0 | 11.2 | F |
| San Luis Obispo | 19 | 1 | 0 | 6.8 | F |
| San Mateo | 1 | 1 | 0 | 0.8 | B |
| Santa Barbara | 5 | 0 | 0 | 1.7 | C |
| Santa Clara | 4 | 3 | 0 | 2.8 | D |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 10 | 13 | 2 | 0 | 11.2 | F | 12.0 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 13 | 4 | 2 | 2 | 9.3 | F | 10.1 | PASS |
| 15 | 5 | 0 | 0 | 7.5 | F | INC | INC |
| 12 | 16 | 0 | 0 | 12.0 | F | 8.5 | PASS |
| 11 | 12 | 2 | 0 | 11.0 | F | 10.5 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 73 | 27 | 0 | 0 | 37.8 | F | 15.0 | FAIL |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 4 | 0 | 0 | 0 | 1.3 | C | 7.4 | PASS |
| 19 | 2 | 0 | 0 | 7.3 | F | 12.6 | FAIL |
| 10 | 9 | 3 | 0 | 9.8 | F | 7.2 | PASS |
| 64 | 29 | 0 | 0 | 35.8 | F | 17.8 | FAIL |
| 68 | 27 | 0 | 0 | 36.2 | F | 16.8 | FAIL |
| 2 | 2 | 1 | 0 | 2.3 | D | 6.1 | PASS |
| 31 | 7 | 0 | 0 | 13.8 | F | 12.7 | FAIL |
| 41 | 7 | 0 | 0 | 17.2 | F | 12.8 | FAIL |
| 8 | 12 | 1 | 0 | 9.3 | F | 9.1 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 19 | 7 | 1 | 1 | 11.3 | F | 9.1 | PASS |
| 41 | 12 | 0 | 0 | 19.7 | F | 13.4 | FAIL |
| INC | INC | INC | INC | INC | INC | INC | INC |
| 9 | 10 | 0 | 0 | 8.0 | F | 6.3 | PASS |
| 10 | 13 | 2 | 0 | 11.2 | F | INC | INC |
| 8 | 5 | 0 | 0 | 5.2 | F | 6.5 | PASS |
| 14 | 1 | 0 | 0 | 5.2 | F | 8.0 | PASS |
| 9 | 4 | 1 | 0 | 5.7 | F | 8.7 | PASS |
| 32 | 11 | 0 | 0 | 16.2 | F | 14.7 | FAIL |
| 21 | 4 | 0 | 0 | 9.0 | F | 13.9 | FAIL |
| 18 | 4 | 5 | 0 | 11.3 | F | 10.4 | PASS |
| 11 | 0 | 0 | 0 | 3.7 | F | 5.5 | PASS |
| 22 | 5 | 0 | 0 | 9.8 | F | 14.7 | FAIL |
| 6 | 0 | 0 | 0 | 2.0 | C | 9.3 | PASS |
| 9 | 11 | 1 | 0 | 9.2 | F | 9.6 | PASS |
| 45 | 9 | 3 | 0 | 21.5 | F | 13.8 | FAIL |
| 2 | 0 | 0 | 0 | 0.7 | B | 8.9 | PASS |
| 7 | 12 | 0 | 0 | 8.3 | F | 9.3 | PASS |
| 6 | 8 | 1 | 0 | 6.7 | F | 8.1 | PASS |
| 14 | 11 | 0 | 0 | 10.2 | F | 10.7 | PASS |

CALIFORNIA (cont.)

American Lung Association in California

www.Lung.org/california

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|------------|--------|-----|--------|-----------|-------|
| Santa Cruz | 1 | 0 | 0 | 0.3 | B |
| Shasta | 42 | 2 | 0 | 15.0 | F |
| Siskiyou | 4 | 0 | 0 | 1.3 | C |
| Solano | 5 | 1 | 0 | 2.2 | D |
| Sonoma | 1 | 0 | 0 | 0.3 | B |
| Stanislaus | 82 | 9 | 0 | 31.8 | F |
| Sutter | 50 | 0 | 0 | 16.7 | F |
| Tehama | 57 | 7 | 0 | 22.5 | F |
| Tulare | 242 | 49 | 0 | 105.2 | F |
| Tuolumne | 83 | 8 | 0 | 31.7 | F |
| Ventura | 39 | 3 | 0 | 14.5 | F |
| Yolo | 8 | 0 | 0 | 2.7 | D |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 8 | 5 | 0 | 0 | 5.2 | F | 6.9 | PASS |
| 1 | 5 | 0 | 0 | 2.8 | D | 9.6 | PASS |
| 17 | 23 | 0 | 0 | 17.2 | F | 10.1 | PASS |
| 7 | 14 | 1 | 0 | 10.0 | F | 10.8 | PASS |
| 4 | 11 | 2 | 0 | 8.2 | F | 7.0 | PASS |
| 54 | 16 | 1 | 0 | 26.7 | F | 14.2 | FAIL |
| 11 | 0 | 0 | 0 | 3.7 | F | 9.2 | PASS |
| 13 | 16 | 0 | 0 | 12.3 | F | INC | INC |
| 19 | 9 | 0 | 0 | 10.8 | F | 16.1 | FAIL |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 4 | 4 | 3 | 2 | 7.0 | F | 11.0 | PASS |
| 1 | 2 | 1 | 0 | 2.0 | C | 9.3 | PASS |

EMBARGOED

COLORADO

American Lung Association in Colorado

www.Lung.org/colorado

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|------------------|----------------|------------------|----------------|----------------|--------------|----------------|------------------|----------------|------------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Adams | 511,868 | 135,776 | 53,587 | 9,717 | 34,100 | 15,049 | 208 | 19,585 | 150,229 | 46,711 | 257,963 |
| Arapahoe | 651,215 | 153,397 | 85,065 | 10,979 | 44,914 | 21,361 | 264 | 28,479 | 200,921 | 52,474 | 261,137 |
| Archuleta | 13,765 | 2,485 | 3,585 | 178 | 995 | 642 | 6 | 929 | 4,781 | 1,525 | 3,193 |
| Boulder | 326,078 | 61,951 | 46,486 | 4,434 | 23,860 | 11,305 | 132 | 15,118 | 106,582 | 30,699 | 73,061 |
| Chaffee | 20,027 | 3,009 | 5,084 | 215 | 1,510 | 924 | 8 | 1,327 | 7,151 | 2,023 | 2,962 |
| Clear Creek | 9,605 | 1,448 | 1,953 | 104 | 723 | 420 | 4 | 586 | 3,391 | 686 | 1,130 |
| Delta | 30,953 | 6,197 | 8,024 | 444 | 2,188 | 1,401 | 13 | 2,034 | 10,484 | 4,429 | 5,839 |
| Denver | 716,492 | 139,926 | 84,216 | 10,014 | 52,557 | 22,264 | 291 | 28,952 | 229,276 | 82,104 | 326,156 |
| Douglas | 342,776 | 88,978 | 40,935 | 6,368 | 22,775 | 11,168 | 139 | 14,826 | 102,766 | 8,975 | 61,999 |
| El Paso | 713,856 | 172,064 | 91,063 | 12,315 | 49,015 | 22,736 | 290 | 30,212 | 217,978 | 68,538 | 222,362 |
| Garfield | 59,770 | 15,072 | 7,858 | 1,079 | 4,023 | 1,962 | 24 | 2,628 | 18,101 | 4,946 | 19,175 |
| Grand | 15,525 | 2,609 | 2,732 | 187 | 1,152 | 623 | 6 | 856 | 5,310 | 1,219 | 2,000 |
| Gunnison | 17,246 | 2,931 | 2,236 | 210 | 1,299 | 578 | 7 | 760 | 5,727 | 1,678 | 2,220 |
| Jefferson | 580,233 | 114,515 | 95,477 | 8,196 | 41,776 | 21,576 | 235 | 29,476 | 190,255 | 39,799 | 127,678 |
| La Plata | 56,310 | 10,684 | 9,668 | 765 | 4,090 | 2,139 | 23 | 2,935 | 18,677 | 5,005 | 12,182 |
| Larimer | 350,518 | 68,703 | 54,938 | 4,917 | 25,460 | 12,323 | 142 | 16,693 | 114,131 | 36,054 | 61,373 |
| Mesa | 153,207 | 33,045 | 29,238 | 2,365 | 10,759 | 5,864 | 62 | 8,192 | 49,537 | 21,463 | 28,885 |
| Moffat | 13,188 | 3,418 | 2,020 | 245 | 875 | 457 | 5 | 625 | 3,997 | 1,614 | 2,590 |
| Montezuma | 26,158 | 5,756 | 5,785 | 412 | 1,811 | 1,087 | 11 | 1,550 | 8,541 | 4,235 | 7,318 |
| Montrose | 42,214 | 9,120 | 9,836 | 653 | 2,935 | 1,796 | 17 | 2,578 | 13,903 | 4,854 | 10,177 |
| Park | 18,556 | 2,810 | 3,793 | 201 | 1,389 | 835 | 8 | 1,167 | 6,578 | 1,487 | 2,052 |
| Pueblo | 167,529 | 37,623 | 30,988 | 2,693 | 11,628 | 6,320 | 68 | 8,807 | 53,520 | 28,127 | 80,496 |
| Rio Blanco | 6,336 | 1,506 | 985 | 108 | 433 | 224 | 3 | 306 | 1,974 | 653 | 977 |
| San Miguel | 8,191 | 1,438 | 1,201 | 103 | 605 | 305 | 3 | 410 | 2,746 | 702 | 1,152 |
| Weld | 314,305 | 82,497 | 38,224 | 5,904 | 20,952 | 9,752 | 127 | 12,935 | 93,286 | 32,314 | 108,618 |
| Totals | 5,165,921 | 1,156,958 | 714,977 | 82,803 | 361,827 | 173,114 | 2,095 | 231,967 | 1,619,841 | 482,314 | 1,682,695 |

COLORADO

American Lung Association in Colorado

www.Lung.org/colorado

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|-------------|--------|-----|--------|-----------|-------|
| AAdams | 3 | 0 | 0 | 1.0 | C |
| Arapahoe | 27 | 1 | 0 | 9.5 | F |
| Archuleta | INC | INC | INC | INC | INC |
| Boulder | 38 | 1 | 0 | 13.2 | F |
| Chaffee | INC | INC | INC | INC | INC |
| Clear Creek | 21 | 2 | 0 | 8.0 | F |
| Delta | INC | INC | INC | INC | INC |
| Denver | 10 | 0 | 0 | 3.3 | F |
| Douglas | 53 | 4 | 0 | 19.7 | F |
| El Paso | 11 | 0 | 0 | 3.7 | F |
| Garfield | 2 | 1 | 0 | 1.2 | C |
| Grand | INC | INC | INC | INC | INC |
| Gunnison | 2 | 1 | 0 | 1.2 | C |
| Jefferson | 80 | 5 | 0 | 29.2 | F |
| La Plata | 16 | 0 | 0 | 5.3 | F |
| Larimer | 42 | 4 | 0 | 16.0 | F |
| Mesa | 4 | 0 | 0 | 1.3 | C |
| Moffat | 1 | 0 | 0 | 0.3 | B |
| Montezuma | 5 | 0 | 0 | 1.7 | C |
| Montrose | 1 | 0 | 0 | 0.3 | B |
| Park | 4 | 0 | 0 | 1.3 | C |
| Pueblo | DNC | DNC | DNC | DNC | DNC |
| Rio Blanco | 2 | 0 | 0 | 0.7 | B |
| San Miguel | INC | INC | INC | INC | INC |
| Weld | 14 | 0 | 0 | 4.7 | F |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 2 | 0 | 0 | 0 | 0.7 | B | INC | INC |
| 1 | 0 | 0 | 0 | 0.3 | B | 6.0 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 3 | 0 | 0 | 0 | 1.0 | C | 7.0 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| INC | INC | INC | INC | INC | INC | INC | INC |
| 5 | 0 | 0 | 0 | 1.7 | C | 9.2 | PASS |
| 3 | 1 | 0 | 0 | 1.5 | C | 6.2 | PASS |
| 2 | 0 | 0 | 0 | 0.7 | B | 6.0 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 5 | 9 | 1 | 0 | 6.8 | F | 8.4 | PASS |
| 1 | 1 | 0 | 0 | 0.8 | B | 7.3 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 5.9 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 2 | 0 | 0 | 0 | 0.7 | B | INC | INC |
| 1 | 0 | 0 | 0 | 0.3 | B | 5.5 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.9 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 6 | 1 | 0 | 0 | 2.5 | D | 9.1 | PASS |

CONNECTICUT

American Lung Association in Connecticut

www.Lung.org/connecticut

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|----------------|----------------|------------------|----------------|----------------|--------------|----------------|------------------|----------------|------------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| FFairfield | 943,823 | 212,038 | 149,918 | 20,593 | 76,126 | 39,383 | 560 | 54,861 | 291,103 | 92,971 | 363,243 |
| Hartford | 892,697 | 187,304 | 152,874 | 18,191 | 72,903 | 37,913 | 530 | 53,407 | 280,026 | 96,957 | 351,528 |
| Litchfield | 181,111 | 32,933 | 38,502 | 3,198 | 15,522 | 8,888 | 108 | 12,862 | 61,124 | 12,441 | 21,609 |
| Middlesex | 162,682 | 28,777 | 33,067 | 2,795 | 13,956 | 7,758 | 97 | 11,147 | 54,545 | 10,556 | 26,484 |
| New Haven | 857,620 | 173,046 | 148,886 | 16,806 | 70,700 | 36,755 | 509 | 51,816 | 271,621 | 96,563 | 322,987 |
| New London | 266,784 | 51,733 | 48,611 | 5,024 | 22,251 | 11,781 | 159 | 16,711 | 85,901 | 25,063 | 65,967 |
| Tolland | 150,921 | 26,160 | 23,845 | 2,541 | 12,817 | 6,287 | 90 | 8,681 | 48,503 | 10,835 | 23,699 |
| Windham | 117,027 | 23,202 | 19,418 | 2,253 | 9,739 | 5,032 | 70 | 7,025 | 37,262 | 13,135 | 20,797 |
| Totals | 3,572,665 | 735,193 | 615,121 | 71,401 | 294,014 | 153,797 | 2,120 | 216,509 | 1,130,084 | 358,521 | 1,196,314 |

EMBARGOED

CONNECTICUT

American Lung Association in Connecticut

www.Lung.org/connecticut

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|------------|--------|-----|--------|-----------|-------|
| Fairfield | 42 | 18 | 0 | 23.0 | F |
| Hartford | 10 | 1 | 0 | 3.8 | F |
| Litchfield | 12 | 1 | 0 | 4.5 | F |
| Middlesex | 26 | 3 | 0 | 10.2 | F |
| New Haven | 31 | 9 | 0 | 14.8 | F |
| New London | 21 | 3 | 0 | 8.5 | F |
| Tolland | 12 | 0 | 0 | 4.0 | F |
| Windham | 13 | 1 | 0 | 4.8 | F |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.1 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.5 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 4.2 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.8 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |

EMBARGOED

DELAWARE

American Lung Association in Delaware

www.Lung.org/delaware

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|----------------|----------------|------------------|---------------|---------------|-------------|---------------|----------------|----------------|-----------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Kent | 178,550 | 40,805 | 30,483 | 2,920 | 14,080 | 9,420 | 121 | 11,922 | 57,685 | 23,966 | 69,754 |
| New Castle | 559,335 | 120,227 | 87,028 | 8,605 | 45,228 | 29,593 | 380 | 36,633 | 183,147 | 62,976 | 241,696 |
| Sussex | 229,286 | 42,584 | 63,575 | 3,048 | 18,083 | 15,036 | 156 | 20,944 | 82,503 | 27,750 | 56,660 |
| Totals | 967,171 | 203,616 | 181,086 | 14,573 | 77,392 | 54,049 | 656 | 69,499 | 323,336 | 114,692 | 368,110 |

EMBARGOED

DELAWARE

American Lung Association in Delaware

www.Lung.org/delaware

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|------------|--------|-----|--------|-----------|-------|
| Kent | 5 | 0 | 0 | 1.7 | C |
| New Castle | 22 | 1 | 0 | 7.8 | F |
| Sussex | 8 | 0 | 0 | 2.7 | D |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| 3 | 0 | 0 | 0 | 1.0 | C | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.7 | PASS |

EMBARGOED

DISTRICT OF COLUMBIA

American Lung Association in the District of Columbia

www.Lung.org/districtofcolumbia

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | Lung Cancer | Heart Disease | Ever Smoked | Poverty | People of Color |
|----------------------|------------------|----------------|---------------|------------------|---------------|---------------|-------------|---------------|----------------|----------------|-----------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | | | | | |
| District of Columbia | 702,455 | 127,494 | 85,303 | 13,885 | 67,121 | 30,357 | 275 | 36,404 | 199,495 | 107,806 | 442,187 |
| Totals | 702,455 | 127,494 | 85,303 | 13,885 | 67,121 | 30,357 | 275 | 36,404 | 199,495 | 107,806 | 442,187 |

EMBARGOED

DISTRICT OF COLUMBIA

American Lung Association in the District of Columbia

www.Lung.org/districtofcolumbia

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|----------------------|--------|-----|--------|-----------|-------|
| District of Columbia | 14 | 1 | 0 | 5.2 | F |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 2 | 0 | 0 | 0 | 0.7 | B | 9.0 | PASS |

EMBARGOED

FLORIDA

American Lung Association in Florida

www.Lung.org/florida

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|-------------------|------------------|------------------|------------------|------------------|------------------|---------------|------------------|------------------|------------------|------------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Alachua | 269,956 | 48,541 | 37,836 | 3,616 | 19,164 | 15,388 | 151 | 18,802 | 86,310 | 50,922 | 105,796 |
| Baker | 28,355 | 6,715 | 4,015 | 500 | 1,908 | 1,641 | 16 | 2,082 | 8,806 | 3,944 | 5,448 |
| Bay | 185,287 | 39,761 | 31,678 | 2,962 | 12,837 | 11,548 | 104 | 15,034 | 60,251 | 24,276 | 44,216 |
| Brevard | 596,849 | 108,913 | 141,345 | 8,114 | 43,092 | 42,603 | 334 | 58,240 | 209,867 | 64,854 | 154,762 |
| Broward | 1,951,260 | 412,789 | 324,313 | 30,754 | 135,830 | 121,311 | 1,090 | 157,257 | 635,762 | 244,310 | 1,256,553 |
| Citrus | 147,929 | 22,036 | 53,705 | 1,642 | 11,016 | 12,524 | 83 | 18,233 | 56,902 | 22,082 | 18,173 |
| Collier | 378,488 | 64,794 | 121,935 | 4,827 | 27,352 | 29,654 | 212 | 42,379 | 138,432 | 39,689 | 141,797 |
| Columbia | 70,503 | 15,312 | 13,314 | 1,141 | 4,853 | 4,472 | 40 | 5,904 | 22,990 | 11,340 | 19,550 |
| Duval | 950,181 | 214,676 | 133,483 | 15,994 | 64,667 | 54,910 | 530 | 69,179 | 297,059 | 134,476 | 450,723 |
| Escambia | 315,534 | 65,784 | 53,148 | 4,901 | 21,910 | 19,334 | 177 | 24,935 | 102,101 | 43,832 | 113,022 |
| Flagler | 112,067 | 18,884 | 34,428 | 1,407 | 8,183 | 8,789 | 62 | 12,492 | 41,244 | 11,450 | 28,218 |
| Highlands | 105,424 | 17,970 | 37,222 | 1,339 | 7,586 | 8,495 | 59 | 12,315 | 38,936 | 21,577 | 35,445 |
| Hillsborough | 1,436,888 | 323,986 | 205,315 | 24,138 | 97,850 | 83,443 | 803 | 105,402 | 450,198 | 207,358 | 743,667 |
| Holmes | 19,477 | 3,938 | 3,871 | 293 | 1,369 | 1,279 | 11 | 1,701 | 6,519 | 4,232 | 2,638 |
| Indian River | 157,413 | 25,219 | 52,019 | 1,879 | 11,568 | 12,687 | 88 | 18,204 | 58,831 | 16,775 | 39,052 |
| Lake | 356,495 | 68,268 | 95,109 | 5,086 | 25,249 | 25,793 | 199 | 35,876 | 124,638 | 40,582 | 109,098 |
| Lee | 754,610 | 132,623 | 215,894 | 9,881 | 54,399 | 56,536 | 422 | 79,279 | 270,457 | 90,400 | 250,391 |
| Leon | 292,502 | 54,472 | 39,155 | 4,058 | 20,635 | 16,477 | 163 | 20,048 | 92,747 | 57,656 | 127,693 |
| Liberty | 8,457 | 1,512 | 1,229 | 113 | 611 | 515 | 5 | 646 | 2,798 | 1,523 | 2,436 |
| Manatee | 394,855 | 72,121 | 108,173 | 5,373 | 28,333 | 29,240 | 220 | 40,840 | 140,444 | 40,662 | 114,856 |
| Marion | 359,977 | 66,922 | 104,178 | 4,986 | 25,605 | 26,824 | 201 | 37,756 | 127,728 | 52,818 | 107,688 |
| Martin | 160,912 | 26,388 | 49,690 | 1,966 | 11,817 | 12,698 | 90 | 18,050 | 59,572 | 16,824 | 35,430 |
| Miami-Dade | 2,761,581 | 558,250 | 448,112 | 41,591 | 194,215 | 171,072 | 1,542 | 220,114 | 904,339 | 436,103 | 2,401,789 |
| Okaloosa | 207,269 | 46,083 | 33,189 | 3,433 | 14,141 | 12,360 | 116 | 15,854 | 65,662 | 25,612 | 55,655 |
| Orange | 1,380,645 | 305,917 | 164,820 | 22,791 | 94,243 | 76,289 | 772 | 93,319 | 425,534 | 211,307 | 831,907 |
| Osceola | 367,990 | 89,835 | 48,605 | 6,693 | 24,413 | 20,439 | 206 | 25,540 | 111,571 | 48,711 | 254,727 |
| Palm Beach | 1,485,941 | 283,456 | 355,266 | 21,118 | 105,463 | 103,565 | 830 | 141,344 | 512,309 | 179,359 | 682,305 |
| Pasco | 539,630 | 109,651 | 122,105 | 8,169 | 37,833 | 36,867 | 301 | 50,087 | 183,202 | 67,164 | 141,208 |
| Pinellas | 975,280 | 157,672 | 241,641 | 11,747 | 72,125 | 71,655 | 544 | 98,212 | 351,963 | 112,593 | 255,246 |
| Polk | 708,009 | 156,487 | 143,142 | 11,659 | 48,289 | 45,154 | 396 | 60,146 | 230,084 | 109,018 | 297,726 |
| St. Lucie | 321,128 | 63,294 | 77,503 | 4,716 | 22,646 | 22,443 | 179 | 30,756 | 110,409 | 38,398 | 139,092 |
| Santa Rosa | 179,349 | 39,352 | 28,645 | 2,932 | 12,372 | 10,983 | 101 | 14,184 | 57,775 | 16,404 | 31,748 |
| Sarasota | 426,718 | 60,616 | 156,509 | 4,516 | 31,975 | 36,276 | 238 | 52,791 | 165,020 | 43,389 | 72,475 |
| Seminole | 467,832 | 98,309 | 72,533 | 7,324 | 32,569 | 28,403 | 261 | 36,334 | 151,087 | 46,050 | 189,106 |
| Volusia | 547,538 | 96,836 | 133,733 | 7,214 | 39,636 | 39,194 | 306 | 53,638 | 193,067 | 70,499 | 157,810 |
| Wakulla | 32,461 | 6,945 | 5,086 | 517 | 2,260 | 2,002 | 18 | 2,581 | 10,546 | 3,543 | 6,473 |
| Totals | 19,454,790 | 3,884,327 | 3,891,944 | 289,390 | 1,368,014 | 1,272,860 | 10,867 | 1,689,555 | 6,505,159 | 2,609,732 | 9,423,919 |

FLORIDA

American Lung Association in Florida

www.Lung.org/florida

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|--------------|--------|-----|--------|-----------|-------|
| Alachua | 1 | 0 | 0 | 0.3 | B |
| Baker | 0 | 0 | 0 | 0.0 | A |
| Bay | 0 | 0 | 0 | 0.0 | A |
| Brevard | 1 | 0 | 0 | 0.3 | B |
| Broward | 5 | 0 | 0 | 1.7 | C |
| Citrus | DNC | DNC | DNC | DNC | DNC |
| Collier | 0 | 0 | 0 | 0.0 | A |
| Columbia | 0 | 0 | 0 | 0.0 | A |
| Duval | 1 | 0 | 0 | 0.3 | B |
| Escambia | 3 | 0 | 0 | 1.0 | C |
| Flagler | 0 | 0 | 0 | 0.0 | A |
| Highlands | 1 | 0 | 0 | 0.3 | B |
| Hillsborough | 9 | 1 | 0 | 3.5 | F |
| Holmes | 0 | 0 | 0 | 0.0 | A |
| Indian River | 2 | 0 | 0 | 0.7 | B |
| Lake | 4 | 0 | 0 | 1.3 | C |
| Lee | 1 | 0 | 0 | 0.3 | B |
| Leon | 0 | 0 | 0 | 0.0 | A |
| Liberty | 0 | 0 | 0 | 0.0 | A |
| Manatee | 4 | 0 | 0 | 1.3 | C |
| Marion | 2 | 0 | 0 | 0.7 | B |
| Martin | 2 | 0 | 0 | 0.7 | B |
| Miami-Dade | 7 | 0 | 0 | 2.3 | D |
| Okaloosa | 0 | 0 | 0 | 0.0 | A |
| Orange | 3 | 1 | 0 | 1.5 | C |
| Osceola | 4 | 0 | 0 | 1.3 | C |
| Palm Beach | 2 | 0 | 0 | 0.7 | B |
| Pasco | 5 | 0 | 0 | 1.7 | C |
| Pinellas | 1 | 0 | 0 | 0.3 | B |
| Polk | 6 | 0 | 0 | 2.0 | C |
| St. Lucie | 1 | 0 | 0 | 0.3 | B |
| Santa Rosa | 0 | 0 | 0 | 0.0 | A |
| Sarasota | 2 | 0 | 0 | 0.7 | B |
| Seminole | 4 | 0 | 0 | 1.3 | C |
| Volusia | 0 | 0 | 0 | 0.0 | A |
| Wakulla | 0 | 0 | 0 | 0.0 | A |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.3 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 5.7 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.6 | PASS |
| INC | INC | INC | INC | INC | INC | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 1 | 0 | 0 | 0 | 0.3 | B | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.4 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.9 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 1 | 0 | 0 | 0 | 0.3 | B | 6.6 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.3 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 1 | 0 | 0 | 0 | 0.3 | B | 8.0 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.2 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.4 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.3 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.9 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.7 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.2 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.6 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |

GEORGIA

American Lung Association in Georgia

www.Lung.org/georgia

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|------------------|----------------|------------------|----------------|----------------|--------------|----------------|------------------|----------------|------------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Bibb | 153,095 | 37,623 | 23,876 | 2,852 | 10,333 | 8,813 | 95 | 11,232 | 43,798 | 36,326 | 95,172 |
| Chatham | 289,195 | 61,279 | 44,478 | 4,645 | 20,274 | 16,743 | 181 | 21,065 | 85,672 | 39,488 | 149,834 |
| Chattooga | 24,790 | 5,555 | 4,354 | 421 | 1,731 | 1,540 | 16 | 1,998 | 7,379 | 4,575 | 4,353 |
| Clarke | 127,330 | 21,989 | 13,959 | 1,667 | 9,179 | 6,433 | 79 | 7,441 | 38,080 | 31,645 | 57,196 |
| Clayton | 289,615 | 80,559 | 26,997 | 6,107 | 18,739 | 14,223 | 180 | 16,817 | 77,506 | 50,072 | 261,809 |
| Cobb | 756,865 | 178,546 | 92,777 | 13,534 | 52,002 | 41,860 | 474 | 51,282 | 217,167 | 67,585 | 367,250 |
| Coffee | 43,093 | 10,534 | 5,930 | 799 | 2,914 | 2,395 | 27 | 2,987 | 12,256 | 9,505 | 18,230 |
| Columbia | 154,291 | 39,147 | 20,833 | 2,967 | 10,335 | 8,547 | 97 | 10,665 | 43,446 | 10,858 | 49,193 |
| Coweta | 145,864 | 35,765 | 20,242 | 2,711 | 9,959 | 8,433 | 91 | 10,593 | 41,875 | 14,844 | 42,590 |
| Dawson | 25,083 | 5,186 | 5,045 | 393 | 1,797 | 1,672 | 16 | 2,214 | 7,720 | 2,168 | 2,016 |
| DeKalb | 756,558 | 174,942 | 94,120 | 13,261 | 52,017 | 41,366 | 471 | 50,572 | 217,418 | 106,598 | 535,786 |
| Dougherty | 91,243 | 21,222 | 14,027 | 1,609 | 6,229 | 5,187 | 56 | 6,556 | 26,366 | 25,104 | 68,944 |
| Douglas | 145,331 | 37,605 | 16,774 | 2,851 | 9,725 | 7,854 | 91 | 9,601 | 40,542 | 18,113 | 88,809 |
| Floyd | 97,927 | 22,702 | 16,390 | 1,721 | 6,739 | 5,857 | 61 | 7,536 | 28,659 | 19,427 | 28,490 |
| Fulton | 1,050,114 | 229,407 | 122,730 | 17,390 | 73,347 | 57,077 | 657 | 68,864 | 305,399 | 137,929 | 633,490 |
| Glynn | 85,219 | 18,521 | 17,247 | 1,404 | 5,993 | 5,553 | 53 | 7,372 | 25,802 | 13,913 | 31,187 |
| Gwinnett | 927,781 | 249,129 | 93,264 | 18,885 | 61,212 | 47,918 | 582 | 57,458 | 253,730 | 84,763 | 590,670 |
| Hall | 202,148 | 51,265 | 30,106 | 3,886 | 13,547 | 11,528 | 127 | 14,625 | 57,279 | 26,249 | 80,340 |
| Henry | 230,220 | 58,952 | 26,816 | 4,469 | 15,487 | 12,578 | 144 | 15,405 | 64,571 | 17,086 | 134,022 |
| Houston | 155,469 | 39,714 | 19,762 | 3,010 | 10,388 | 8,453 | 97 | 10,447 | 43,529 | 18,519 | 69,011 |
| Lowndes | 116,321 | 27,869 | 14,366 | 2,113 | 7,807 | 5,993 | 73 | 7,267 | 32,673 | 28,539 | 54,131 |
| Murray | 39,921 | 9,891 | 5,931 | 750 | 2,710 | 2,329 | 25 | 2,956 | 11,447 | 5,987 | 7,194 |
| Muscogee | 194,160 | 48,112 | 26,004 | 3,647 | 13,016 | 10,521 | 122 | 13,041 | 54,699 | 37,759 | 116,402 |
| Paulding | 164,044 | 42,844 | 17,394 | 3,248 | 10,946 | 8,682 | 103 | 10,487 | 45,455 | 12,654 | 49,499 |
| Pike | 18,634 | 4,359 | 2,969 | 330 | 1,291 | 1,131 | 12 | 1,450 | 5,469 | 1,947 | 2,410 |
| Richmond | 201,554 | 46,063 | 28,342 | 3,492 | 13,849 | 11,249 | 126 | 13,995 | 58,280 | 41,554 | 132,321 |
| Rockdale | 90,594 | 22,370 | 13,059 | 1,696 | 6,175 | 5,294 | 56 | 6,695 | 26,023 | 11,803 | 63,255 |
| Sumter | 29,733 | 6,728 | 4,979 | 510 | 2,051 | 1,760 | 18 | 2,258 | 8,724 | 7,208 | 18,073 |
| Walker | 69,410 | 15,094 | 12,876 | 1,144 | 4,893 | 4,428 | 44 | 5,794 | 20,924 | 10,542 | 6,459 |
| Washington | 20,386 | 4,398 | 3,540 | 333 | 1,440 | 1,273 | 13 | 1,646 | 6,126 | 4,787 | 11,732 |
| Wilkinson | 9,036 | 2,053 | 1,751 | 156 | 632 | 588 | 6 | 778 | 2,712 | 2,062 | 3,908 |
| Totals | 6,705,024 | 1,609,423 | 840,938 | 121,999 | 456,759 | 367,277 | 4,192 | 451,097 | 1,910,727 | 899,609 | 3,773,776 |

GEORGIA

American Lung Association in Georgia

www.Lung.org/georgia

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|------------|--------|-----|--------|-----------|-------|
| Bibb | 3 | 0 | 0 | 1.0 | C |
| Chatham | 0 | 0 | 0 | 0.0 | A |
| Chattooga | 0 | 0 | 0 | 0.0 | A |
| Clarke | 3 | 0 | 0 | 1.0 | C |
| Clayton | DNC | DNC | DNC | DNC | DNC |
| Cobb | 2 | 1 | 0 | 1.2 | C |
| Coffee | DNC | DNC | DNC | DNC | DNC |
| Columbia | 1 | 0 | 0 | 0.3 | B |
| Coweta | INC | INC | INC | INC | INC |
| Dawson | 6 | 0 | 0 | 2.0 | C |
| DeKalb | 8 | 0 | 0 | 2.7 | D |
| Dougherty | DNC | DNC | DNC | DNC | DNC |
| Douglas | 6 | 2 | 0 | 3.0 | D |
| Floyd | DNC | DNC | DNC | DNC | DNC |
| Fulton | 21 | 1 | 0 | 7.5 | F |
| Glynn | 0 | 0 | 0 | 0.0 | A |
| Gwinnett | 6 | 0 | 0 | 2.0 | C |
| Hall | DNC | DNC | DNC | DNC | DNC |
| Henry | 13 | 1 | 0 | 4.8 | F |
| Houston | DNC | DNC | DNC | DNC | DNC |
| Lowndes | DNC | DNC | DNC | DNC | DNC |
| Murray | 1 | 0 | 0 | 0.3 | B |
| Muscogee | 1 | 0 | 0 | 0.3 | B |
| Paulding | INC | INC | INC | INC | INC |
| Pike | 6 | 0 | 0 | 2.0 | C |
| Richmond | 1 | 0 | 0 | 0.3 | B |
| Rockdale | 12 | 0 | 0 | 4.0 | F |
| Sumter | 1 | 0 | 0 | 0.3 | B |
| Walker | DNC | DNC | DNC | DNC | DNC |
| Washington | DNC | DNC | DNC | DNC | DNC |
| Wilkinson | DNC | DNC | DNC | DNC | DNC |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 3 | 0 | 0 | 0 | 1.0 | C | 9.3 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.8 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 1 | 0 | 0 | 0.5 | B | 8.1 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 9.1 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 8.7 | PASS |
| INC | INC | INC | INC | INC | INC | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 1 | 1 | 0 | 0 | 0.8 | B | 8.6 | PASS |
| 1 | 1 | 0 | 0 | 0.8 | B | 8.8 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| INC | INC | INC | INC | INC | INC | INC | INC |
| 1 | 0 | 0 | 0 | 0.3 | B | 10.1 | PASS |
| 2 | 0 | 0 | 0 | 0.7 | B | 7.2 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 9.0 | PASS |
| 1 | 1 | 0 | 0 | 0.8 | B | 7.9 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 3 | 0 | 0 | 0 | 1.0 | C | 8.3 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.4 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 2 | 0 | 0 | 0 | 0.7 | B | 9.2 | PASS |
| INC | INC | INC | INC | INC | INC | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 4 | 1 | 0 | 0 | 1.8 | C | 9.5 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 1 | 0 | 0 | 0.5 | B | 8.8 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.9 | PASS |
| INC | INC | INC | INC | INC | INC | INC | INC |

HAWAII

American Lung Association in Hawaii

www.Lung.org/hawaii

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|----------------|----------------|------------------|----------------|---------------|-------------|---------------|----------------|----------------|------------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Hawaii | 200,983 | 43,553 | 42,032 | 4,444 | 14,524 | 6,922 | 92 | 13,054 | 62,784 | 30,903 | 140,018 |
| Honolulu | 980,080 | 207,765 | 173,793 | 21,200 | 71,769 | 30,825 | 449 | 56,918 | 302,694 | 73,345 | 803,626 |
| Kauai | 72,133 | 15,749 | 14,539 | 1,607 | 5,211 | 2,448 | 33 | 4,599 | 22,446 | 6,021 | 50,931 |
| Maui | 167,207 | 36,347 | 30,566 | 3,709 | 12,147 | 5,506 | 76 | 10,237 | 51,886 | 14,130 | 116,808 |
| Totals | 1,420,403 | 303,414 | 260,930 | 30,960 | 103,651 | 45,701 | 650 | 84,808 | 439,810 | 124,399 | 1,111,383 |

EMBARGOED

HAWAII

American Lung Association in Hawaii

www.Lung.org/hawaii

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|----------|--------|-----|--------|-----------|-------|
| Hawaii | DNC | DNC | DNC | DNC | DNC |
| Honolulu | 0 | 0 | 0 | 0.0 | A |
| Kauai | DNC | DNC | DNC | DNC | DNC |
| Maui | DNC | DNC | DNC | DNC | DNC |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 16 | 2 | 0 | 0 | 6.3 | F | 12.3 | FAIL |
| 0 | 0 | 0 | 0 | 0.0 | A | 3.6 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 2.9 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 4.1 | PASS |

EMBARGOED

IDAHO

American Lung Association in Idaho

www.Lung.org/idaho

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|----------------|----------------|------------------|---------------|---------------|-------------|---------------|----------------|---------------|-----------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Ada | 469,966 | 111,737 | 67,792 | 7,997 | 30,846 | 19,607 | 227 | 27,145 | 135,509 | 44,434 | 73,002 |
| Bannock | 87,138 | 22,849 | 12,400 | 1,635 | 5,520 | 3,423 | 42 | 4,789 | 24,104 | 11,768 | 14,350 |
| Benewah | 9,226 | 2,084 | 2,073 | 149 | 609 | 472 | 4 | 703 | 2,881 | 1,342 | 1,414 |
| Butte | 2,611 | 626 | 612 | 45 | 168 | 131 | 1 | 200 | 801 | 392 | 226 |
| Canyon | 223,499 | 63,627 | 30,762 | 4,554 | 13,744 | 8,652 | 108 | 12,057 | 60,254 | 25,416 | 66,818 |
| Franklin | 13,726 | 4,380 | 1,943 | 313 | 802 | 523 | 7 | 738 | 3,560 | 1,194 | 1,228 |
| Idaho | 16,513 | 3,259 | 4,606 | 233 | 1,118 | 917 | 8 | 1,429 | 5,439 | 2,587 | 1,538 |
| Jerome | 24,015 | 7,394 | 3,117 | 529 | 1,431 | 904 | 12 | 1,250 | 6,274 | 2,974 | 9,335 |
| Lemhi | 7,961 | 1,488 | 2,409 | 106 | 544 | 458 | 4 | 726 | 2,679 | 1,154 | 533 |
| Shoshone | 12,796 | 2,630 | 2,923 | 188 | 866 | 662 | 6 | 988 | 4,079 | 2,371 | 1,140 |
| Totals | 867,451 | 220,074 | 128,637 | 15,751 | 55,647 | 35,748 | 419 | 50,025 | 245,580 | 93,632 | 169,584 |

EMBARGOED

IDAHO

American Lung Association in Idaho

www.Lung.org/idaho

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|----------|--------|-----|--------|-----------|-------|
| Ada | 20 | 0 | 0 | 6.7 | F |
| Bannock | DNC | DNC | DNC | DNC | DNC |
| Benewah | DNC | DNC | DNC | DNC | DNC |
| Butte | 3 | 0 | 0 | 1.0 | C |
| Canyon | DNC | DNC | DNC | DNC | DNC |
| Franklin | DNC | DNC | DNC | DNC | DNC |
| Idaho | INC | INC | INC | INC | INC |
| Jerome | DNC | DNC | DNC | DNC | DNC |
| Lemhi | DNC | DNC | DNC | DNC | DNC |
| Shoshone | DNC | DNC | DNC | DNC | DNC |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 6 | 1 | 0 | 0 | 2.5 | D | 7.7 | PASS |
| 2 | 3 | 0 | 0 | 2.2 | D | INC | INC |
| 22 | 5 | 2 | 0 | 11.2 | F | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 7 | 1 | 0 | 0 | 2.8 | D | 9.4 | PASS |
| 7 | 2 | 0 | 0 | 3.3 | F | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 10 | 1 | 0 | 0 | 3.8 | F | INC | INC |
| 11 | 4 | 0 | 0 | 5.7 | F | 11.4 | PASS |
| 29 | 6 | 1 | 0 | 13.3 | F | 11.2 | PASS |

EMBARGOED

ILLINOIS

American Lung Association in Illinois

www.Lung.org/illinois

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|-------------------|------------------|------------------|------------------|----------------|----------------|--------------|----------------|------------------|------------------|------------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Adams | 65,691 | 14,779 | 13,290 | 887 | 4,405 | 3,716 | 42 | 4,807 | 20,067 | 7,803 | 5,551 |
| Champaign | 209,983 | 39,434 | 26,930 | 2,368 | 14,952 | 9,930 | 133 | 11,800 | 62,828 | 37,121 | 69,623 |
| Clark | 15,596 | 3,540 | 3,097 | 213 | 1,044 | 883 | 10 | 1,144 | 4,766 | 1,702 | 562 |
| Cook | 5,180,493 | 1,129,672 | 758,167 | 67,835 | 353,721 | 259,528 | 3,271 | 321,077 | 1,538,653 | 701,869 | 3,000,419 |
| DuPage | 928,589 | 210,552 | 143,938 | 12,643 | 62,583 | 48,073 | 587 | 60,485 | 276,877 | 60,169 | 312,483 |
| Effingham | 34,208 | 8,104 | 6,043 | 487 | 2,267 | 1,829 | 22 | 2,336 | 10,181 | 3,277 | 1,520 |
| Hamilton | 8,163 | 1,794 | 1,783 | 108 | 550 | 481 | 5 | 628 | 2,537 | 990 | 321 |
| Jersey | 21,847 | 4,455 | 4,260 | 268 | 1,508 | 1,256 | 14 | 1,620 | 6,851 | 1,864 | 957 |
| Jo Daviess | 21,366 | 4,017 | 6,004 | 241 | 1,485 | 1,438 | 14 | 1,929 | 7,107 | 1,656 | 1,181 |
| Kane | 534,216 | 136,009 | 73,009 | 8,167 | 34,780 | 25,892 | 338 | 32,243 | 152,367 | 45,180 | 231,005 |
| Lake | 700,832 | 168,886 | 99,810 | 10,141 | 46,434 | 35,011 | 444 | 43,799 | 204,350 | 54,353 | 273,375 |
| McHenry | 308,570 | 72,396 | 45,024 | 4,347 | 20,605 | 15,817 | 195 | 19,921 | 91,332 | 18,136 | 59,799 |
| McLean | 172,828 | 37,136 | 22,860 | 2,230 | 11,878 | 8,277 | 109 | 10,040 | 50,773 | 23,366 | 35,797 |
| Macon | 104,712 | 23,150 | 20,960 | 1,390 | 7,061 | 5,902 | 66 | 7,612 | 32,055 | 17,557 | 24,937 |
| Macoupin | 45,313 | 9,644 | 9,006 | 579 | 3,089 | 2,600 | 29 | 3,363 | 14,083 | 5,740 | 1,834 |
| Madison | 264,461 | 57,756 | 45,485 | 3,468 | 17,974 | 14,239 | 167 | 18,086 | 80,268 | 35,925 | 40,298 |
| Peoria | 180,621 | 42,619 | 30,816 | 2,559 | 11,997 | 9,427 | 114 | 11,931 | 53,343 | 29,227 | 54,743 |
| Randolph | 32,106 | 6,203 | 5,972 | 372 | 2,250 | 1,806 | 21 | 2,302 | 10,083 | 3,834 | 4,881 |
| Rock Island | 143,477 | 31,963 | 27,672 | 1,919 | 9,665 | 7,949 | 91 | 10,203 | 43,632 | 19,754 | 41,412 |
| St. Clair | 261,059 | 61,073 | 41,261 | 3,667 | 17,419 | 13,467 | 165 | 16,975 | 77,184 | 38,065 | 100,558 |
| Sangamon | 195,348 | 43,347 | 34,887 | 2,603 | 13,202 | 10,622 | 123 | 13,556 | 59,249 | 25,172 | 38,619 |
| Will | 692,310 | 172,143 | 90,406 | 10,337 | 45,481 | 33,460 | 438 | 41,517 | 198,663 | 44,038 | 256,365 |
| Winnebago | 284,081 | 66,490 | 49,819 | 3,993 | 18,901 | 15,178 | 179 | 19,358 | 84,760 | 45,006 | 89,449 |
| Totals | 10,405,870 | 2,345,162 | 1,560,499 | 140,823 | 703,250 | 526,778 | 6,576 | 656,731 | 3,082,010 | 1,221,804 | 4,645,689 |

ILLINOIS

American Lung Association in Illinois

www.Lung.org/illinois

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|-------------|--------|-----|--------|-----------|-------|
| Adams | 1 | 0 | 0 | 0.3 | B |
| Champaign | 5 | 0 | 0 | 1.7 | C |
| Clark | 3 | 0 | 0 | 1.0 | C |
| Cook | 44 | 9 | 0 | 19.2 | F |
| DuPage | 15 | 0 | 0 | 5.0 | F |
| Effingham | 4 | 0 | 0 | 1.3 | C |
| Hamilton | 3 | 0 | 0 | 1.0 | C |
| Jersey | 11 | 0 | 0 | 3.7 | F |
| Jo Daviess | 3 | 0 | 0 | 1.0 | C |
| Kane | 14 | 0 | 0 | 4.7 | F |
| Lake | 21 | 2 | 0 | 8.0 | F |
| McHenry | 17 | 0 | 0 | 5.7 | F |
| McLean | 2 | 0 | 0 | 0.7 | B |
| Macon | 6 | 0 | 0 | 2.0 | C |
| Macoupin | 3 | 0 | 0 | 1.0 | C |
| Madison | 25 | 2 | 0 | 9.3 | F |
| Peoria | 8 | 0 | 0 | 2.7 | D |
| Randolph | 3 | 0 | 0 | 1.0 | C |
| Rock Island | 2 | 0 | 0 | 0.7 | B |
| St. Clair | 9 | 1 | 0 | 3.5 | F |
| Sangamon | 4 | 0 | 0 | 1.3 | C |
| Will | 5 | 0 | 0 | 1.7 | C |
| Winnebago | 5 | 1 | 0 | 2.2 | D |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.6 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 2 | 0 | 0 | 0 | 0.7 | B | 10.3 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.8 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.4 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.4 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.6 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.7 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 9.0 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 1 | 0 | 0 | 0 | 0.3 | B | 9.9 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.5 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.4 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 9.7 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.6 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |

INDIANA

American Lung Association in Indiana

www.Lung.org/indiana

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|------------------|----------------|------------------|----------------|----------------|--------------|----------------|------------------|----------------|------------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Allen | 375,351 | 96,407 | 54,718 | 8,390 | 27,609 | 24,979 | 269 | 29,997 | 125,725 | 49,641 | 99,590 |
| Bartholomew | 82,753 | 19,689 | 13,487 | 1,713 | 6,239 | 5,773 | 60 | 7,019 | 28,495 | 8,238 | 15,386 |
| Boone | 66,999 | 17,718 | 8,954 | 1,542 | 4,909 | 4,486 | 48 | 5,290 | 22,323 | 3,585 | 6,615 |
| Brown | 15,234 | 2,732 | 3,668 | 238 | 1,252 | 1,352 | 11 | 1,691 | 5,810 | 1,519 | 687 |
| Carroll | 20,127 | 4,451 | 3,949 | 387 | 1,562 | 1,568 | 14 | 1,932 | 7,188 | 1,756 | 1,201 |
| Clark | 117,360 | 26,376 | 18,524 | 2,295 | 9,035 | 8,391 | 84 | 10,083 | 41,223 | 12,975 | 20,078 |
| Delaware | 114,772 | 21,074 | 19,672 | 1,834 | 9,194 | 8,142 | 82 | 9,986 | 41,911 | 23,799 | 15,212 |
| Dubois | 42,565 | 10,277 | 7,430 | 894 | 3,218 | 3,145 | 31 | 3,825 | 14,755 | 3,155 | 4,214 |
| Elkhart | 205,560 | 56,565 | 30,282 | 4,923 | 14,750 | 13,493 | 148 | 16,276 | 67,254 | 23,202 | 52,263 |
| Floyd | 77,781 | 17,609 | 12,549 | 1,532 | 5,989 | 5,657 | 56 | 6,800 | 27,357 | 7,231 | 9,564 |
| Greene | 32,006 | 7,019 | 6,248 | 611 | 2,493 | 2,512 | 23 | 3,087 | 11,473 | 4,423 | 1,103 |
| Hamilton | 330,086 | 89,053 | 40,862 | 7,750 | 23,994 | 21,480 | 236 | 25,130 | 108,861 | 13,797 | 54,838 |
| Hendricks | 167,009 | 41,780 | 23,141 | 3,636 | 12,442 | 11,279 | 120 | 13,373 | 56,582 | 9,657 | 27,120 |
| Henry | 48,271 | 9,877 | 9,134 | 860 | 3,818 | 3,734 | 35 | 4,576 | 17,525 | 6,434 | 3,149 |
| Howard | 82,366 | 18,680 | 16,056 | 1,626 | 6,321 | 6,250 | 59 | 7,740 | 29,080 | 9,942 | 12,346 |
| Huntington | 36,240 | 7,812 | 6,230 | 680 | 2,827 | 2,697 | 26 | 3,268 | 12,934 | 3,532 | 1,985 |
| Jackson | 44,111 | 10,835 | 7,218 | 943 | 3,306 | 3,134 | 32 | 3,796 | 15,120 | 5,183 | 5,343 |
| Johnson | 156,225 | 38,713 | 22,769 | 3,369 | 11,643 | 10,548 | 112 | 12,630 | 53,005 | 11,784 | 17,578 |
| Knox | 36,895 | 7,921 | 6,582 | 689 | 2,864 | 2,691 | 27 | 3,302 | 13,112 | 5,447 | 2,785 |
| Lake | 484,411 | 113,194 | 80,104 | 9,851 | 36,859 | 34,784 | 346 | 42,135 | 168,517 | 74,864 | 222,969 |
| LaPorte | 110,007 | 23,561 | 19,692 | 2,050 | 8,582 | 8,225 | 79 | 10,039 | 39,317 | 16,212 | 23,147 |
| Madison | 129,641 | 28,038 | 23,714 | 2,440 | 10,079 | 9,700 | 93 | 11,892 | 46,215 | 20,908 | 19,694 |
| Marion | 954,670 | 235,211 | 120,358 | 20,470 | 70,986 | 60,620 | 682 | 71,598 | 321,447 | 160,661 | 431,505 |
| Monroe | 146,917 | 22,966 | 19,249 | 1,999 | 12,037 | 9,253 | 106 | 11,071 | 54,238 | 28,177 | 24,381 |
| Morgan | 70,116 | 15,846 | 11,874 | 1,379 | 5,429 | 5,316 | 50 | 6,391 | 24,863 | 7,339 | 2,850 |
| Perry | 19,102 | 4,013 | 3,590 | 349 | 1,497 | 1,450 | 14 | 1,782 | 6,869 | 2,167 | 1,160 |
| Porter | 169,594 | 37,424 | 27,803 | 3,257 | 13,131 | 12,330 | 122 | 14,874 | 59,981 | 14,826 | 29,129 |
| Posey | 25,540 | 5,627 | 4,799 | 490 | 1,987 | 1,980 | 18 | 2,420 | 9,130 | 2,311 | 1,073 |
| St. Joseph | 270,771 | 64,005 | 42,783 | 5,570 | 20,430 | 18,618 | 194 | 22,570 | 93,183 | 35,068 | 75,154 |
| Shelby | 44,593 | 10,170 | 7,644 | 885 | 3,433 | 3,332 | 32 | 4,029 | 15,724 | 5,065 | 3,495 |
| Spencer | 20,327 | 4,440 | 3,932 | 386 | 1,587 | 1,600 | 15 | 1,961 | 7,300 | 1,839 | 1,066 |
| Sullivan | 20,690 | 3,979 | 3,718 | 346 | 1,656 | 1,561 | 15 | 1,905 | 7,576 | 2,513 | 1,724 |
| Tippecanoe | 193,048 | 39,983 | 22,471 | 3,480 | 14,884 | 11,360 | 139 | 13,470 | 66,978 | 32,114 | 47,441 |
| Vanderburgh | 180,974 | 39,047 | 30,573 | 3,398 | 14,042 | 13,032 | 129 | 15,856 | 64,158 | 26,349 | 29,780 |
| Vigo | 107,386 | 21,965 | 17,517 | 1,912 | 8,404 | 7,483 | 77 | 9,114 | 38,291 | 18,824 | 15,570 |
| Wabash | 31,280 | 6,512 | 6,526 | 567 | 2,455 | 2,451 | 22 | 3,060 | 11,316 | 3,631 | 1,767 |
| Warrick | 62,567 | 14,921 | 10,947 | 1,299 | 4,744 | 4,620 | 45 | 5,624 | 21,754 | 4,373 | 4,900 |
| Whitley | 34,074 | 7,899 | 6,124 | 687 | 2,607 | 2,554 | 24 | 3,116 | 11,961 | 2,377 | 1,604 |
| Totals | 5,127,419 | 1,203,389 | 774,891 | 104,727 | 388,291 | 351,578 | 3,677 | 422,705 | 1,768,553 | 664,918 | 1,289,466 |

INDIANA

American Lung Association in Indiana

www.Lung.org/indiana

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|-------------|--------|-----|--------|-----------|-------|
| Allen | 10 | 0 | 0 | 3.3 | F |
| Bartholomew | 8 | 0 | 0 | 2.7 | D |
| Boone | 9 | 0 | 0 | 3.0 | D |
| Brown | 1 | 0 | 0 | 0.3 | B |
| Carroll | 5 | 0 | 0 | 1.7 | C |
| Clark | 12 | 0 | 0 | 4.0 | F |
| Delaware | 5 | 0 | 0 | 1.7 | C |
| Dubois | DNC | DNC | DNC | DNC | DNC |
| Elkhart | 10 | 0 | 0 | 3.3 | F |
| Floyd | 16 | 0 | 0 | 5.3 | F |
| Greene | 7 | 0 | 0 | 2.3 | D |
| Hamilton | 10 | 0 | 0 | 3.3 | F |
| Hendricks | 2 | 0 | 0 | 0.7 | B |
| Henry | DNC | DNC | DNC | DNC | DNC |
| Howard | INC | INC | INC | INC | INC |
| Huntington | 1 | 0 | 0 | 0.3 | B |
| Jackson | 2 | 0 | 0 | 0.7 | B |
| Johnson | INC | INC | INC | INC | INC |
| Knox | 8 | 0 | 0 | 2.7 | D |
| Lake | 12 | 1 | 0 | 4.5 | F |
| LaPorte | 16 | 1 | 0 | 5.8 | F |
| Madison | 7 | 0 | 0 | 2.3 | D |
| Marion | 18 | 0 | 0 | 6.0 | F |
| Monroe | DNC | DNC | DNC | DNC | DNC |
| Morgan | 1 | 0 | 0 | 0.3 | B |
| Perry | 4 | 0 | 0 | 1.3 | C |
| Porter | 19 | 0 | 0 | 6.3 | F |
| Posey | 3 | 0 | 0 | 1.0 | C |
| St. Joseph | 19 | 0 | 0 | 6.3 | F |
| Shelby | 7 | 0 | 0 | 2.3 | D |
| Spencer | DNC | DNC | DNC | DNC | DNC |
| Sullivan | DNC | DNC | DNC | DNC | DNC |
| Tippecanoe | DNC | DNC | DNC | DNC | DNC |
| Vanderburgh | 9 | 0 | 0 | 3.0 | D |
| Vigo | 6 | 0 | 0 | 2.0 | C |
| Wabash | 11 | 0 | 0 | 3.7 | F |
| Warrick | 10 | 1 | 0 | 3.8 | F |
| Whitley | DNC | DNC | DNC | DNC | DNC |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.6 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.6 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 9.0 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.9 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.6 | PASS |
| 2 | 0 | 0 | 0 | 0.7 | B | 8.3 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.9 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 8.1 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.5 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.3 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 2 | 1 | 1 | 0 | 1.8 | C | 9.4 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| 1 | 0 | 0 | 0 | 0.3 | B | 8.3 | PASS |
| 7 | 1 | 0 | 0 | 2.8 | D | 10.4 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.8 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 1 | 0 | 0 | 0.5 | B | 7.7 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.9 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.4 | PASS |
| INC | INC | INC | INC | INC | INC | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.1 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 9.1 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 9.0 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.7 | PASS |

IOWA

American Lung Association in Iowa

www.Lung.org/iowa

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|----------------|----------------|------------------|----------------|---------------|--------------|---------------|----------------|----------------|-----------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Black Hawk | 132,408 | 28,810 | 21,719 | 1,658 | 8,216 | 5,752 | 79 | 7,803 | 42,284 | 20,811 | 25,446 |
| Bremer | 24,947 | 5,567 | 4,886 | 320 | 1,529 | 1,182 | 15 | 1,660 | 8,023 | 1,547 | 1,251 |
| Clinton | 46,518 | 10,602 | 9,160 | 610 | 2,839 | 2,303 | 28 | 3,224 | 14,995 | 5,727 | 4,059 |
| Delaware | 17,069 | 4,031 | 3,292 | 232 | 1,032 | 848 | 10 | 1,182 | 5,457 | 1,521 | 629 |
| Harrison | 14,134 | 3,278 | 2,785 | 189 | 858 | 706 | 8 | 988 | 4,543 | 1,347 | 569 |
| Johnson | 151,260 | 30,183 | 17,736 | 1,737 | 9,670 | 5,659 | 90 | 7,160 | 48,280 | 22,536 | 33,328 |
| Lee | 34,055 | 7,297 | 6,917 | 420 | 2,113 | 1,720 | 20 | 2,415 | 11,175 | 4,758 | 3,178 |
| Linn | 225,909 | 52,510 | 35,702 | 3,022 | 13,782 | 9,969 | 134 | 13,425 | 71,163 | 20,652 | 32,676 |
| Montgomery | 10,003 | 2,274 | 2,144 | 131 | 609 | 514 | 6 | 732 | 3,247 | 1,360 | 668 |
| Muscatine | 42,929 | 10,691 | 7,145 | 615 | 2,558 | 1,931 | 26 | 2,634 | 13,314 | 4,973 | 10,116 |
| Palo Alto | 8,929 | 2,037 | 1,958 | 117 | 542 | 449 | 5 | 645 | 2,884 | 834 | 638 |
| Polk | 487,204 | 121,315 | 63,631 | 6,983 | 29,203 | 19,715 | 289 | 25,704 | 148,762 | 47,499 | 111,152 |
| Pottawattamie | 93,533 | 22,030 | 16,335 | 1,268 | 5,669 | 4,343 | 56 | 5,959 | 29,594 | 10,760 | 11,737 |
| Scott | 173,283 | 41,080 | 28,142 | 2,365 | 10,501 | 7,756 | 103 | 10,506 | 54,424 | 21,030 | 35,262 |
| Story | 98,105 | 16,245 | 11,812 | 935 | 6,530 | 3,622 | 59 | 4,575 | 32,414 | 16,410 | 16,343 |
| Van Buren | 7,020 | 1,601 | 1,576 | 92 | 426 | 366 | 4 | 526 | 2,282 | 917 | 287 |
| Warren | 51,056 | 12,657 | 8,025 | 729 | 3,052 | 2,249 | 30 | 3,034 | 15,805 | 3,502 | 3,087 |
| Woodbury | 102,539 | 26,742 | 15,471 | 1,539 | 6,025 | 4,326 | 61 | 5,818 | 31,072 | 13,835 | 28,376 |
| Totals | 1,720,901 | 398,950 | 258,436 | 22,963 | 105,155 | 73,411 | 1,023 | 97,992 | 539,718 | 200,019 | 318,802 |

IOWA

American Lung Association in Iowa

www.Lung.org/iowa

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|---------------|--------|-----|--------|-----------|-------|
| Black Hawk | DNC | DNC | DNC | DNC | DNC |
| Bremer | 2 | 0 | 0 | 0.7 | B |
| Clinton | 1 | 0 | 0 | 0.3 | B |
| Delaware | DNC | DNC | DNC | DNC | DNC |
| Harrison | 2 | 0 | 0 | 0.7 | B |
| Johnson | DNC | DNC | DNC | DNC | DNC |
| Lee | DNC | DNC | DNC | DNC | DNC |
| Linn | 4 | 0 | 0 | 1.3 | C |
| Montgomery | 0 | 0 | 0 | 0.0 | A |
| Muscatine | DNC | DNC | DNC | DNC | DNC |
| Palo Alto | 2 | 0 | 0 | 0.7 | B |
| Polk | 2 | 0 | 0 | 0.7 | B |
| Pottawattamie | DNC | DNC | DNC | DNC | DNC |
| Scott | 6 | 0 | 0 | 2.0 | C |
| Story | INC | INC | INC | INC | INC |
| Van Buren | 0 | 0 | 0 | 0.0 | A |
| Warren | INC | INC | INC | INC | INC |
| Woodbury | DNC | DNC | DNC | DNC | DNC |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.8 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.3 | PASS |
| INC | INC | INC | INC | INC | INC | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.6 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.5 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 8.0 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.5 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.3 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.7 | PASS |
| 2 | 0 | 0 | 0 | 0.7 | B | 7.4 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.9 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.4 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.9 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.7 | PASS |

KANSAS

American Lung Association in Kansas

www.Lung.org/kansas

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|----------------|----------------|------------------|----------------|---------------|-------------|----------------|----------------|----------------|-----------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Johnson | 597,555 | 145,643 | 86,723 | 11,120 | 44,566 | 30,438 | 337 | 39,886 | 189,480 | 32,334 | 121,136 |
| Leavenworth | 81,352 | 19,284 | 11,779 | 1,472 | 6,125 | 4,159 | 46 | 5,441 | 25,996 | 7,925 | 17,116 |
| Neosho | 15,951 | 3,929 | 3,164 | 300 | 1,167 | 904 | 9 | 1,243 | 5,151 | 2,271 | 1,604 |
| Sedgwick | 513,607 | 131,919 | 74,487 | 10,072 | 37,686 | 25,503 | 290 | 33,529 | 159,665 | 67,722 | 165,169 |
| Shawnee | 177,499 | 41,950 | 32,296 | 3,203 | 13,238 | 9,780 | 100 | 13,250 | 57,584 | 24,062 | 46,674 |
| Sumner | 22,996 | 5,667 | 4,303 | 433 | 1,685 | 1,287 | 13 | 1,752 | 7,411 | 3,016 | 2,436 |
| Trego | 2,793 | 500 | 740 | 38 | 219 | 190 | 2 | 270 | 1,005 | 316 | 151 |
| Wyandotte | 165,324 | 46,051 | 20,281 | 3,516 | 11,844 | 7,635 | 93 | 9,834 | 49,497 | 30,035 | 98,310 |
| Totals | 1,577,077 | 394,943 | 233,773 | 30,155 | 116,530 | 79,896 | 889 | 105,206 | 495,790 | 167,681 | 452,596 |

EMBARGOED

KANSAS

American Lung Association in Kansas

www.Lung.org/kansas

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|-------------|--------|-----|--------|-----------|-------|
| Johnson | 0 | 0 | 0 | 0.0 | A |
| Leavenworth | 0 | 0 | 0 | 0.0 | A |
| Neosho | 0 | 0 | 0 | 0.0 | A |
| Sedgwick | 0 | 1 | 0 | 0.5 | B |
| Shawnee | 0 | 0 | 0 | 0.0 | A |
| Sumner | 0 | 0 | 0 | 0.0 | A |
| Trego | 0 | 0 | 0 | 0.0 | A |
| Wyandotte | 4 | 1 | 0 | 1.8 | C |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.4 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.8 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.5 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.2 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| 1 | 0 | 0 | 0 | 0.3 | B | 9.1 | PASS |

EMBARGOED

KENTUCKY

American Lung Association in Kentucky

www.Lung.org/kentucky

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|----------------|----------------|------------------|----------------|----------------|--------------|----------------|----------------|----------------|-----------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Bell | 26,569 | 5,646 | 5,105 | 333 | 2,390 | 2,703 | 24 | 2,861 | 10,625 | 7,998 | 1,588 |
| Boone | 131,533 | 34,210 | 17,804 | 2,017 | 11,121 | 11,720 | 117 | 11,883 | 49,163 | 8,371 | 16,417 |
| Boyd | 47,240 | 10,048 | 9,221 | 592 | 4,248 | 4,830 | 42 | 5,124 | 18,895 | 8,229 | 3,249 |
| Bullitt | 81,069 | 17,795 | 12,652 | 1,049 | 7,241 | 7,836 | 72 | 8,043 | 32,032 | 7,596 | 4,649 |
| Campbell | 93,152 | 19,395 | 14,549 | 1,143 | 8,391 | 8,846 | 82 | 9,076 | 37,236 | 11,741 | 7,249 |
| Carter | 27,004 | 6,077 | 5,065 | 358 | 2,389 | 2,693 | 24 | 2,847 | 10,624 | 8,154 | 920 |
| Christian | 71,671 | 19,263 | 8,791 | 1,136 | 5,839 | 5,419 | 64 | 5,452 | 26,155 | 11,906 | 24,824 |
| Daviess | 101,104 | 24,735 | 17,128 | 1,458 | 8,700 | 9,528 | 89 | 9,963 | 38,671 | 15,026 | 12,362 |
| Edmonson | 12,274 | 2,253 | 2,546 | 133 | 1,143 | 1,301 | 11 | 1,387 | 5,090 | 2,110 | 643 |
| Fayette | 323,780 | 67,639 | 43,214 | 3,987 | 28,861 | 28,195 | 287 | 28,335 | 128,453 | 45,485 | 94,095 |
| Greenup | 35,268 | 7,535 | 7,388 | 444 | 3,167 | 3,674 | 31 | 3,942 | 14,111 | 5,747 | 1,375 |
| Hancock | 8,758 | 2,238 | 1,486 | 132 | 746 | 836 | 8 | 874 | 3,309 | 1,038 | 414 |
| Hardin | 110,356 | 27,155 | 15,397 | 1,601 | 9,475 | 9,877 | 98 | 10,038 | 41,975 | 14,254 | 26,889 |
| Henderson | 45,591 | 10,568 | 8,012 | 623 | 4,002 | 4,456 | 40 | 4,668 | 17,765 | 7,235 | 6,219 |
| Jefferson | 770,517 | 170,791 | 124,503 | 10,068 | 68,156 | 72,482 | 680 | 74,957 | 302,915 | 115,810 | 254,471 |
| Jessamine | 53,920 | 12,999 | 8,087 | 766 | 4,662 | 4,946 | 48 | 5,074 | 20,673 | 6,562 | 6,149 |
| Livingston | 9,242 | 1,883 | 2,006 | 111 | 845 | 1,007 | 8 | 1,082 | 3,756 | 1,268 | 443 |
| McCracken | 65,346 | 14,650 | 12,940 | 864 | 5,778 | 6,573 | 58 | 7,011 | 25,748 | 9,423 | 10,949 |
| Madison | 92,368 | 19,144 | 12,737 | 1,129 | 8,258 | 8,154 | 82 | 8,229 | 36,752 | 14,065 | 9,613 |
| Morgan | 13,345 | 2,438 | 2,235 | 144 | 1,243 | 1,331 | 12 | 1,373 | 5,514 | 3,102 | 994 |
| Oldham | 66,470 | 16,937 | 8,777 | 998 | 5,688 | 6,064 | 59 | 6,115 | 25,060 | 3,463 | 7,813 |
| Perry | 26,092 | 5,984 | 4,429 | 353 | 2,302 | 2,557 | 23 | 2,662 | 10,200 | 7,355 | 1,217 |
| Pike | 58,402 | 12,021 | 10,962 | 709 | 5,310 | 6,004 | 52 | 6,318 | 23,560 | 13,499 | 1,833 |
| Pulaski | 64,623 | 14,373 | 12,130 | 847 | 5,745 | 6,500 | 57 | 6,865 | 25,522 | 12,392 | 3,811 |
| Simpson | 18,529 | 4,466 | 3,056 | 263 | 1,605 | 1,757 | 16 | 1,827 | 7,123 | 2,271 | 2,775 |
| Trigg | 14,643 | 3,206 | 3,259 | 189 | 1,312 | 1,576 | 13 | 1,707 | 5,840 | 1,901 | 1,766 |
| Warren | 131,264 | 30,099 | 16,896 | 1,774 | 11,387 | 11,049 | 116 | 11,090 | 50,704 | 20,486 | 29,111 |
| Washington | 12,084 | 2,878 | 2,176 | 170 | 1,055 | 1,197 | 11 | 1,259 | 4,678 | 1,644 | 1,533 |
| Totals | 2,512,214 | 566,426 | 392,551 | 33,391 | 221,060 | 233,114 | 2,224 | 240,062 | 982,147 | 368,131 | 533,371 |

KENTUCKY

American Lung Association in Kentucky

www.Lung.org/kentucky

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|------------|--------|-----|--------|-----------|-------|
| Bell | 0 | 0 | 0 | 0.0 | A |
| Boone | 1 | 1 | 0 | 0.8 | B |
| Boyd | 3 | 0 | 0 | 1.0 | C |
| Bullitt | 3 | 0 | 0 | 1.0 | C |
| Campbell | 6 | 0 | 0 | 2.0 | C |
| Carter | 0 | 0 | 0 | 0.0 | A |
| Christian | 0 | 0 | 0 | 0.0 | A |
| Daviess | 2 | 1 | 0 | 1.2 | C |
| Edmonson | 0 | 0 | 0 | 0.0 | A |
| Fayette | 0 | 0 | 0 | 0.0 | A |
| Greenup | 1 | 0 | 0 | 0.3 | B |
| Hancock | 3 | 0 | 0 | 1.0 | C |
| Hardin | 1 | 0 | 0 | 0.3 | B |
| Henderson | 6 | 0 | 0 | 2.0 | C |
| Jefferson | 24 | 3 | 0 | 9.5 | F |
| Jessamine | 1 | 0 | 0 | 0.3 | B |
| Livingston | 1 | 0 | 0 | 0.3 | B |
| McCracken | 1 | 0 | 0 | 0.3 | B |
| Madison | DNC | DNC | DNC | DNC | DNC |
| Morgan | 2 | 0 | 0 | 0.7 | B |
| Oldham | 5 | 0 | 0 | 1.7 | C |
| Perry | 0 | 0 | 0 | 0.0 | A |
| Pike | 0 | 0 | 0 | 0.0 | A |
| Pulaski | 0 | 0 | 0 | 0.0 | A |
| Simpson | 1 | 0 | 0 | 0.3 | B |
| Trigg | 0 | 0 | 0 | 0.0 | A |
| Warren | 0 | 0 | 0 | 0.0 | A |
| Washington | 1 | 0 | 0 | 0.3 | B |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 1 | 1 | 0 | 0 | 0.8 | B | 8.5 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.6 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.0 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 6.4 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.2 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.4 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.2 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 8.8 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 9.4 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 1 | 0 | 0 | 0 | 0.3 | B | 8.3 | PASS |
| INC | INC | INC | INC | INC | INC | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 1 | 0 | 0 | 0.5 | B | 7.6 | PASS |
| 2 | 0 | 0 | 0 | 0.7 | B | 7.2 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.7 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.1 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |

LOUISIANA

American Lung Association in Louisiana

www.Lung.org/louisiana

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|-----------------------------|------------------|----------------|----------------|------------------|----------------|----------------|--------------|----------------|------------------|----------------|------------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Ascension Parish | 124,672 | 33,371 | 14,734 | 2,920 | 8,326 | 8,809 | 81 | 9,828 | 39,309 | 13,341 | 39,717 |
| Bossier Parish | 127,185 | 31,589 | 18,240 | 2,764 | 8,613 | 9,258 | 83 | 10,615 | 41,148 | 17,888 | 42,942 |
| Caddo Parish | 242,922 | 57,537 | 41,606 | 5,035 | 16,568 | 18,803 | 157 | 22,419 | 80,865 | 52,996 | 134,679 |
| Calcasieu Parish | 203,112 | 50,566 | 30,057 | 4,425 | 13,742 | 15,049 | 132 | 17,430 | 66,031 | 29,744 | 66,679 |
| East Baton Rouge Parish | 440,956 | 99,927 | 62,528 | 8,744 | 30,745 | 32,399 | 285 | 36,720 | 145,964 | 71,761 | 245,155 |
| Iberville Parish | 32,721 | 6,743 | 5,181 | 590 | 2,342 | 2,595 | 21 | 3,021 | 11,289 | 6,880 | 17,178 |
| Jefferson Parish | 434,051 | 95,458 | 74,330 | 8,353 | 30,340 | 34,465 | 281 | 40,959 | 147,899 | 67,200 | 206,828 |
| Lafayette Parish | 242,782 | 57,350 | 32,067 | 5,018 | 16,809 | 17,753 | 157 | 19,972 | 79,598 | 36,301 | 84,123 |
| Lafourche Parish | 98,115 | 22,793 | 15,168 | 1,994 | 6,789 | 7,561 | 64 | 8,825 | 32,780 | 15,989 | 22,780 |
| Livingston Parish | 139,567 | 35,715 | 18,422 | 3,125 | 9,418 | 10,114 | 91 | 11,477 | 44,810 | 15,562 | 17,575 |
| Orleans Parish | 391,006 | 78,086 | 57,760 | 6,833 | 28,256 | 30,204 | 252 | 34,414 | 134,593 | 90,329 | 270,766 |
| Ouachita Parish | 154,475 | 38,427 | 22,847 | 3,363 | 10,450 | 11,410 | 100 | 13,203 | 50,179 | 31,790 | 64,840 |
| Pointe Coupee Parish | 21,940 | 4,793 | 4,516 | 419 | 1,519 | 1,839 | 14 | 2,282 | 7,606 | 4,428 | 8,717 |
| Rapides Parish | 130,562 | 32,250 | 21,375 | 2,822 | 8,811 | 9,954 | 85 | 11,796 | 42,873 | 24,641 | 50,765 |
| St. Bernard Parish | 46,721 | 12,440 | 5,340 | 1,089 | 3,126 | 3,251 | 30 | 3,589 | 14,683 | 9,306 | 17,722 |
| St. James Parish | 21,037 | 4,748 | 3,610 | 415 | 1,461 | 1,677 | 14 | 2,002 | 7,142 | 3,492 | 10,886 |
| St. John the Baptist Parish | 43,184 | 10,617 | 6,144 | 929 | 2,950 | 3,256 | 28 | 3,756 | 14,163 | 7,766 | 28,513 |
| St. Martin Parish | 53,621 | 12,978 | 8,057 | 1,136 | 3,669 | 4,088 | 35 | 4,761 | 17,702 | 10,179 | 18,995 |
| St. Tammany Parish | 258,111 | 61,917 | 43,694 | 5,418 | 17,603 | 20,343 | 167 | 24,330 | 86,210 | 30,253 | 55,792 |
| Tangipahoa Parish | 133,777 | 32,761 | 19,230 | 2,867 | 9,110 | 9,843 | 87 | 11,300 | 43,567 | 23,304 | 49,317 |
| Terrebonne Parish | 111,021 | 28,090 | 15,984 | 2,458 | 7,492 | 8,238 | 72 | 9,522 | 35,984 | 18,950 | 36,999 |
| West Baton Rouge Parish | 26,427 | 6,461 | 3,607 | 565 | 1,809 | 1,955 | 17 | 2,229 | 8,629 | 3,299 | 11,811 |
| Totals | 3,477,965 | 814,617 | 524,497 | 71,282 | 239,947 | 262,863 | 2,254 | 304,449 | 1,153,025 | 585,399 | 1,502,779 |

LOUISIANA

American Lung Association in Louisiana

www.Lung.org/louisiana

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|-----------------------------|--------|-----|--------|-----------|-------|
| Ascension Parish | 9 | 0 | 0 | 3.0 | D |
| Bossier Parish | 0 | 0 | 0 | 0.0 | A |
| Caddo Parish | 0 | 0 | 0 | 0.0 | A |
| Calcasieu Parish | 6 | 0 | 0 | 2.0 | C |
| East Baton Rouge Parish | 18 | 0 | 0 | 6.0 | F |
| Iberville Parish | 9 | 0 | 0 | 3.0 | D |
| Jefferson Parish | 4 | 0 | 0 | 1.3 | C |
| Lafayette Parish | 1 | 0 | 0 | 0.3 | B |
| Lafourche Parish | 0 | 0 | 0 | 0.0 | A |
| Livingston Parish | 5 | 0 | 0 | 1.7 | C |
| Orleans Parish | DNC | DNC | DNC | DNC | DNC |
| Ouachita Parish | 0 | 0 | 0 | 0.0 | A |
| Pointe Coupee Parish | 2 | 0 | 0 | 0.7 | B |
| Rapides Parish | DNC | DNC | DNC | DNC | DNC |
| St. Bernard Parish | 5 | 0 | 0 | 1.7 | C |
| St. James Parish | 0 | 0 | 0 | 0.0 | A |
| St. John the Baptist Parish | 2 | 0 | 0 | 0.7 | B |
| St. Martin Parish | 1 | 0 | 0 | 0.3 | B |
| St. Tammany Parish | 3 | 0 | 0 | 1.0 | C |
| Tangipahoa Parish | DNC | DNC | DNC | DNC | DNC |
| Terrebonne Parish | DNC | DNC | DNC | DNC | DNC |
| West Baton Rouge Parish | 8 | 0 | 0 | 2.7 | D |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 2 | 0 | 0 | 0 | 0.7 | B | 10.4 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.8 | PASS |
| 4 | 0 | 0 | 0 | 1.3 | C | 9.1 | PASS |
| 0 | 1 | 0 | 0 | 0.5 | B | 8.5 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.4 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.9 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.0 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.0 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.3 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.4 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.2 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 9.2 | PASS |

MAINE

American Lung Association in Maine

www.Lung.org/maine

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|----------------|----------------|------------------|----------------|---------------|-------------|---------------|----------------|----------------|-----------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Androscoggin | 107,679 | 23,332 | 19,091 | 1,722 | 10,438 | 6,605 | 80 | 8,501 | 41,811 | 12,838 | 10,352 |
| Aroostook | 67,111 | 12,226 | 16,196 | 902 | 6,601 | 4,679 | 50 | 6,319 | 27,614 | 9,988 | 4,061 |
| Cumberland | 293,557 | 54,796 | 54,161 | 4,044 | 29,601 | 18,586 | 218 | 23,919 | 118,220 | 23,332 | 28,318 |
| Franklin | 29,897 | 5,235 | 6,705 | 386 | 2,998 | 2,038 | 22 | 2,711 | 12,339 | 4,141 | 1,285 |
| Hancock | 54,811 | 9,364 | 13,489 | 691 | 5,465 | 3,878 | 41 | 5,242 | 22,867 | 6,233 | 2,934 |
| Kennebec | 122,083 | 23,566 | 24,350 | 1,739 | 12,071 | 7,955 | 91 | 10,403 | 49,097 | 13,290 | 6,643 |
| Knox | 39,771 | 7,081 | 10,057 | 523 | 3,924 | 2,803 | 30 | 3,815 | 16,461 | 4,209 | 1,939 |
| Oxford | 57,618 | 10,624 | 12,483 | 784 | 5,693 | 3,925 | 43 | 5,202 | 23,565 | 9,490 | 2,785 |
| Penobscot | 151,096 | 27,394 | 28,204 | 2,022 | 15,332 | 9,637 | 113 | 12,413 | 61,257 | 21,154 | 9,578 |
| Washington | 31,490 | 5,938 | 7,687 | 438 | 3,069 | 2,187 | 23 | 2,964 | 12,864 | 5,613 | 3,324 |
| York | 206,229 | 38,565 | 42,233 | 2,846 | 20,501 | 13,624 | 154 | 17,877 | 83,647 | 18,133 | 12,164 |
| Totals | 1,161,342 | 218,121 | 234,656 | 16,098 | 115,693 | 75,918 | 865 | 99,366 | 469,742 | 128,421 | 83,383 |

EMBARGOED

MAINE

American Lung Association in Maine

www.Lung.org/maine

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|--------------|--------|-----|--------|-----------|-------|
| Androscoggin | 0 | 0 | 0 | 0.0 | A |
| Aroostook | 0 | 0 | 0 | 0.0 | A |
| Cumberland | 2 | 0 | 0 | 0.7 | B |
| Franklin | DNC | DNC | DNC | DNC | DNC |
| Hancock | 8 | 1 | 0 | 3.2 | D |
| Kennebec | 0 | 0 | 0 | 0.0 | A |
| Knox | 5 | 0 | 0 | 1.7 | C |
| Oxford | 0 | 0 | 0 | 0.0 | A |
| Penobscot | 0 | 0 | 0 | 0.0 | A |
| Washington | 3 | 0 | 0 | 1.0 | C |
| York | 4 | 1 | 0 | 1.8 | C |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.1 | PASS |
| 0 | 2 | 0 | 0 | 1.0 | C | 7.0 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.6 | PASS |
| INC | INC | INC | INC | INC | INC | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 3.7 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 5.5 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.4 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 5.8 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |

EMBARGOED

MARYLAND

American Lung Association in Maryland

www.Lung.org/maryland

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|-----------------|------------------|------------------|----------------|------------------|----------------|----------------|--------------|----------------|------------------|----------------|------------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Anne Arundel | 576,031 | 128,107 | 84,550 | 9,687 | 42,383 | 25,408 | 315 | 37,074 | 161,525 | 39,231 | 186,967 |
| Baltimore | 828,431 | 178,931 | 142,310 | 13,531 | 60,923 | 38,537 | 451 | 57,147 | 237,801 | 79,482 | 359,919 |
| Calvert | 92,003 | 21,300 | 13,687 | 1,611 | 6,678 | 4,196 | 50 | 6,139 | 25,984 | 4,912 | 20,253 |
| Carroll | 168,429 | 36,532 | 28,378 | 2,763 | 12,380 | 8,057 | 92 | 11,918 | 48,947 | 9,828 | 19,008 |
| Cecil | 102,826 | 23,268 | 16,186 | 1,760 | 7,494 | 4,747 | 56 | 6,981 | 29,266 | 8,406 | 15,540 |
| Charles | 161,503 | 38,703 | 20,198 | 2,927 | 11,697 | 6,879 | 88 | 9,899 | 44,200 | 10,487 | 99,163 |
| Dorchester | 31,998 | 6,752 | 6,911 | 511 | 2,330 | 1,656 | 17 | 2,516 | 9,602 | 4,851 | 11,974 |
| Frederick | 255,648 | 59,180 | 36,972 | 4,475 | 18,590 | 11,311 | 140 | 16,499 | 71,306 | 15,552 | 69,902 |
| Garrett | 29,163 | 5,426 | 6,524 | 410 | 2,190 | 1,567 | 16 | 2,381 | 9,054 | 3,483 | 1,068 |
| Harford | 253,956 | 56,335 | 41,128 | 4,260 | 18,591 | 11,781 | 139 | 17,369 | 72,620 | 17,528 | 62,121 |
| Howard | 323,196 | 78,743 | 44,629 | 5,954 | 23,168 | 13,918 | 176 | 20,239 | 88,372 | 16,874 | 158,169 |
| Kent | 19,383 | 3,066 | 5,177 | 232 | 1,487 | 1,109 | 11 | 1,715 | 6,274 | 2,329 | 4,267 |
| Montgomery | 1,052,567 | 244,355 | 163,516 | 18,478 | 76,171 | 47,126 | 573 | 69,273 | 294,362 | 72,247 | 595,735 |
| Prince George's | 909,308 | 202,301 | 120,600 | 15,298 | 67,250 | 38,802 | 495 | 56,021 | 252,079 | 73,777 | 795,954 |
| Washington | 150,926 | 32,969 | 26,006 | 2,493 | 11,058 | 7,099 | 83 | 10,533 | 43,453 | 15,871 | 32,881 |
| Baltimore City | 602,495 | 123,177 | 84,387 | 9,315 | 45,538 | 25,702 | 327 | 37,219 | 169,118 | 109,306 | 435,247 |
| Totals | 5,557,863 | 1,239,145 | 841,159 | 93,703 | 407,927 | 247,896 | 3,028 | 362,924 | 1,563,960 | 484,164 | 2,868,168 |

MARYLAND

American Lung Association in Maryland

www.Lung.org/maryland

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|-----------------|--------|-----|--------|-----------|-------|
| Anne Arundel | 23 | 0 | 0 | 7.7 | F |
| Baltimore | 33 | 5 | 1 | 14.2 | F |
| Calvert | 5 | 0 | 0 | 1.7 | C |
| Carroll | 5 | 0 | 0 | 1.7 | C |
| Cecil | 23 | 2 | 0 | 8.7 | F |
| Charles | 7 | 0 | 0 | 2.3 | D |
| Dorchester | 4 | 1 | 0 | 1.8 | C |
| Frederick | 5 | 0 | 0 | 1.7 | C |
| Garrett | 0 | 0 | 0 | 0.0 | A |
| Harford | 27 | 3 | 0 | 10.5 | F |
| Howard | DNC | DNC | DNC | DNC | DNC |
| Kent | 10 | 0 | 0 | 3.3 | F |
| Montgomery | 3 | 0 | 0 | 1.0 | C |
| Prince George's | 22 | 1 | 0 | 7.8 | F |
| Washington | 4 | 0 | 0 | 1.3 | C |
| Baltimore City | 14 | 1 | 0 | 5.2 | F |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| INC | INC | INC | INC | INC | INC | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.0 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.8 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.1 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 5.7 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.6 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 9.1 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.0 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.0 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.0 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.7 | PASS |
| 2 | 0 | 0 | 0 | 0.7 | B | 8.4 | PASS |

MASSACHUSETTS

American Lung Association in Massachusetts

www.Lung.org/massachusetts

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|------------------|------------------|------------------|----------------|----------------|--------------|----------------|------------------|----------------|------------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Barnstable | 213,413 | 32,172 | 65,299 | 2,065 | 18,134 | 11,789 | 122 | 18,089 | 77,552 | 16,661 | 21,843 |
| Berkshire | 126,348 | 21,362 | 29,398 | 1,371 | 10,616 | 6,057 | 73 | 9,020 | 42,865 | 13,673 | 15,393 |
| Bristol | 564,022 | 116,099 | 95,464 | 7,452 | 45,673 | 23,133 | 324 | 33,362 | 175,717 | 59,147 | 99,268 |
| Dukes | 17,352 | 3,042 | 4,219 | 195 | 1,442 | 849 | 10 | 1,273 | 5,911 | 1,316 | 2,209 |
| Essex | 790,638 | 168,488 | 134,796 | 10,814 | 63,406 | 32,338 | 454 | 46,729 | 244,625 | 82,387 | 241,022 |
| Franklin | 70,963 | 12,407 | 15,624 | 796 | 5,921 | 3,326 | 41 | 4,929 | 23,798 | 7,395 | 6,799 |
| Hampden | 470,406 | 101,140 | 79,049 | 6,491 | 37,770 | 18,884 | 270 | 27,193 | 144,014 | 76,016 | 180,153 |
| Hampshire | 161,355 | 23,689 | 27,808 | 1,520 | 14,215 | 6,687 | 92 | 9,510 | 52,429 | 15,397 | 26,743 |
| Middlesex | 1,614,714 | 318,831 | 246,388 | 20,463 | 133,149 | 63,092 | 927 | 89,492 | 496,382 | 113,717 | 459,018 |
| Norfolk | 705,388 | 147,749 | 118,882 | 9,483 | 56,882 | 28,764 | 405 | 41,474 | 218,600 | 44,959 | 180,270 |
| Plymouth | 518,132 | 110,660 | 93,864 | 7,102 | 41,323 | 21,924 | 297 | 31,965 | 162,570 | 31,285 | 94,913 |
| Suffolk | 807,252 | 134,089 | 96,651 | 8,606 | 70,404 | 28,432 | 463 | 38,572 | 243,931 | 133,144 | 444,449 |
| Worcester | 830,839 | 174,732 | 129,978 | 11,215 | 66,986 | 33,064 | 477 | 47,301 | 255,325 | 72,636 | 198,685 |
| Totals | 6,890,822 | 1,364,460 | 1,137,420 | 87,574 | 565,921 | 278,339 | 3,955 | 398,909 | 2,143,717 | 667,733 | 1,970,765 |

MASSACHUSETTS

American Lung Association in Massachusetts

www.Lung.org/massachusetts

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|------------|--------|-----|--------|-----------|-------|
| Barnstable | 10 | 0 | 0 | 3.3 | F |
| Berkshire | INC | INC | INC | INC | INC |
| Bristol | 19 | 1 | 0 | 6.8 | F |
| Dukes | 7 | 2 | 0 | 3.3 | F |
| Essex | 10 | 0 | 0 | 3.3 | F |
| Franklin | 3 | 0 | 0 | 1.0 | C |
| Hampden | 11 | 1 | 0 | 4.2 | F |
| Hampshire | 8 | 1 | 0 | 3.2 | D |
| Middlesex | 1 | 0 | 0 | 0.3 | B |
| Norfolk | 8 | 0 | 0 | 2.7 | D |
| Plymouth | 8 | 0 | 0 | 2.7 | D |
| Suffolk | 4 | 0 | 0 | 1.3 | C |
| Worcester | 11 | 0 | 0 | 3.7 | F |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 1 | 0 | 0 | 0 | 0.3 | B | 5.9 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.1 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 5.1 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 5.2 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 5.2 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 5.1 | PASS |
| INC | INC | INC | INC | INC | INC | INC | INC |
| INC | INC | INC | INC | INC | INC | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 5.4 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.7 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 5.8 | PASS |

EMBARGOED

MICHIGAN

American Lung Association in Michigan

www.Lung.org/michigan

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|------------------|------------------|------------------|----------------|----------------|--------------|----------------|------------------|------------------|------------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Allegan | 117,327 | 28,372 | 19,414 | 2,436 | 9,909 | 7,890 | 72 | 8,878 | 40,692 | 12,429 | 13,834 |
| Bay | 103,923 | 21,084 | 21,195 | 1,810 | 9,126 | 7,591 | 63 | 8,849 | 38,136 | 16,044 | 10,502 |
| Benzie | 17,753 | 3,239 | 4,639 | 278 | 1,568 | 1,445 | 11 | 1,761 | 6,806 | 1,812 | 1,152 |
| Berrien | 154,141 | 33,571 | 30,402 | 2,882 | 13,298 | 10,971 | 94 | 12,758 | 55,419 | 23,151 | 38,978 |
| Cass | 51,653 | 10,646 | 10,862 | 914 | 4,504 | 3,870 | 32 | 4,523 | 19,009 | 5,727 | 7,086 |
| Chippewa | 37,517 | 6,877 | 6,742 | 590 | 3,414 | 2,594 | 23 | 2,955 | 13,863 | 5,608 | 11,418 |
| Clinton | 79,332 | 17,756 | 13,442 | 1,524 | 6,860 | 5,432 | 48 | 6,120 | 28,132 | 5,896 | 8,213 |
| Genesee | 406,892 | 91,550 | 71,136 | 7,859 | 35,057 | 27,953 | 247 | 31,730 | 144,190 | 75,251 | 111,832 |
| Huron | 31,166 | 6,005 | 7,813 | 515 | 2,725 | 2,493 | 19 | 3,015 | 11,787 | 3,876 | 1,506 |
| Ingham | 292,735 | 58,406 | 39,459 | 5,014 | 26,538 | 17,510 | 178 | 19,121 | 103,394 | 49,916 | 90,032 |
| Kalamazoo | 264,870 | 57,311 | 39,630 | 4,920 | 23,343 | 16,323 | 161 | 18,205 | 92,494 | 36,927 | 60,273 |
| Kent | 653,786 | 157,809 | 89,296 | 13,547 | 55,930 | 39,833 | 398 | 43,600 | 222,134 | 72,623 | 173,392 |
| Lenawee | 98,266 | 20,713 | 18,645 | 1,778 | 8,584 | 6,959 | 60 | 8,013 | 35,544 | 9,668 | 13,236 |
| Macomb | 874,759 | 184,009 | 148,636 | 15,796 | 77,026 | 60,680 | 532 | 68,173 | 315,302 | 95,731 | 187,352 |
| Manistee | 24,528 | 4,264 | 6,318 | 366 | 2,194 | 1,992 | 15 | 2,417 | 9,473 | 3,026 | 2,724 |
| Mason | 29,100 | 5,889 | 6,854 | 506 | 2,526 | 2,235 | 18 | 2,683 | 10,801 | 3,455 | 2,548 |
| Missaukee | 15,113 | 3,474 | 3,099 | 298 | 1,278 | 1,090 | 9 | 1,279 | 5,385 | 1,920 | 993 |
| Monroe | 150,439 | 32,193 | 27,262 | 2,764 | 13,122 | 10,737 | 92 | 12,192 | 54,370 | 14,891 | 13,313 |
| Muskegon | 173,588 | 40,082 | 29,524 | 3,441 | 14,864 | 11,642 | 106 | 13,194 | 60,821 | 26,321 | 41,131 |
| Oakland | 1,259,201 | 264,031 | 211,527 | 22,665 | 111,061 | 87,047 | 767 | 97,578 | 453,846 | 102,052 | 356,274 |
| Ottawa | 290,494 | 69,797 | 43,492 | 5,992 | 24,766 | 17,950 | 177 | 20,041 | 99,051 | 19,087 | 47,689 |
| St. Clair | 159,337 | 33,131 | 30,022 | 2,844 | 13,971 | 11,684 | 97 | 13,320 | 58,288 | 21,745 | 14,276 |
| Schoolcraft | 8,068 | 1,370 | 2,162 | 118 | 722 | 689 | 5 | 835 | 3,168 | 1,044 | 1,169 |
| Tuscola | 52,516 | 10,732 | 10,635 | 921 | 4,603 | 3,907 | 32 | 4,526 | 19,332 | 6,580 | 3,541 |
| Washtenaw | 370,963 | 68,932 | 51,377 | 5,917 | 34,184 | 22,804 | 226 | 24,914 | 133,546 | 52,258 | 111,106 |
| Wayne | 1,753,893 | 414,221 | 270,554 | 35,558 | 150,021 | 113,859 | 1,066 | 126,753 | 607,144 | 376,649 | 886,177 |
| Wexford | 33,466 | 7,761 | 6,388 | 666 | 2,838 | 2,356 | 20 | 2,724 | 11,838 | 4,318 | 1,848 |
| Totals | 7,504,826 | 1,653,225 | 1,220,525 | 141,916 | 654,031 | 499,536 | 4,569 | 560,156 | 2,653,965 | 1,048,005 | 2,211,595 |

MICHIGAN

American Lung Association in Michigan

www.Lung.org/michigan

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|-------------|--------|-----|--------|-----------|-------|
| Allegan | 21 | 0 | 0 | 7.0 | F |
| Bay | DNC | DNC | DNC | DNC | DNC |
| Benzie | 9 | 1 | 0 | 3.5 | F |
| Berrien | 22 | 0 | 0 | 7.3 | F |
| Cass | 22 | 0 | 0 | 7.3 | F |
| Chippewa | 1 | 0 | 0 | 0.3 | B |
| Clinton | 11 | 0 | 0 | 3.7 | F |
| Genesee | 12 | 0 | 0 | 4.0 | F |
| Huron | 8 | 0 | 0 | 2.7 | D |
| Ingham | 8 | 0 | 0 | 2.7 | D |
| Kalamazoo | 13 | 0 | 0 | 4.3 | F |
| Kent | 12 | 0 | 0 | 4.0 | F |
| Lenawee | 7 | 0 | 0 | 2.3 | D |
| Macomb | 20 | 0 | 0 | 6.7 | F |
| Manistee | 4 | 0 | 0 | 1.3 | C |
| Mason | 8 | 0 | 0 | 2.7 | D |
| Missaukee | 7 | 0 | 0 | 2.3 | D |
| Monroe | DNC | DNC | DNC | DNC | DNC |
| Muskegon | 13 | 5 | 0 | 6.8 | F |
| Oakland | 16 | 1 | 0 | 5.8 | F |
| Ottawa | 11 | 0 | 0 | 3.7 | F |
| St. Clair | 12 | 1 | 0 | 4.5 | F |
| Schoolcraft | 11 | 0 | 0 | 3.7 | F |
| Tuscola | 5 | 0 | 0 | 1.7 | C |
| Washtenaw | 15 | 0 | 0 | 5.0 | F |
| Wayne | 22 | 0 | 0 | 7.3 | F |
| Wexford | 7 | 0 | 0 | 2.3 | D |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.4 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.9 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| INC | INC | INC | INC | INC | INC | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.2 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.2 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.2 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.6 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.6 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 5.8 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 5.0 | PASS |
| INC | INC | INC | INC | INC | INC | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.1 | PASS |
| INC | INC | INC | INC | INC | INC | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.0 | PASS |
| INC | INC | INC | INC | INC | INC | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.1 | PASS |
| 3 | 0 | 0 | 0 | 1.0 | C | 11.3 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |

MINNESOTA

American Lung Association in Minnesota

www.Lung.org/minnesota

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|----------------|----------------|------------------|----------------|----------------|--------------|----------------|------------------|----------------|-----------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Anoka | 353,813 | 84,396 | 49,712 | 4,456 | 22,389 | 11,644 | 197 | 18,783 | 110,424 | 19,568 | 68,706 |
| Becker | 34,371 | 8,391 | 7,052 | 443 | 2,128 | 1,275 | 19 | 2,197 | 10,905 | 3,764 | 4,775 |
| Beltrami | 46,847 | 11,769 | 7,548 | 621 | 2,886 | 1,515 | 26 | 2,493 | 14,349 | 8,220 | 13,126 |
| Carlton | 35,837 | 8,042 | 6,136 | 425 | 2,297 | 1,273 | 20 | 2,118 | 11,515 | 3,454 | 4,282 |
| Cass | 29,519 | 6,243 | 7,659 | 330 | 1,891 | 1,250 | 16 | 2,232 | 9,959 | 3,771 | 5,070 |
| Cook | 5,393 | 851 | 1,540 | 45 | 368 | 247 | 3 | 444 | 1,949 | 511 | 810 |
| Crow Wing | 64,889 | 14,053 | 14,549 | 742 | 4,154 | 2,548 | 36 | 4,434 | 21,430 | 8,105 | 3,342 |
| Dakota | 425,423 | 103,669 | 60,282 | 5,474 | 26,712 | 13,895 | 237 | 22,453 | 131,830 | 26,434 | 94,730 |
| Goodhue | 46,403 | 10,293 | 9,124 | 543 | 2,969 | 1,737 | 26 | 2,959 | 15,103 | 3,250 | 3,819 |
| Hennepin | 1,259,428 | 276,541 | 176,788 | 14,602 | 81,448 | 40,605 | 702 | 64,806 | 399,090 | 127,826 | 394,877 |
| Lake | 10,658 | 2,005 | 2,775 | 106 | 704 | 459 | 6 | 817 | 3,694 | 900 | 535 |
| Lyon | 25,629 | 6,615 | 4,060 | 349 | 1,568 | 834 | 14 | 1,373 | 7,804 | 3,009 | 4,282 |
| Mille Lacs | 26,139 | 6,292 | 4,787 | 332 | 1,634 | 937 | 15 | 1,582 | 8,269 | 3,163 | 2,924 |
| Olmsted | 156,277 | 38,258 | 24,272 | 2,020 | 9,747 | 5,132 | 87 | 8,399 | 48,374 | 10,908 | 31,602 |
| Ramsey | 550,210 | 128,232 | 79,328 | 6,771 | 34,888 | 17,492 | 307 | 28,089 | 171,376 | 78,160 | 212,529 |
| St. Louis | 199,754 | 38,011 | 38,748 | 2,007 | 13,289 | 7,434 | 111 | 12,510 | 66,986 | 28,232 | 18,071 |
| Scott | 147,381 | 40,458 | 16,035 | 2,136 | 8,936 | 4,371 | 82 | 6,820 | 43,401 | 7,563 | 28,313 |
| Stearns | 159,256 | 36,701 | 24,079 | 1,938 | 10,121 | 5,166 | 89 | 8,365 | 49,923 | 18,879 | 23,102 |
| Washington | 259,201 | 63,678 | 38,906 | 3,362 | 16,216 | 8,679 | 145 | 14,188 | 80,540 | 10,755 | 46,084 |
| Wright | 136,349 | 38,003 | 17,215 | 2,007 | 8,182 | 4,167 | 76 | 6,658 | 40,160 | 6,639 | 10,776 |
| Totals | 3,972,777 | 922,501 | 590,595 | 48,709 | 252,527 | 130,659 | 2,216 | 211,719 | 1,247,079 | 373,111 | 971,755 |

MINNESOTA

American Lung Association in Minnesota

www.Lung.org/minnesota

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|------------|--------|-----|--------|-----------|-------|
| Anoka | 1 | 0 | 0 | 0.3 | B |
| Becker | 0 | 0 | 0 | 0.0 | A |
| Beltrami | DNC | DNC | DNC | DNC | DNC |
| Carlton | 0 | 0 | 0 | 0.0 | A |
| Cass | DNC | DNC | DNC | DNC | DNC |
| Cook | DNC | DNC | DNC | DNC | DNC |
| Crow Wing | 0 | 0 | 0 | 0.0 | A |
| Dakota | DNC | DNC | DNC | DNC | DNC |
| Goodhue | 1 | 0 | 0 | 0.3 | B |
| Hennepin | 0 | 0 | 0 | 0.0 | A |
| Lake | 0 | 0 | 0 | 0.0 | A |
| Lyon | 0 | 0 | 0 | 0.0 | A |
| Mille Lacs | 0 | 0 | 0 | 0.0 | A |
| Olmsted | 0 | 0 | 0 | 0.0 | A |
| Ramsey | DNC | DNC | DNC | DNC | DNC |
| St. Louis | 0 | 0 | 0 | 0.0 | A |
| Scott | 2 | 0 | 0 | 0.7 | B |
| Stearns | 1 | 0 | 0 | 0.3 | B |
| Washington | 0 | 0 | 0 | 0.0 | A |
| Wright | 4 | 0 | 0 | 1.3 | C |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.3 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 4.8 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 5.6 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 4.8 | PASS |
| INC | INC | INC | INC | INC | INC | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 4.4 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 5.6 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.1 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.6 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 3.4 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 5.2 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.1 | PASS |
| 2 | 1 | 0 | 0 | 1.2 | C | 7.9 | PASS |
| 2 | 0 | 0 | 0 | 0.7 | B | 5.2 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.0 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.1 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 6.6 | PASS |

MISSISSIPPI

American Lung Association in Mississippi

www.Lung.org/mississippi

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|----------------|----------------|------------------|---------------|---------------|-------------|---------------|----------------|----------------|-----------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Bolivar | 31,333 | 7,611 | 4,951 | 495 | 2,288 | 2,286 | 24 | 2,720 | 10,156 | 8,715 | 21,119 |
| DeSoto | 182,001 | 46,709 | 23,468 | 3,040 | 13,002 | 12,828 | 140 | 14,980 | 57,883 | 16,255 | 67,090 |
| Forrest | 75,036 | 17,357 | 10,188 | 1,130 | 5,500 | 5,183 | 57 | 6,008 | 24,334 | 17,341 | 32,299 |
| Grenada | 21,055 | 5,040 | 3,744 | 328 | 1,560 | 1,636 | 16 | 1,982 | 6,948 | 4,621 | 9,590 |
| Hancock | 47,334 | 9,716 | 9,383 | 632 | 3,689 | 3,994 | 36 | 4,891 | 16,472 | 8,181 | 7,287 |
| Harrison | 206,650 | 49,416 | 30,904 | 3,216 | 15,154 | 15,124 | 159 | 17,888 | 67,367 | 40,288 | 75,374 |
| Hinds | 237,085 | 57,047 | 33,341 | 3,712 | 17,278 | 16,873 | 180 | 19,775 | 76,704 | 44,204 | 179,704 |
| Jackson | 143,277 | 33,416 | 22,721 | 2,175 | 10,644 | 10,914 | 110 | 13,025 | 47,427 | 25,348 | 46,723 |
| Lauderdale | 75,317 | 17,636 | 13,072 | 1,148 | 5,598 | 5,771 | 58 | 6,953 | 24,900 | 18,243 | 36,106 |
| Lee | 85,202 | 21,542 | 12,598 | 1,402 | 6,148 | 6,206 | 65 | 7,359 | 27,368 | 10,977 | 29,848 |
| Yalobusha | 12,392 | 2,776 | 2,474 | 181 | 943 | 1,017 | 9 | 1,249 | 4,203 | 2,208 | 5,206 |
| Totals | 1,116,682 | 268,266 | 166,844 | 17,457 | 81,804 | 81,834 | 856 | 96,829 | 363,762 | 196,381 | 510,346 |

EMBARGOED

MISSISSIPPI

American Lung Association in Mississippi

www.Lung.org/mississippi

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|------------|--------|-----|--------|-----------|-------|
| Bolivar | 2 | 0 | 0 | 0.7 | B |
| DeSoto | 3 | 1 | 0 | 1.5 | C |
| Forrest | DNC | DNC | DNC | DNC | DNC |
| Grenada | DNC | DNC | DNC | DNC | DNC |
| Hancock | 0 | 0 | 0 | 0.0 | A |
| Harrison | 4 | 0 | 0 | 1.3 | C |
| Hinds | 0 | 0 | 0 | 0.0 | A |
| Jackson | 3 | 0 | 0 | 1.0 | C |
| Lauderdale | 0 | 0 | 0 | 0.0 | A |
| Lee | 0 | 0 | 0 | 0.0 | A |
| Yalobusha | 0 | 0 | 0 | 0.0 | A |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| INC | INC | INC | INC | INC | INC | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.6 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 8.6 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.4 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.9 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.9 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 8.7 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.9 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |

EMBARGOED

MISSOURI

American Lung Association in Missouri

www.Lung.org/missouri

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|----------------|------------------|----------------|----------------|------------------|----------------|----------------|--------------|----------------|------------------|----------------|------------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Andrew | 17,607 | 4,034 | 3,253 | 339 | 1,274 | 1,282 | 12 | 1,471 | 6,048 | 1,429 | 1,031 |
| Boone | 180,005 | 36,565 | 22,058 | 3,076 | 13,353 | 11,528 | 124 | 11,540 | 61,440 | 28,584 | 39,027 |
| Buchanan | 88,571 | 19,933 | 14,275 | 1,677 | 6,429 | 6,143 | 61 | 6,759 | 30,171 | 13,117 | 15,402 |
| Callaway | 44,889 | 9,401 | 7,304 | 791 | 3,332 | 3,190 | 31 | 3,512 | 15,620 | 4,795 | 4,453 |
| Cass | 104,954 | 25,369 | 17,692 | 2,134 | 7,482 | 7,361 | 72 | 8,292 | 35,283 | 8,427 | 13,054 |
| Cedar | 14,165 | 3,411 | 3,308 | 287 | 996 | 1,079 | 10 | 1,312 | 4,861 | 2,502 | 782 |
| Clay | 246,365 | 59,326 | 34,771 | 4,991 | 17,598 | 16,394 | 170 | 17,611 | 81,840 | 17,153 | 47,615 |
| Clinton | 20,470 | 4,808 | 3,703 | 404 | 1,474 | 1,482 | 14 | 1,699 | 6,984 | 1,793 | 1,316 |
| Greene | 291,923 | 60,957 | 48,085 | 5,128 | 21,465 | 20,199 | 201 | 21,989 | 100,880 | 43,423 | 37,197 |
| Jackson | 700,307 | 164,979 | 104,655 | 13,879 | 50,227 | 47,231 | 483 | 51,219 | 234,543 | 89,787 | 264,030 |
| Jasper | 120,636 | 30,127 | 18,863 | 2,535 | 8,455 | 8,043 | 83 | 8,824 | 39,706 | 19,498 | 19,533 |
| Jefferson | 224,347 | 51,958 | 33,636 | 4,371 | 16,322 | 15,621 | 155 | 17,152 | 76,093 | 19,327 | 12,885 |
| Lincoln | 57,686 | 14,658 | 7,740 | 1,233 | 4,077 | 3,817 | 40 | 4,108 | 18,895 | 6,055 | 4,056 |
| Monroe | 8,664 | 1,895 | 2,023 | 159 | 630 | 680 | 6 | 824 | 3,063 | 1,158 | 630 |
| Perry | 19,150 | 4,470 | 3,472 | 376 | 1,377 | 1,378 | 13 | 1,574 | 6,531 | 2,040 | 945 |
| St. Charles | 399,182 | 92,666 | 60,779 | 7,796 | 28,873 | 27,490 | 276 | 30,098 | 134,884 | 22,272 | 52,255 |
| Ste. Genevieve | 17,888 | 3,880 | 3,485 | 326 | 1,318 | 1,349 | 12 | 1,569 | 6,275 | 1,720 | 806 |
| St. Louis | 996,945 | 219,527 | 180,210 | 18,469 | 72,771 | 72,009 | 686 | 81,620 | 344,635 | 102,720 | 342,878 |
| Taney | 55,852 | 11,774 | 12,108 | 991 | 4,084 | 4,223 | 38 | 4,970 | 19,689 | 8,367 | 6,419 |
| St. Louis City | 302,838 | 57,526 | 41,490 | 4,840 | 22,996 | 20,693 | 209 | 21,543 | 106,327 | 66,858 | 168,759 |
| Totals | 3,912,444 | 877,264 | 622,910 | 73,803 | 284,532 | 271,189 | 2,698 | 297,687 | 1,333,768 | 461,025 | 1,033,073 |

MISSOURI

American Lung Association in Missouri

www.Lung.org/missouri

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|----------------|--------|-----|--------|-----------|-------|
| Andrew | 2 | 0 | 0 | 0.7 | B |
| Boone | 1 | 0 | 0 | 0.3 | B |
| Buchanan | DNC | DNC | DNC | DNC | DNC |
| Callaway | 1 | 0 | 0 | 0.3 | B |
| Cass | 2 | 0 | 0 | 0.7 | B |
| Cedar | 0 | 0 | 0 | 0.0 | A |
| Clay | 17 | 0 | 0 | 5.7 | F |
| Clinton | 5 | 0 | 0 | 1.7 | C |
| Greene | 0 | 0 | 0 | 0.0 | A |
| Jackson | DNC | DNC | DNC | DNC | DNC |
| Jasper | 0 | 0 | 0 | 0.0 | A |
| Jefferson | 7 | 0 | 0 | 2.3 | D |
| Lincoln | 5 | 0 | 0 | 1.7 | C |
| Monroe | 1 | 0 | 0 | 0.3 | B |
| Perry | 2 | 0 | 0 | 0.7 | B |
| St. Charles | 22 | 2 | 0 | 8.3 | F |
| Ste. Genevieve | 4 | 0 | 0 | 1.3 | C |
| St. Louis | 14 | 0 | 0 | 4.7 | F |
| Taney | INC | INC | INC | INC | INC |
| St. Louis City | 12 | 1 | 0 | 4.5 | F |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 1 | 0 | 0 | 0 | 0.3 | B | 8.5 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.5 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.9 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 6.4 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.4 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 8.8 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 2 | 0 | 0 | 0 | 0.7 | B | 7.9 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 9.1 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 1 | 0 | 0 | 0.5 | B | 8.5 | PASS |

MONTANA

American Lung Association in Montana

www.Lung.org/montana

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|-----------------|------------------|----------------|----------------|------------------|---------------|---------------|-------------|---------------|----------------|---------------|-----------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Fergus | 11,113 | 2,317 | 2,724 | 123 | 858 | 590 | 6 | 918 | 3,977 | 1,313 | 672 |
| Flathead | 102,106 | 22,475 | 19,949 | 1,198 | 7,936 | 4,941 | 54 | 7,515 | 35,571 | 11,288 | 7,426 |
| Gallatin | 111,876 | 22,425 | 14,146 | 1,195 | 9,178 | 4,293 | 59 | 6,524 | 38,489 | 9,721 | 9,792 |
| Lewis and Clark | 68,700 | 14,770 | 12,903 | 787 | 5,395 | 3,278 | 36 | 4,971 | 24,014 | 7,061 | 6,059 |
| Lincoln | 19,794 | 3,609 | 5,670 | 192 | 1,557 | 1,182 | 10 | 1,840 | 7,431 | 3,964 | 1,491 |
| Missoula | 118,791 | 22,315 | 18,506 | 1,189 | 9,790 | 5,034 | 62 | 7,707 | 41,975 | 14,719 | 12,853 |
| Phillips | 4,074 | 968 | 910 | 52 | 305 | 208 | 2 | 320 | 1,405 | 608 | 683 |
| Powder River | 1,716 | 287 | 466 | 15 | 139 | 100 | 1 | 156 | 651 | 205 | 113 |
| Ravalli | 43,172 | 8,246 | 11,138 | 439 | 3,398 | 2,415 | 23 | 3,745 | 15,880 | 6,628 | 3,154 |
| Richland | 10,913 | 2,757 | 1,632 | 147 | 827 | 467 | 6 | 696 | 3,600 | 950 | 1,161 |
| Rosebud | 9,063 | 2,624 | 1,431 | 140 | 648 | 384 | 5 | 577 | 2,860 | 1,523 | 4,084 |
| Silver Bow | 34,993 | 7,087 | 6,667 | 378 | 2,790 | 1,655 | 18 | 2,533 | 12,374 | 5,697 | 3,609 |
| Yellowstone | 160,137 | 37,629 | 27,117 | 2,005 | 12,325 | 7,093 | 84 | 10,765 | 54,134 | 17,150 | 22,191 |
| Totals | 696,448 | 147,509 | 123,259 | 7,860 | 55,147 | 31,640 | 365 | 48,266 | 242,361 | 80,827 | 73,288 |

MONTANA

American Lung Association in Montana

www.Lung.org/montana

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|-----------------|--------|-----|--------|-----------|-------|
| Fergus | 1 | 0 | 0 | 0.3 | B |
| Flathead | 0 | 0 | 0 | 0.0 | A |
| Gallatin | DNC | DNC | DNC | DNC | DNC |
| Lewis and Clark | 0 | 0 | 0 | 0.0 | A |
| Lincoln | DNC | DNC | DNC | DNC | DNC |
| Missoula | 0 | 0 | 0 | 0.0 | A |
| Phillips | 0 | 0 | 0 | 0.0 | A |
| Powder River | 3 | 0 | 0 | 1.0 | C |
| Ravalli | DNC | DNC | DNC | DNC | DNC |
| Richland | 0 | 0 | 0 | 0.0 | A |
| Rosebud | 0 | 0 | 0 | 0.0 | A |
| Silver Bow | DNC | DNC | DNC | DNC | DNC |
| Yellowstone | DNC | DNC | DNC | DNC | DNC |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 10 | 3 | 0 | 0 | 4.8 | F | 5.0 | PASS |
| 16 | 7 | 3 | 0 | 10.8 | F | 8.8 | PASS |
| 10 | 3 | 0 | 1 | 5.7 | F | 4.0 | PASS |
| 31 | 15 | 0 | 0 | 17.8 | F | 9.5 | PASS |
| 14 | 18 | 1 | 0 | 14.3 | F | 12.9 | FAIL |
| 17 | 12 | 1 | 0 | 12.3 | F | 10.4 | PASS |
| 6 | 1 | 0 | 0 | 2.5 | D | 5.4 | PASS |
| 6 | 5 | 0 | 0 | 4.5 | F | 7.6 | PASS |
| 34 | 17 | 0 | 0 | 19.8 | F | 10.0 | PASS |
| 2 | 1 | 0 | 0 | 1.2 | C | INC | INC |
| 6 | 5 | 0 | 0 | 4.5 | F | 6.2 | PASS |
| 21 | 4 | 0 | 0 | 9.0 | F | 8.7 | PASS |
| 8 | 1 | 0 | 0 | 3.2 | D | INC | INC |

EMBARGOED

NEBRASKA

American Lung Association in Nebraska

www.Lung.org/nebraska

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|----------------|----------------|------------------|---------------|---------------|-------------|---------------|----------------|----------------|-----------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Douglas | 566,880 | 145,250 | 73,752 | 7,306 | 37,671 | 25,001 | 293 | 30,123 | 165,432 | 64,276 | 175,045 |
| Hall | 61,607 | 16,920 | 9,150 | 851 | 3,992 | 2,824 | 32 | 3,506 | 17,768 | 7,839 | 21,157 |
| Knox | 8,419 | 2,039 | 2,078 | 103 | 567 | 488 | 4 | 661 | 2,642 | 1,098 | 1,233 |
| Lancaster | 317,272 | 72,512 | 44,139 | 3,647 | 21,789 | 14,260 | 164 | 17,246 | 95,483 | 37,583 | 60,782 |
| Sarpy | 184,459 | 50,551 | 21,677 | 2,543 | 11,989 | 7,845 | 96 | 9,330 | 52,480 | 10,399 | 35,878 |
| Scotts Bluff | 35,989 | 9,001 | 6,849 | 453 | 2,402 | 1,836 | 19 | 2,372 | 10,884 | 5,021 | 10,234 |
| Washington | 20,667 | 5,017 | 3,673 | 252 | 1,402 | 1,075 | 11 | 1,370 | 6,350 | 1,423 | 1,170 |
| Totals | 1,195,293 | 301,290 | 161,318 | 15,155 | 79,813 | 53,330 | 619 | 64,608 | 351,038 | 127,639 | 305,499 |

EMBARGOED

NEBRASKA

American Lung Association in Nebraska

www.Lung.org/nebraska

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|--------------|--------|-----|--------|-----------|-------|
| Douglas | 4 | 0 | 0 | 1.3 | C |
| Hall | DNC | DNC | DNC | DNC | DNC |
| Knox | 1 | 0 | 0 | 0.3 | B |
| Lancaster | 0 | 0 | 0 | 0.0 | A |
| Sarpy | DNC | DNC | DNC | DNC | DNC |
| Scotts Bluff | DNC | DNC | DNC | DNC | DNC |
| Washington | DNC | DNC | DNC | DNC | DNC |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 2 | 0 | 0 | 0 | 0.7 | B | 8.6 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 5.9 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.7 | PASS |
| 2 | 0 | 0 | 0 | 0.7 | B | 8.9 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.9 | PASS |

EMBARGOED

NEVADA

American Lung Association in Nevada

www.Lung.org/nevada

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|----------------|----------------|------------------|----------------|----------------|--------------|----------------|----------------|----------------|------------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Churchill | 24,440 | 5,574 | 4,628 | 388 | 1,490 | 1,457 | 12 | 1,878 | 7,988 | 2,756 | 6,666 |
| Clark | 2,231,647 | 517,629 | 328,692 | 36,032 | 136,812 | 120,615 | 1,129 | 151,858 | 705,307 | 307,977 | 1,289,911 |
| Douglas | 48,467 | 7,917 | 13,808 | 551 | 3,151 | 3,651 | 25 | 4,868 | 18,082 | 3,457 | 9,541 |
| Elko | 52,460 | 14,298 | 5,943 | 995 | 3,078 | 2,550 | 27 | 3,168 | 15,484 | 4,276 | 17,530 |
| Lyon | 55,808 | 11,946 | 11,813 | 832 | 3,451 | 3,529 | 28 | 4,594 | 18,821 | 5,803 | 14,325 |
| Washoe | 465,735 | 100,776 | 76,161 | 7,015 | 29,030 | 26,449 | 236 | 33,558 | 151,502 | 47,627 | 174,026 |
| White Pine | 9,475 | 1,884 | 1,702 | 131 | 602 | 563 | 5 | 719 | 3,173 | 1,082 | 2,702 |
| Carson City | 55,414 | 11,243 | 11,261 | 783 | 3,486 | 3,479 | 28 | 4,507 | 18,826 | 5,952 | 18,435 |
| Totals | 2,943,446 | 671,267 | 454,008 | 46,726 | 181,100 | 162,293 | 1,489 | 205,149 | 939,183 | 378,930 | 1,533,136 |

EMBARGOED

NEVADA

American Lung Association in Nevada

www.Lung.org/nevada

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|-------------|--------|-----|--------|-----------|-------|
| Churchill | 9 | 0 | 0 | 3.0 | D |
| Clark | 89 | 1 | 0 | 30.2 | F |
| Douglas | DNC | DNC | DNC | DNC | DNC |
| Elko | INC | INC | INC | INC | INC |
| Lyon | 12 | 0 | 0 | 4.0 | F |
| Washoe | 29 | 0 | 0 | 9.7 | F |
| White Pine | 4 | 0 | 0 | 1.3 | C |
| Carson City | 7 | 0 | 0 | 2.3 | D |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 10 | 2 | 0 | 0 | 4.3 | F | 9.5 | PASS |
| 10 | 4 | 1 | 0 | 6.0 | F | 6.9 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 8 | 0 | 0 | 0 | 2.7 | D | 7.6 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 6 | 4 | 0 | 0 | 4.0 | F | 5.8 | PASS |

EMBARGOED

NEW HAMPSHIRE

American Lung Association in New Hampshire

www.Lung.org/newhampshire

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|----------------|----------------|------------------|----------------|---------------|-------------|---------------|----------------|---------------|-----------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Belknap | 61,022 | 11,281 | 13,505 | 960 | 5,763 | 4,268 | 38 | 4,313 | 22,888 | 4,149 | 3,043 |
| Cheshire | 76,493 | 13,685 | 15,224 | 1,165 | 7,438 | 5,103 | 48 | 5,029 | 28,446 | 7,307 | 4,654 |
| Coos | 31,589 | 5,139 | 7,494 | 438 | 3,051 | 2,289 | 20 | 2,335 | 12,210 | 3,828 | 1,606 |
| Grafton | 89,786 | 14,522 | 18,566 | 1,236 | 8,920 | 6,087 | 57 | 6,022 | 34,067 | 7,427 | 8,431 |
| Hillsborough | 415,247 | 84,629 | 65,348 | 7,205 | 39,845 | 25,919 | 261 | 24,459 | 147,824 | 30,147 | 66,220 |
| Merrimack | 151,132 | 28,949 | 27,566 | 2,465 | 14,536 | 9,863 | 95 | 9,570 | 55,157 | 10,149 | 11,759 |
| Rockingham | 309,176 | 59,995 | 55,538 | 5,108 | 29,511 | 20,446 | 195 | 19,796 | 112,882 | 16,270 | 23,733 |
| Totals | 1,134,445 | 218,200 | 203,241 | 18,577 | 109,064 | 73,977 | 714 | 71,525 | 413,475 | 79,277 | 119,446 |

EMBARGOED

NEW HAMPSHIRE

American Lung Association in New Hampshire

www.Lung.org/newhampshire

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|--------------|--------|-----|--------|-----------|-------|
| Belknap | 0 | 0 | 0 | 0.0 | A |
| Cheshire | 1 | 0 | 0 | 0.3 | B |
| Coos | 4 | 0 | 0 | 1.3 | C |
| Grafton | 0 | 0 | 0 | 0.0 | A |
| Hillsborough | 4 | 0 | 0 | 1.3 | C |
| Merrimack | 0 | 0 | 0 | 0.0 | A |
| Rockingham | 7 | 0 | 0 | 2.3 | D |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 0 | 0 | 0 | 0 | 0.0 | A | 4.5 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 5.4 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 5.7 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 3.4 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 5.2 | PASS |

EMBARGOED

NEW JERSEY

American Lung Association in New Jersey

www.Lung.org/newjersey

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|------------------|------------------|------------------|----------------|----------------|--------------|----------------|------------------|----------------|------------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Atlantic | 265,429 | 56,347 | 47,611 | 4,083 | 17,682 | 11,925 | 144 | 18,022 | 77,960 | 33,167 | 116,925 |
| Bergen | 936,692 | 198,355 | 161,086 | 14,374 | 62,463 | 41,592 | 509 | 62,335 | 273,792 | 63,403 | 415,338 |
| Camden | 507,078 | 115,090 | 79,408 | 8,340 | 33,052 | 21,467 | 275 | 31,529 | 143,123 | 64,417 | 221,760 |
| Cumberland | 150,972 | 36,107 | 23,053 | 2,617 | 9,656 | 6,237 | 82 | 9,099 | 41,681 | 21,430 | 81,710 |
| Essex | 799,767 | 188,977 | 108,532 | 13,695 | 51,513 | 32,283 | 434 | 46,181 | 219,471 | 116,246 | 555,679 |
| Gloucester | 291,408 | 63,440 | 46,126 | 4,597 | 19,315 | 12,597 | 158 | 18,633 | 83,879 | 21,869 | 63,727 |
| Hudson | 676,061 | 138,221 | 79,920 | 10,016 | 44,808 | 26,516 | 368 | 35,767 | 185,636 | 95,704 | 481,548 |
| Hunterdon | 124,714 | 24,097 | 23,105 | 1,746 | 8,615 | 5,887 | 68 | 9,062 | 38,312 | 5,317 | 18,604 |
| Mercer | 369,811 | 78,695 | 56,000 | 5,703 | 24,536 | 15,698 | 201 | 22,796 | 105,508 | 38,279 | 189,371 |
| Middlesex | 829,685 | 180,190 | 124,198 | 13,058 | 54,722 | 34,942 | 451 | 50,650 | 235,083 | 65,823 | 479,059 |
| Monmouth | 621,354 | 131,723 | 109,201 | 9,546 | 41,656 | 28,059 | 337 | 42,574 | 183,773 | 41,380 | 155,338 |
| Morris | 494,228 | 104,322 | 84,336 | 7,560 | 33,123 | 22,079 | 269 | 33,227 | 145,375 | 22,980 | 144,503 |
| Ocean | 601,651 | 144,247 | 135,652 | 10,453 | 38,246 | 27,988 | 327 | 44,170 | 174,990 | 57,366 | 93,692 |
| PASSaic | 503,310 | 119,860 | 73,213 | 8,686 | 32,288 | 20,596 | 273 | 29,818 | 138,627 | 67,374 | 297,927 |
| Union | 558,067 | 130,522 | 80,252 | 9,459 | 36,144 | 23,038 | 303 | 33,451 | 155,253 | 43,279 | 336,018 |
| Warren | 105,779 | 20,815 | 19,230 | 1,508 | 7,229 | 4,892 | 57 | 7,446 | 31,963 | 7,006 | 20,003 |
| Totals | 7,836,006 | 1,731,008 | 1,250,923 | 125,441 | 515,047 | 335,797 | 4,257 | 494,760 | 2,234,427 | 765,040 | 3,671,202 |

NEW JERSEY

American Lung Association in New Jersey

www.Lung.org/newjersey

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|------------|--------|-----|--------|-----------|-------|
| Atlantic | 2 | 0 | 0 | 0.7 | B |
| Bergen | 25 | 3 | 0 | 9.8 | F |
| Camden | 24 | 0 | 0 | 8.0 | F |
| Cumberland | 1 | 0 | 0 | 0.3 | B |
| Essex | 7 | 1 | 0 | 2.8 | D |
| Gloucester | 20 | 0 | 0 | 6.7 | F |
| Hudson | 12 | 2 | 0 | 5.0 | F |
| Hunterdon | 13 | 3 | 0 | 5.8 | F |
| Mercer | 22 | 2 | 0 | 8.3 | F |
| Middlesex | 23 | 1 | 0 | 8.2 | F |
| Monmouth | 4 | 0 | 0 | 1.3 | C |
| Morris | 10 | 1 | 0 | 3.8 | F |
| Ocean | 17 | 1 | 0 | 6.2 | F |
| PASSaic | 9 | 0 | 0 | 3.0 | D |
| Union | DNC | DNC | DNC | DNC | DNC |
| Warren | 5 | 0 | 0 | 1.7 | C |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.8 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.6 | PASS |
| 4 | 0 | 0 | 0 | 1.3 | C | 10.2 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.4 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.2 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.2 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.2 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 5.9 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.6 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.6 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 9.2 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.1 | PASS |

NEW MEXICO

American Lung Association in New Mexico

www.Lung.org/newmexico

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|----------------|----------------|------------------|----------------|---------------|-------------|----------------|----------------|----------------|------------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Bernalillo | 678,701 | 147,370 | 111,216 | 11,089 | 52,392 | 32,622 | 251 | 42,467 | 214,828 | 109,959 | 417,521 |
| Doña Ana | 217,522 | 53,231 | 34,338 | 4,005 | 15,959 | 9,644 | 80 | 12,677 | 65,922 | 52,914 | 158,940 |
| Eddy | 57,900 | 15,344 | 8,406 | 1,155 | 4,180 | 2,559 | 21 | 3,314 | 17,140 | 8,981 | 31,228 |
| Lea | 69,611 | 20,752 | 7,948 | 1,561 | 4,720 | 2,708 | 26 | 3,463 | 19,403 | 10,813 | 45,250 |
| Rio Arriba | 39,006 | 9,121 | 7,558 | 686 | 3,024 | 2,040 | 14 | 2,681 | 12,328 | 8,498 | 34,040 |
| Sandoval | 145,179 | 33,748 | 25,756 | 2,539 | 11,168 | 7,291 | 54 | 9,519 | 45,587 | 18,215 | 82,591 |
| San Juan | 125,043 | 33,054 | 18,685 | 2,487 | 9,072 | 5,622 | 46 | 7,290 | 37,159 | 28,486 | 77,550 |
| Santa Fe | 150,056 | 26,988 | 36,485 | 2,031 | 12,611 | 8,953 | 55 | 11,943 | 51,444 | 17,972 | 85,555 |
| Taos | 32,835 | 5,778 | 8,688 | 435 | 2,797 | 2,045 | 12 | 2,747 | 11,404 | 6,955 | 21,199 |
| Valencia | 76,456 | 17,911 | 13,502 | 1,348 | 5,862 | 3,819 | 28 | 4,987 | 23,937 | 12,908 | 51,733 |
| Totals | 1,592,309 | 363,297 | 272,582 | 27,336 | 121,785 | 77,304 | 589 | 101,088 | 499,152 | 275,701 | 1,005,607 |

EMBARGOED

NEW MEXICO

American Lung Association in New Mexico

www.Lung.org/newmexico

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|------------|--------|-----|--------|-----------|-------|
| Bernalillo | 19 | 0 | 0 | 6.3 | F |
| Doña Ana | 52 | 2 | 0 | 18.3 | F |
| Eddy | 27 | 3 | 0 | 10.5 | F |
| Lea | 9 | 0 | 0 | 3.0 | D |
| Rio Arriba | 6 | 0 | 0 | 2.0 | C |
| Sandoval | 13 | 0 | 0 | 4.3 | F |
| San Juan | 23 | 0 | 0 | 7.7 | F |
| Santa Fe | 3 | 0 | 0 | 1.0 | C |
| Taos | DNC | DNC | DNC | DNC | DNC |
| Valencia | 6 | 0 | 0 | 2.0 | C |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.8 | PASS |
| 4 | 1 | 0 | 0 | 1.8 | C | 8.3 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.6 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| INC | INC | INC | INC | INC | INC | INC | INC |
| INC | INC | INC | INC | INC | INC | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |

EMBARGOED

NEW YORK

American Lung Association in New York

www.Lung.org/newyork

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|-------------------|------------------|------------------|------------------|------------------|----------------|--------------|----------------|------------------|------------------|------------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Albany | 307,117 | 56,359 | 52,073 | 3,472 | 25,603 | 14,152 | 177 | 19,470 | 90,763 | 32,888 | 86,584 |
| Bronx | 1,432,132 | 354,692 | 183,375 | 21,849 | 110,324 | 57,608 | 825 | 76,621 | 382,917 | 380,470 | 1,301,368 |
| Chautauqua | 127,939 | 25,997 | 25,704 | 1,601 | 10,377 | 6,321 | 74 | 8,983 | 38,327 | 22,426 | 16,477 |
| Dutchess | 293,718 | 55,149 | 51,633 | 3,397 | 24,355 | 14,248 | 170 | 19,713 | 88,606 | 25,387 | 84,652 |
| Erie | 919,719 | 186,092 | 165,052 | 11,463 | 74,829 | 43,545 | 531 | 60,689 | 271,226 | 122,204 | 227,998 |
| Essex | 37,300 | 6,062 | 8,743 | 373 | 3,174 | 2,035 | 22 | 2,943 | 11,985 | 4,150 | 2,877 |
| Franklin | 50,293 | 9,750 | 8,452 | 601 | 4,141 | 2,352 | 29 | 3,235 | 14,867 | 7,404 | 9,188 |
| Hamilton | 4,434 | 573 | 1,386 | 35 | 390 | 283 | 3 | 426 | 1,556 | 404 | 230 |
| Herkimer | 61,833 | 12,755 | 12,815 | 786 | 4,993 | 3,104 | 36 | 4,436 | 18,608 | 8,176 | 3,433 |
| Jefferson | 111,755 | 26,798 | 15,276 | 1,651 | 8,690 | 4,474 | 65 | 6,006 | 29,927 | 12,996 | 20,979 |
| Kings | 2,582,830 | 588,975 | 359,246 | 36,281 | 203,969 | 106,513 | 1,489 | 143,029 | 706,976 | 483,632 | 1,642,012 |
| Monroe | 742,474 | 154,214 | 128,049 | 9,500 | 60,032 | 34,403 | 429 | 47,684 | 216,203 | 103,620 | 220,692 |
| New York | 1,628,701 | 233,360 | 268,902 | 14,375 | 142,578 | 74,658 | 939 | 101,452 | 493,938 | 245,347 | 863,489 |
| Niagara | 210,433 | 42,064 | 40,109 | 2,591 | 17,160 | 10,375 | 122 | 14,590 | 63,263 | 26,833 | 30,878 |
| Onondaga | 461,809 | 98,024 | 78,635 | 6,038 | 37,131 | 21,330 | 267 | 29,524 | 133,908 | 61,143 | 107,930 |
| Orange | 381,951 | 97,160 | 53,541 | 5,985 | 29,133 | 16,190 | 221 | 21,885 | 103,817 | 42,664 | 139,224 |
| Oswego | 117,898 | 24,769 | 19,265 | 1,526 | 9,514 | 5,487 | 68 | 7,534 | 34,420 | 18,209 | 7,229 |
| Putnam | 98,892 | 19,590 | 17,169 | 1,207 | 8,098 | 4,856 | 57 | 6,713 | 29,819 | 5,863 | 21,898 |
| Queens | 2,278,906 | 458,457 | 357,517 | 28,241 | 186,074 | 103,111 | 1,317 | 140,434 | 661,427 | 261,819 | 1,708,555 |
| Richmond | 476,179 | 104,038 | 77,053 | 6,409 | 38,014 | 21,741 | 275 | 29,865 | 136,971 | 55,217 | 189,066 |
| Rockland | 325,695 | 91,712 | 51,107 | 5,649 | 23,877 | 13,737 | 188 | 19,050 | 86,148 | 44,728 | 121,045 |
| Saratoga | 230,163 | 46,168 | 41,728 | 2,844 | 18,769 | 11,165 | 133 | 15,570 | 68,748 | 14,319 | 22,730 |
| Steuben | 95,796 | 20,504 | 18,850 | 1,263 | 7,667 | 4,705 | 55 | 6,675 | 28,430 | 12,069 | 6,125 |
| Suffolk | 1,481,093 | 313,019 | 249,756 | 19,282 | 119,280 | 69,976 | 857 | 96,596 | 434,698 | 105,578 | 485,941 |
| Tompkins | 102,793 | 15,006 | 14,900 | 924 | 8,983 | 4,413 | 59 | 5,865 | 30,343 | 15,146 | 23,650 |
| Wayne | 90,064 | 19,198 | 17,002 | 1,183 | 7,223 | 4,430 | 52 | 6,234 | 26,813 | 8,511 | 9,160 |
| Westchester | 967,612 | 211,912 | 165,008 | 13,054 | 77,133 | 45,070 | 559 | 62,459 | 280,384 | 78,572 | 453,925 |
| Totals | 15,619,529 | 3,272,397 | 2,482,346 | 201,579 | 1,261,513 | 700,282 | 9,021 | 957,682 | 4,485,090 | 2,199,775 | 7,807,335 |

NEW YORK

American Lung Association in New York

www.Lung.org/newyork

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|-------------|--------|-----|--------|-----------|-------|
| Albany | 4 | 0 | 0 | 1.3 | C |
| Bronx | 15 | 0 | 0 | 5.0 | F |
| Chautauqua | 9 | 0 | 0 | 3.0 | D |
| Dutchess | 7 | 1 | 0 | 2.8 | D |
| Erie | 9 | 0 | 0 | 3.0 | D |
| Essex | 4 | 0 | 0 | 1.3 | C |
| Franklin | INC | INC | INC | INC | INC |
| Hamilton | 2 | 0 | 0 | 0.7 | B |
| Herkimer | 4 | 0 | 0 | 1.3 | C |
| Jefferson | 5 | 0 | 0 | 1.7 | C |
| Kings | DNC | DNC | DNC | DNC | DNC |
| Monroe | 9 | 0 | 0 | 3.0 | D |
| New York | 15 | 1 | 0 | 5.5 | F |
| Niagara | 5 | 0 | 0 | 1.7 | C |
| Onondaga | 4 | 0 | 0 | 1.3 | C |
| Orange | 2 | 0 | 0 | 0.7 | B |
| Oswego | 2 | 0 | 0 | 0.7 | B |
| Putnam | 8 | 2 | 0 | 3.7 | F |
| Queens | 19 | 1 | 0 | 6.8 | F |
| Richmond | 22 | 1 | 0 | 7.8 | F |
| Rockland | 10 | 0 | 1 | 4.0 | F |
| Saratoga | 4 | 0 | 0 | 1.3 | C |
| Steuben | 2 | 0 | 0 | 0.7 | B |
| Suffolk | 25 | 3 | 0 | 9.8 | F |
| Tompkins | 3 | 0 | 0 | 1.0 | C |
| Wayne | 7 | 0 | 0 | 2.3 | D |
| Westchester | 22 | 1 | 0 | 7.8 | F |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.9 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.1 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.2 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.2 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 3.6 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.8 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.8 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 9.5 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 5.1 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.2 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.0 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.4 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 4.7 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.7 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |

NORTH CAROLINA

American Lung Association in North Carolina

www.Lung.org/northcarolina

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|------------------|----------------|------------------|----------------|----------------|--------------|----------------|------------------|----------------|------------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Alexander | 37,353 | 7,529 | 7,489 | 865 | 2,813 | 2,646 | 25 | 3,445 | 13,146 | 4,653 | 5,017 |
| Avery | 17,505 | 2,621 | 3,891 | 301 | 1,399 | 1,303 | 12 | 1,718 | 6,543 | 2,542 | 2,021 |
| Buncombe | 259,103 | 47,834 | 51,828 | 5,497 | 19,891 | 18,001 | 172 | 23,440 | 92,213 | 28,859 | 42,740 |
| Caldwell | 82,029 | 16,490 | 16,302 | 1,895 | 6,189 | 5,874 | 55 | 7,616 | 28,953 | 12,830 | 10,605 |
| Carteret | 69,524 | 12,208 | 17,363 | 1,403 | 5,376 | 5,455 | 46 | 7,385 | 25,772 | 6,717 | 9,386 |
| Caswell | 22,698 | 4,272 | 4,881 | 491 | 1,736 | 1,681 | 15 | 2,210 | 8,183 | 3,642 | 8,822 |
| Catawba | 158,652 | 35,043 | 28,337 | 4,027 | 11,688 | 10,675 | 106 | 13,629 | 54,071 | 20,321 | 39,209 |
| Cumberland | 332,330 | 82,119 | 39,617 | 9,437 | 23,719 | 17,892 | 223 | 21,369 | 104,633 | 53,788 | 190,679 |
| Davidson | 166,614 | 36,559 | 30,377 | 4,201 | 12,302 | 11,429 | 111 | 14,624 | 57,137 | 24,694 | 33,811 |
| Durham | 316,739 | 65,824 | 41,470 | 7,564 | 23,795 | 18,507 | 211 | 22,259 | 105,636 | 41,063 | 181,752 |
| Edgecombe | 52,005 | 11,711 | 10,253 | 1,346 | 3,796 | 3,561 | 34 | 4,655 | 17,746 | 11,705 | 33,137 |
| Forsyth | 379,099 | 86,957 | 60,617 | 9,993 | 27,649 | 23,954 | 252 | 30,046 | 126,134 | 60,361 | 164,800 |
| Graham | 8,484 | 1,694 | 2,019 | 195 | 636 | 632 | 6 | 854 | 3,035 | 1,575 | 1,192 |
| Granville | 60,115 | 12,272 | 10,293 | 1,410 | 4,537 | 4,127 | 40 | 5,188 | 20,906 | 7,331 | 25,247 |
| Guilford | 533,670 | 118,897 | 80,949 | 13,663 | 39,284 | 33,087 | 354 | 41,028 | 177,867 | 79,267 | 267,695 |
| Haywood | 61,971 | 11,308 | 15,248 | 1,299 | 4,747 | 4,738 | 41 | 6,424 | 22,679 | 8,071 | 4,631 |
| Jackson | 43,327 | 7,195 | 8,527 | 827 | 3,396 | 2,912 | 29 | 3,786 | 15,566 | 6,570 | 8,205 |
| Johnston | 202,675 | 51,654 | 26,989 | 5,936 | 14,366 | 12,225 | 135 | 14,831 | 64,910 | 23,374 | 66,425 |
| Lee | 61,452 | 14,733 | 10,118 | 1,693 | 4,420 | 3,920 | 41 | 4,954 | 20,287 | 9,459 | 25,942 |
| Lenoir | 55,976 | 12,606 | 11,088 | 1,449 | 4,087 | 3,860 | 37 | 5,046 | 19,134 | 12,193 | 28,441 |
| Lincoln | 83,770 | 17,649 | 14,802 | 2,028 | 6,269 | 5,835 | 56 | 7,384 | 29,063 | 8,555 | 12,538 |
| Macon | 35,285 | 6,590 | 10,056 | 757 | 2,670 | 2,800 | 24 | 3,938 | 13,017 | 5,700 | 3,882 |
| Martin | 22,671 | 4,587 | 5,246 | 527 | 1,699 | 1,694 | 15 | 2,272 | 8,093 | 4,571 | 10,867 |
| Mecklenburg | 1,093,901 | 257,713 | 122,549 | 29,615 | 79,580 | 61,334 | 729 | 71,907 | 351,251 | 126,098 | 586,264 |
| Mitchell | 15,000 | 2,740 | 3,741 | 315 | 1,149 | 1,157 | 10 | 1,572 | 5,501 | 2,383 | 1,232 |
| Montgomery | 27,271 | 6,007 | 5,597 | 690 | 2,002 | 1,903 | 18 | 2,505 | 9,398 | 4,379 | 10,067 |
| New Hanover | 232,274 | 42,800 | 41,211 | 4,918 | 17,874 | 15,270 | 154 | 19,425 | 81,539 | 34,250 | 52,600 |
| Person | 39,507 | 8,260 | 7,725 | 949 | 2,952 | 2,804 | 26 | 3,629 | 13,807 | 5,773 | 13,402 |
| Pitt | 179,914 | 38,347 | 23,789 | 4,407 | 13,404 | 10,273 | 119 | 12,422 | 59,411 | 40,201 | 82,137 |
| Rockingham | 90,690 | 18,387 | 18,552 | 2,113 | 6,823 | 6,562 | 60 | 8,560 | 32,052 | 16,003 | 25,083 |
| Rowan | 141,262 | 31,407 | 24,830 | 3,609 | 10,386 | 9,385 | 95 | 11,958 | 47,925 | 22,298 | 40,038 |
| Swain | 14,245 | 3,148 | 2,729 | 362 | 1,046 | 957 | 9 | 1,245 | 4,857 | 2,124 | 5,509 |
| Union | 235,908 | 63,295 | 29,928 | 7,274 | 16,454 | 14,175 | 158 | 17,063 | 74,408 | 16,361 | 66,941 |
| Wake | 1,092,305 | 261,531 | 126,886 | 30,054 | 79,104 | 62,737 | 729 | 74,034 | 351,225 | 89,819 | 438,820 |
| Yancey | 17,903 | 3,269 | 4,607 | 376 | 1,369 | 1,387 | 12 | 1,900 | 6,577 | 3,153 | 1,405 |
| Totals | 6,243,227 | 1,405,256 | 919,904 | 161,486 | 458,606 | 384,753 | 4,162 | 474,322 | 2,072,676 | 800,683 | 2,500,542 |

NORTH CAROLINA

American Lung Association in North Carolina

www.Lung.org/northcarolina

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|-------------|--------|-----|--------|-----------|-------|
| Alexander | 0 | 0 | 0 | 0.0 | A |
| Avery | 3 | 0 | 0 | 1.0 | C |
| Buncombe | 1 | 0 | 0 | 0.3 | B |
| Caldwell | 0 | 0 | 0 | 0.0 | A |
| Carteret | 0 | 0 | 0 | 0.0 | A |
| Caswell | 0 | 0 | 0 | 0.0 | A |
| Catawba | DNC | DNC | DNC | DNC | DNC |
| Cumberland | 0 | 0 | 0 | 0.0 | A |
| Davidson | DNC | DNC | DNC | DNC | DNC |
| Durham | 0 | 0 | 0 | 0.0 | A |
| Edgecombe | 0 | 0 | 0 | 0.0 | A |
| Forsyth | 5 | 0 | 0 | 1.7 | C |
| Graham | 1 | 0 | 0 | 0.3 | B |
| Granville | 0 | 0 | 0 | 0.0 | A |
| Guilford | 5 | 0 | 0 | 1.7 | C |
| Haywood | 3 | 0 | 0 | 1.0 | C |
| Jackson | 4 | 0 | 0 | 1.3 | C |
| Johnston | 0 | 0 | 0 | 0.0 | A |
| Lee | 0 | 0 | 0 | 0.0 | A |
| Lenoir | 1 | 0 | 0 | 0.3 | B |
| Lincoln | 1 | 1 | 0 | 0.8 | B |
| Macon | 1 | 0 | 0 | 0.3 | B |
| Martin | 0 | 0 | 0 | 0.0 | A |
| Mecklenburg | 14 | 0 | 0 | 4.7 | F |
| Mitchell | DNC | DNC | DNC | DNC | DNC |
| Montgomery | 0 | 0 | 0 | 0.0 | A |
| New Hanover | 0 | 0 | 0 | 0.0 | A |
| Person | 1 | 0 | 0 | 0.3 | B |
| Pitt | 0 | 0 | 0 | 0.0 | A |
| Rockingham | 1 | 0 | 0 | 0.3 | B |
| Rowan | 0 | 0 | 0 | 0.0 | A |
| Swain | 0 | 0 | 0 | 0.0 | A |
| Union | 7 | 0 | 0 | 2.3 | D |
| Wake | 1 | 0 | 0 | 0.3 | B |
| Yancey | 3 | 0 | 0 | 1.0 | C |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 3 | 4 | 0 | 0 | 3.0 | D | 7.1 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| INC | INC | INC | INC | INC | INC | INC | INC |
| 1 | 2 | 0 | 0 | 1.3 | C | 8.6 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.1 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.7 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 8.6 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.5 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.8 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 3 | 2 | 0 | 0 | 2.0 | C | 7.8 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.8 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.8 | PASS |
| 1 | 3 | 0 | 0 | 1.8 | C | 7.0 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.3 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 4.9 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.6 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 8 | 4 | 0 | 0 | 4.7 | F | 8.3 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 2 | 0 | 0 | 0 | 0.7 | B | 7.7 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |

NORTH DAKOTA

American Lung Association in North Dakota

www.Lung.org/northdakota

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|---------------|---------------|------------------|---------------|---------------|-------------|---------------|----------------|---------------|-----------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Billings | 919 | 187 | 206 | 12 | 60 | 43 | 1 | 77 | 319 | 82 | 70 |
| Burke | 2,100 | 526 | 436 | 34 | 129 | 92 | 1 | 164 | 687 | 195 | 139 |
| Burleigh | 95,273 | 22,130 | 15,315 | 1,440 | 5,997 | 3,806 | 52 | 6,317 | 31,431 | 6,798 | 10,826 |
| Cass | 181,516 | 40,855 | 21,794 | 2,658 | 11,534 | 6,440 | 99 | 9,837 | 59,543 | 18,270 | 28,532 |
| Dunn | 4,332 | 1,032 | 690 | 67 | 271 | 178 | 2 | 296 | 1,425 | 443 | 811 |
| McKenzie | 13,632 | 4,292 | 1,248 | 279 | 767 | 428 | 7 | 637 | 3,957 | 1,240 | 3,078 |
| Mercer | 8,267 | 1,904 | 1,592 | 124 | 522 | 368 | 5 | 641 | 2,773 | 585 | 629 |
| Oliver | 1,952 | 491 | 433 | 32 | 120 | 89 | 1 | 162 | 641 | 198 | 133 |
| Ward | 67,744 | 15,964 | 8,640 | 1,039 | 4,245 | 2,424 | 37 | 3,774 | 21,971 | 7,057 | 11,854 |
| Williams | 35,350 | 10,135 | 3,388 | 659 | 2,069 | 1,144 | 19 | 1,699 | 10,668 | 2,265 | 7,202 |
| Totals | 411,085 | 97,516 | 53,742 | 6,345 | 25,713 | 15,011 | 224 | 23,604 | 133,414 | 37,133 | 63,274 |

EMBARGOED

NORTH DAKOTA

American Lung Association in North Dakota

www.Lung.org/northdakota

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|----------|--------|-----|--------|-----------|-------|
| Billings | 0 | 0 | 0 | 0.0 | A |
| Burke | 0 | 0 | 0 | 0.0 | A |
| Burleigh | 0 | 0 | 0 | 0.0 | A |
| Cass | 0 | 0 | 0 | 0.0 | A |
| Dunn | 0 | 0 | 0 | 0.0 | A |
| McKenzie | 0 | 0 | 0 | 0.0 | A |
| Mercer | 0 | 0 | 0 | 0.0 | A |
| Oliver | 0 | 0 | 0 | 0.0 | A |
| Ward | INC | INC | INC | INC | INC |
| Williams | 0 | 0 | 0 | 0.0 | A |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 1 | 1 | 0 | 0 | 0.8 | B | 3.8 | PASS |
| 2 | 0 | 0 | 0 | 0.7 | B | 2.9 | PASS |
| 5 | 3 | 0 | 0 | 3.2 | D | INC | INC |
| 1 | 0 | 0 | 0 | 0.3 | B | 6.6 | PASS |
| 1 | 1 | 0 | 0 | 0.8 | B | INC | INC |
| 1 | 1 | 0 | 0 | 0.8 | B | 4.2 | PASS |
| 4 | 1 | 0 | 0 | 1.8 | C | 3.8 | PASS |
| 3 | 1 | 0 | 0 | 1.5 | C | 5.3 | PASS |
| INC | INC | INC | INC | INC | INC | INC | INC |
| 2 | 0 | 0 | 0 | 0.7 | B | 4.5 | PASS |

EMBARGOED

OHIO

American Lung Association in Ohio

www.Lung.org/ohio

AT-RISK GROUPS

| County | Total Population | | | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|------------------|------------------|------------------|----------------|----------------|--------------|----------------|------------------|------------------|------------------|
| | Total Population | Under 18 | 65 & Over | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Allen | 102,663 | 23,667 | 18,117 | 1,840 | 7,439 | 6,780 | 68 | 8,248 | 36,270 | 13,901 | 19,806 |
| Ashtabula | 97,493 | 21,521 | 18,589 | 1,673 | 7,134 | 6,834 | 65 | 8,424 | 35,277 | 16,353 | 10,409 |
| Athens | 65,818 | 9,568 | 8,671 | 744 | 5,347 | 3,995 | 43 | 4,498 | 24,854 | 17,237 | 7,036 |
| Belmont | 67,505 | 12,769 | 14,072 | 993 | 5,140 | 4,952 | 45 | 6,149 | 25,412 | 8,272 | 4,973 |
| Butler | 382,378 | 89,730 | 56,176 | 6,975 | 27,618 | 23,859 | 252 | 28,189 | 133,201 | 45,821 | 74,557 |
| Clark | 134,585 | 30,121 | 26,122 | 2,341 | 9,819 | 9,299 | 89 | 11,488 | 48,322 | 19,467 | 21,492 |
| Clermont | 205,466 | 47,330 | 33,533 | 3,679 | 14,881 | 13,589 | 136 | 16,359 | 72,814 | 16,745 | 13,589 |
| Clinton | 42,057 | 9,690 | 7,176 | 753 | 3,046 | 2,794 | 28 | 3,385 | 14,902 | 4,802 | 2,753 |
| Cuyahoga | 1,243,857 | 257,882 | 225,983 | 20,045 | 92,829 | 84,905 | 817 | 103,312 | 453,134 | 217,166 | 512,719 |
| Delaware | 204,826 | 53,818 | 28,062 | 4,183 | 14,228 | 12,563 | 135 | 14,821 | 69,173 | 8,271 | 31,771 |
| Fayette | 28,666 | 6,693 | 5,091 | 520 | 2,066 | 1,928 | 19 | 2,353 | 10,148 | 4,227 | 2,215 |
| Franklin | 1,310,300 | 304,643 | 157,391 | 23,680 | 95,292 | 75,398 | 863 | 85,844 | 450,179 | 198,207 | 490,422 |
| Geauga | 94,031 | 21,496 | 19,159 | 1,671 | 6,798 | 6,766 | 62 | 8,451 | 33,949 | 5,341 | 4,265 |
| Greene | 167,995 | 34,671 | 28,829 | 2,695 | 12,573 | 11,139 | 111 | 13,406 | 60,873 | 18,567 | 27,513 |
| Hamilton | 816,684 | 187,547 | 125,251 | 14,578 | 59,375 | 51,474 | 537 | 61,127 | 286,330 | 122,843 | 285,966 |
| Harrison | 15,174 | 3,183 | 3,227 | 247 | 1,123 | 1,125 | 10 | 1,410 | 5,618 | 2,285 | 788 |
| Jefferson | 65,767 | 12,596 | 14,173 | 979 | 4,990 | 4,875 | 43 | 6,091 | 24,750 | 12,052 | 6,313 |
| Knox | 61,893 | 14,061 | 11,231 | 1,093 | 4,502 | 4,151 | 41 | 5,072 | 22,013 | 8,039 | 2,897 |
| Lake | 230,514 | 46,209 | 46,066 | 3,592 | 17,306 | 16,634 | 152 | 20,569 | 85,597 | 16,970 | 28,285 |
| Lawrence | 59,866 | 13,009 | 11,313 | 1,011 | 4,404 | 4,163 | 39 | 5,117 | 21,690 | 11,093 | 3,181 |
| Licking | 175,769 | 40,733 | 28,906 | 3,166 | 12,710 | 11,580 | 116 | 13,955 | 62,123 | 15,591 | 17,928 |
| Lorain | 309,461 | 68,166 | 56,629 | 5,299 | 22,685 | 21,254 | 204 | 26,000 | 111,522 | 42,562 | 68,373 |
| Lucas | 429,899 | 98,562 | 70,047 | 7,661 | 31,226 | 27,868 | 283 | 33,461 | 151,668 | 78,398 | 135,938 |
| Madison | 44,413 | 9,117 | 6,863 | 709 | 3,327 | 2,935 | 30 | 3,481 | 16,146 | 4,215 | 5,188 |
| Mahoning | 229,642 | 45,992 | 48,145 | 3,575 | 17,249 | 16,630 | 151 | 20,712 | 85,227 | 36,520 | 56,113 |
| Medina | 179,146 | 39,987 | 31,990 | 3,108 | 13,073 | 12,354 | 118 | 15,080 | 64,507 | 11,474 | 11,087 |
| Miami | 106,222 | 24,389 | 19,773 | 1,896 | 7,692 | 7,259 | 70 | 8,921 | 37,861 | 8,329 | 8,482 |
| Montgomery | 532,331 | 117,543 | 95,583 | 9,137 | 39,064 | 35,589 | 350 | 43,324 | 190,400 | 87,187 | 156,334 |
| Noble | 14,354 | 2,634 | 3,951 | 205 | 1,093 | 1,197 | 10 | 1,558 | 5,585 | 2,109 | 716 |
| Portage | 162,927 | 30,531 | 26,794 | 2,373 | 12,492 | 10,893 | 107 | 12,973 | 60,319 | 17,564 | 17,391 |
| Preble | 40,997 | 9,174 | 7,893 | 713 | 2,988 | 2,868 | 27 | 3,543 | 14,778 | 3,936 | 1,535 |
| Scioto | 75,502 | 16,334 | 13,792 | 1,270 | 5,568 | 5,137 | 50 | 6,271 | 27,241 | 16,288 | 5,056 |
| Stark | 371,574 | 79,684 | 72,293 | 6,194 | 27,432 | 26,009 | 245 | 32,089 | 135,104 | 52,330 | 50,778 |
| Summit | 541,918 | 113,228 | 97,232 | 8,801 | 40,339 | 37,151 | 357 | 45,167 | 197,440 | 63,889 | 126,757 |
| Trumbull | 198,627 | 40,788 | 42,931 | 3,170 | 14,808 | 14,571 | 131 | 18,270 | 73,565 | 34,413 | 25,510 |
| Warren | 232,173 | 57,270 | 33,646 | 4,452 | 16,471 | 14,719 | 154 | 17,462 | 80,296 | 11,709 | 33,080 |
| Washington | 60,155 | 11,844 | 12,663 | 921 | 4,536 | 4,396 | 40 | 5,477 | 22,452 | 9,251 | 3,016 |
| Wood | 130,696 | 26,642 | 19,998 | 2,071 | 9,841 | 8,218 | 86 | 9,672 | 46,960 | 14,733 | 15,623 |
| Totals | 9,233,344 | 2,032,822 | 1,547,361 | 158,010 | 678,504 | 607,854 | 6,082 | 731,724 | 3,297,695 | 1,278,157 | 2,289,855 |

OHIO

American Lung Association in Ohio

www.Lung.org/ohio

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|------------|--------|-----|--------|-----------|-------|
| Allen | 9 | 0 | 0 | 3.0 | D |
| Ashtabula | 11 | 0 | 0 | 3.7 | F |
| Athens | DNC | DNC | DNC | DNC | DNC |
| Belmont | DNC | DNC | DNC | DNC | DNC |
| Butler | 23 | 0 | 0 | 7.7 | F |
| Clark | 12 | 0 | 0 | 4.0 | F |
| Clermont | 9 | 0 | 0 | 3.0 | D |
| Clinton | 8 | 0 | 0 | 2.7 | D |
| Cuyahoga | 20 | 0 | 0 | 6.7 | F |
| Delaware | 1 | 0 | 0 | 0.3 | B |
| Fayette | 2 | 0 | 0 | 0.7 | B |
| Franklin | 13 | 0 | 0 | 4.3 | F |
| Geauga | 23 | 0 | 0 | 7.7 | F |
| Greene | 3 | 0 | 0 | 1.0 | C |
| Hamilton | 24 | 1 | 0 | 8.5 | F |
| Harrison | DNC | DNC | DNC | DNC | DNC |
| Jefferson | 1 | 0 | 0 | 0.3 | B |
| Knox | 1 | 0 | 0 | 0.3 | B |
| Lake | 24 | 0 | 0 | 8.0 | F |
| Lawrence | 5 | 0 | 0 | 1.7 | C |
| Licking | 3 | 0 | 0 | 1.0 | C |
| Lorain | 4 | 0 | 0 | 1.3 | C |
| Lucas | 16 | 1 | 0 | 5.8 | F |
| Madison | 4 | 0 | 0 | 1.3 | C |
| Mahoning | 0 | 0 | 0 | 0.0 | A |
| Medina | 1 | 0 | 0 | 0.3 | B |
| Miami | 5 | 0 | 0 | 1.7 | C |
| Montgomery | 11 | 0 | 0 | 3.7 | F |
| Noble | 2 | 0 | 0 | 0.7 | B |
| Portage | 0 | 0 | 0 | 0.0 | A |
| Preble | 2 | 0 | 0 | 0.7 | B |
| Scioto | DNC | DNC | DNC | DNC | DNC |
| Stark | 11 | 0 | 0 | 3.7 | F |
| Summit | 2 | 0 | 0 | 0.7 | B |
| Trumbull | 10 | 0 | 0 | 3.3 | F |
| Warren | 15 | 0 | 0 | 5.0 | F |
| Washington | 3 | 0 | 0 | 1.0 | C |
| Wood | 5 | 0 | 0 | 1.7 | C |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.8 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.4 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.9 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 10.5 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.7 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 11.0 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 1 | 0 | 0 | 0 | 0.3 | B | 8.4 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.8 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 9.7 | PASS |
| INC | INC | INC | INC | INC | INC | INC | INC |
| 2 | 0 | 0 | 0 | 0.7 | B | 9.5 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.0 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 6.6 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.5 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 8.5 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.9 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.6 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.5 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.3 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.8 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 9.3 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 9.0 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.8 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |

OKLAHOMA

American Lung Association in Oklahoma

www.Lung.org/oklahoma

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|----------------|----------------|------------------|----------------|----------------|--------------|----------------|----------------|----------------|------------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Adair | 22,082 | 5,869 | 3,512 | 575 | 1,680 | 1,432 | 14 | 1,969 | 7,312 | 5,372 | 13,343 |
| Bryan | 47,192 | 11,054 | 8,477 | 1,083 | 3,720 | 3,143 | 30 | 4,391 | 16,217 | 7,604 | 13,824 |
| Caddo | 28,977 | 7,285 | 4,881 | 714 | 2,241 | 1,908 | 19 | 2,642 | 9,768 | 5,239 | 12,439 |
| Canadian | 144,447 | 37,771 | 18,770 | 3,701 | 11,111 | 8,728 | 93 | 11,688 | 47,213 | 10,336 | 35,104 |
| Carter | 48,177 | 12,075 | 8,103 | 1,183 | 3,733 | 3,193 | 31 | 4,416 | 16,281 | 8,335 | 14,715 |
| Cherokee | 48,675 | 10,655 | 8,130 | 1,044 | 3,923 | 3,169 | 31 | 4,376 | 16,883 | 9,862 | 25,635 |
| Choctaw | 14,668 | 3,541 | 3,036 | 347 | 1,142 | 1,059 | 9 | 1,505 | 5,113 | 3,312 | 5,789 |
| Cleveland | 281,669 | 60,612 | 37,659 | 5,939 | 22,971 | 17,209 | 181 | 23,030 | 96,631 | 32,077 | 80,962 |
| Comanche | 120,422 | 28,332 | 15,192 | 2,776 | 9,583 | 7,151 | 78 | 9,524 | 40,239 | 18,303 | 53,129 |
| Cotton | 5,776 | 1,299 | 1,119 | 127 | 462 | 424 | 4 | 593 | 2,056 | 926 | 1,389 |
| Creek | 71,604 | 17,201 | 12,638 | 1,685 | 5,625 | 4,936 | 46 | 6,847 | 24,700 | 9,874 | 17,424 |
| Dewey | 4,894 | 1,324 | 902 | 130 | 367 | 326 | 3 | 459 | 1,622 | 580 | 910 |
| Jefferson | 6,123 | 1,478 | 1,307 | 145 | 476 | 443 | 4 | 633 | 2,135 | 1,473 | 1,385 |
| Johnston | 10,949 | 2,573 | 2,129 | 252 | 861 | 762 | 7 | 1,074 | 3,802 | 2,068 | 3,354 |
| Kay | 44,161 | 11,091 | 8,539 | 1,087 | 3,393 | 2,996 | 28 | 4,239 | 14,993 | 8,751 | 11,403 |
| Le Flore | 49,980 | 11,997 | 9,038 | 1,176 | 3,918 | 3,422 | 32 | 4,772 | 17,207 | 10,903 | 14,386 |
| Lincoln | 34,920 | 8,310 | 6,400 | 814 | 2,750 | 2,469 | 22 | 3,437 | 12,154 | 5,069 | 6,277 |
| Love | 10,134 | 2,461 | 1,935 | 241 | 789 | 695 | 7 | 979 | 3,480 | 1,466 | 2,949 |
| McClain | 39,985 | 10,265 | 6,194 | 1,006 | 3,085 | 2,610 | 26 | 3,566 | 13,385 | 3,592 | 8,477 |
| Mayes | 41,107 | 9,598 | 7,576 | 940 | 3,251 | 2,866 | 26 | 3,999 | 14,311 | 6,271 | 14,522 |
| Nowata | 10,218 | 2,328 | 1,962 | 228 | 814 | 735 | 7 | 1,028 | 3,606 | 1,650 | 3,399 |
| Oklahoma | 792,582 | 203,382 | 108,318 | 19,928 | 61,212 | 48,023 | 508 | 64,776 | 260,424 | 131,185 | 351,494 |
| Osage | 47,014 | 10,217 | 9,386 | 1,001 | 3,791 | 3,454 | 30 | 4,853 | 16,853 | 6,864 | 17,226 |
| Ottawa | 31,175 | 7,643 | 5,720 | 749 | 2,422 | 2,105 | 20 | 2,949 | 10,637 | 6,210 | 10,970 |
| Pittsburg | 43,877 | 9,745 | 8,790 | 955 | 3,504 | 3,109 | 28 | 4,393 | 15,498 | 8,160 | 13,530 |
| Sequoyah | 41,179 | 9,421 | 7,802 | 923 | 3,274 | 2,914 | 26 | 4,078 | 14,456 | 7,636 | 15,412 |
| Tulsa | 648,360 | 164,042 | 93,318 | 16,073 | 50,281 | 40,387 | 415 | 54,771 | 215,266 | 89,706 | 248,773 |
| Washington | 51,843 | 12,408 | 10,099 | 1,216 | 4,052 | 3,604 | 33 | 5,085 | 17,924 | 6,607 | 14,239 |
| Totals | 2,742,190 | 673,977 | 410,932 | 66,039 | 214,430 | 173,273 | 1,758 | 236,072 | 920,166 | 409,431 | 1,012,459 |

OKLAHOMA

American Lung Association in Oklahoma

www.Lung.org/oklahoma

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|------------|--------|-----|--------|-----------|-------|
| Adair | 0 | 0 | 0 | 0.0 | A |
| Bryan | INC | INC | INC | INC | INC |
| Caddo | INC | INC | INC | INC | INC |
| Canadian | 7 | 0 | 0 | 2.3 | D |
| Carter | INC | INC | INC | INC | INC |
| Cherokee | INC | INC | INC | INC | INC |
| Choctaw | INC | INC | INC | INC | INC |
| Cleveland | 8 | 0 | 0 | 2.7 | D |
| Comanche | 5 | 0 | 0 | 1.7 | C |
| Cotton | INC | INC | INC | INC | INC |
| Creek | 1 | 0 | 0 | 0.3 | B |
| Dewey | 7 | 0 | 0 | 2.3 | D |
| Jefferson | INC | INC | INC | INC | INC |
| Johnston | INC | INC | INC | INC | INC |
| Kay | 2 | 0 | 0 | 0.7 | B |
| Le Flore | DNC | DNC | DNC | DNC | DNC |
| Lincoln | INC | INC | INC | INC | INC |
| Love | INC | INC | INC | INC | INC |
| McClain | 5 | 0 | 0 | 1.7 | C |
| Mayes | 1 | 0 | 0 | 0.3 | B |
| Nowata | INC | INC | INC | INC | INC |
| Oklahoma | 16 | 0 | 0 | 5.3 | F |
| Osage | 8 | 0 | 0 | 2.7 | D |
| Ottawa | 0 | 0 | 0 | 0.0 | A |
| Pittsburg | 1 | 0 | 0 | 0.3 | B |
| Sequoyah | 0 | 0 | 0 | 0.0 | A |
| Tulsa | 8 | 2 | 0 | 3.7 | F |
| Washington | INC | INC | INC | INC | INC |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 2 | 0 | 0 | 0 | 0.7 | B | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 1 | 0 | 0 | 0 | 0.3 | B | 8.5 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.0 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 2 | 0 | 0 | 0 | 0.7 | B | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 2 | 0 | 0 | 0 | 0.7 | B | 7.7 | PASS |
| INC | INC | INC | INC | INC | INC | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| INC | INC | INC | INC | INC | INC | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.6 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| INC | INC | INC | INC | INC | INC | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.1 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.2 | PASS |
| 2 | 0 | 0 | 0 | 0.7 | B | 9.6 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | INC | INC |

OREGON

American Lung Association in Oregon

www.Lung.org/oregon

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|----------------|----------------|------------------|----------------|----------------|--------------|----------------|------------------|----------------|-----------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Clackamas | 416,075 | 89,515 | 75,318 | 6,490 | 38,275 | 23,053 | 210 | 32,094 | 142,169 | 30,022 | 76,734 |
| Columbia | 52,377 | 11,067 | 9,809 | 802 | 4,842 | 2,982 | 27 | 4,171 | 18,098 | 5,302 | 6,237 |
| Crook | 23,867 | 4,716 | 5,944 | 342 | 2,212 | 1,503 | 12 | 2,155 | 8,599 | 3,049 | 2,862 |
| Harney | 7,329 | 1,502 | 1,793 | 109 | 673 | 451 | 4 | 646 | 2,606 | 1,089 | 962 |
| Jackson | 219,564 | 45,245 | 48,236 | 3,280 | 20,229 | 12,911 | 111 | 18,265 | 76,940 | 32,137 | 42,944 |
| Josephine | 87,393 | 17,118 | 22,709 | 1,241 | 8,094 | 5,581 | 44 | 8,032 | 31,670 | 14,655 | 11,623 |
| Klamath | 67,653 | 14,706 | 14,340 | 1,066 | 6,153 | 3,903 | 34 | 5,512 | 23,338 | 12,310 | 15,294 |
| Lake | 7,879 | 1,513 | 1,987 | 110 | 735 | 503 | 4 | 722 | 2,864 | 1,360 | 1,233 |
| Lane | 379,611 | 69,868 | 73,392 | 5,065 | 36,150 | 21,366 | 192 | 29,676 | 133,980 | 67,217 | 70,215 |
| Marion | 346,868 | 85,432 | 54,349 | 6,194 | 30,699 | 17,436 | 176 | 23,937 | 112,048 | 48,997 | 121,561 |
| Multnomah | 811,880 | 152,901 | 109,080 | 11,085 | 77,901 | 40,721 | 411 | 54,594 | 276,833 | 95,543 | 249,344 |
| Umatilla | 77,516 | 19,551 | 12,120 | 1,417 | 6,806 | 3,878 | 39 | 5,328 | 24,864 | 11,557 | 26,729 |
| Wasco | 26,505 | 5,871 | 5,458 | 426 | 2,399 | 1,500 | 13 | 2,112 | 9,059 | 3,467 | 6,873 |
| Washington | 597,695 | 136,614 | 80,268 | 9,905 | 54,488 | 29,286 | 302 | 39,553 | 195,075 | 51,789 | 208,815 |
| Totals | 3,122,212 | 655,619 | 514,803 | 47,533 | 289,656 | 165,074 | 1,580 | 226,797 | 1,058,144 | 378,494 | 841,426 |

OREGON

American Lung Association in Oregon

www.Lung.org/oregon

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|------------|--------|-----|--------|-----------|-------|
| Clackamas | 10 | 1 | 1 | 4.5 | F |
| Columbia | 1 | 1 | 0 | 0.8 | B |
| Crook | DNC | DNC | DNC | DNC | DNC |
| Harney | DNC | DNC | DNC | DNC | DNC |
| Jackson | 11 | 0 | 0 | 3.7 | F |
| Josephine | DNC | DNC | DNC | DNC | DNC |
| Klamath | DNC | DNC | DNC | DNC | DNC |
| Lake | DNC | DNC | DNC | DNC | DNC |
| Lane | 2 | 2 | 0 | 1.7 | C |
| Marion | 6 | 0 | 0 | 2.0 | C |
| Multnomah | 3 | 1 | 0 | 1.5 | C |
| Umatilla | 8 | 0 | 0 | 2.7 | D |
| Wasco | 1 | 0 | 0 | 0.3 | B |
| Washington | 4 | 2 | 0 | 2.3 | D |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 5 | 5 | 0 | 0 | 4.2 | F | 9.1 | PASS |
| 6 | 2 | 0 | 0 | 3.0 | D | 9.8 | PASS |
| 3 | 11 | 3 | 0 | 8.5 | F | INC | INC |
| 0 | 7 | 0 | 0 | 3.5 | F | 10.3 | PASS |
| 6 | 9 | 2 | 0 | 7.8 | F | 12.4 | FAIL |
| 12 | 7 | 0 | 0 | 7.5 | F | INC | INC |
| 10 | 4 | 0 | 1 | 6.2 | F | 9.6 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 4 | 0 | 0 | 0 | 1.3 | C | 7.0 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 6 | 0 | 0 | 0 | 2.0 | C | 7.4 | PASS |

EMBARGOED

PENNSYLVANIA

American Lung Association in Pennsylvania

www.Lung.org/pennsylvania

AT-RISK GROUPS

| County | Total Population | | | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|-------------------|------------------|------------------|------------------|----------------|----------------|--------------|----------------|------------------|------------------|------------------|
| | Total Population | Under 18 | 65 & Over | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Adams | 102,811 | 20,554 | 20,954 | 2,001 | 8,300 | 6,227 | 66 | 8,622 | 35,826 | 7,919 | 11,291 |
| Allegheny | 1,218,452 | 227,749 | 230,377 | 22,168 | 99,742 | 70,310 | 778 | 96,971 | 424,109 | 138,397 | 263,512 |
| Armstrong | 65,263 | 12,510 | 14,338 | 1,218 | 5,322 | 4,133 | 42 | 5,756 | 23,164 | 5,917 | 1,959 |
| Beaver | 164,742 | 31,988 | 35,412 | 3,114 | 13,373 | 10,199 | 105 | 14,214 | 57,942 | 18,061 | 17,483 |
| Berks | 420,152 | 93,834 | 72,352 | 9,133 | 32,976 | 23,183 | 269 | 31,654 | 140,195 | 46,762 | 122,246 |
| Blair | 122,492 | 25,017 | 25,445 | 2,435 | 9,809 | 7,349 | 78 | 10,240 | 42,311 | 17,156 | 6,675 |
| Bradford | 60,833 | 13,362 | 12,955 | 1,301 | 4,782 | 3,696 | 39 | 5,160 | 20,788 | 7,495 | 2,549 |
| Bucks | 628,195 | 128,216 | 117,060 | 12,480 | 50,664 | 37,204 | 402 | 50,819 | 217,670 | 35,350 | 102,058 |
| Cambria | 131,730 | 25,309 | 29,736 | 2,463 | 10,694 | 8,264 | 84 | 11,606 | 46,467 | 18,520 | 9,567 |
| Centre | 162,805 | 24,461 | 23,195 | 2,381 | 13,913 | 8,286 | 105 | 11,136 | 57,038 | 25,901 | 24,046 |
| Chester | 522,046 | 118,139 | 85,335 | 11,499 | 40,938 | 28,596 | 334 | 38,704 | 173,851 | 34,311 | 108,918 |
| Clearfield | 79,388 | 14,453 | 16,291 | 1,407 | 6,554 | 4,882 | 51 | 6,749 | 28,240 | 11,323 | 5,584 |
| Cumberland | 251,423 | 50,918 | 46,545 | 4,956 | 20,199 | 14,275 | 161 | 19,667 | 85,944 | 17,469 | 37,225 |
| Dauphin | 277,097 | 62,355 | 47,002 | 6,069 | 21,700 | 15,153 | 177 | 20,668 | 92,113 | 35,730 | 96,578 |
| Delaware | 564,751 | 123,908 | 92,607 | 12,061 | 44,571 | 30,589 | 361 | 41,541 | 188,466 | 47,800 | 190,290 |
| Elk | 30,169 | 5,870 | 6,640 | 571 | 2,456 | 1,935 | 19 | 2,687 | 10,733 | 2,742 | 817 |
| Erie | 272,061 | 58,156 | 48,900 | 5,661 | 21,578 | 15,252 | 174 | 20,938 | 91,833 | 39,839 | 42,933 |
| Fayette | 130,441 | 25,011 | 27,603 | 2,434 | 10,630 | 8,059 | 84 | 11,199 | 45,994 | 18,475 | 10,877 |
| Franklin | 154,835 | 34,405 | 30,425 | 3,349 | 12,132 | 8,978 | 99 | 12,455 | 52,182 | 16,759 | 19,006 |
| Greene | 36,506 | 7,075 | 6,896 | 689 | 2,971 | 2,136 | 24 | 2,935 | 12,694 | 5,334 | 2,389 |
| Indiana | 84,501 | 15,312 | 16,480 | 1,490 | 6,954 | 4,917 | 54 | 6,814 | 29,585 | 12,356 | 5,220 |
| Lackawanna | 210,793 | 43,243 | 42,061 | 4,209 | 16,869 | 12,398 | 135 | 17,208 | 72,434 | 28,929 | 33,043 |
| Lancaster | 543,557 | 127,967 | 97,560 | 12,456 | 41,843 | 29,653 | 348 | 40,927 | 178,138 | 42,131 | 100,253 |
| Lawrence | 86,184 | 17,086 | 18,951 | 1,663 | 6,952 | 5,352 | 55 | 7,490 | 30,187 | 13,319 | 7,038 |
| Lebanon | 141,314 | 32,143 | 27,397 | 3,129 | 10,986 | 8,049 | 90 | 11,180 | 47,133 | 13,802 | 26,209 |
| Lehigh | 368,100 | 83,207 | 61,507 | 8,099 | 28,764 | 19,842 | 235 | 27,070 | 121,744 | 42,991 | 134,641 |
| Luzerne | 317,646 | 62,610 | 63,184 | 6,094 | 25,696 | 18,827 | 203 | 26,071 | 110,264 | 43,839 | 62,210 |
| Lycoming | 113,664 | 23,267 | 21,935 | 2,265 | 9,111 | 6,611 | 73 | 9,135 | 39,007 | 14,054 | 10,740 |
| Mercer | 110,683 | 21,463 | 23,991 | 2,089 | 8,977 | 6,834 | 71 | 9,548 | 38,872 | 15,985 | 11,023 |
| Monroe | 169,507 | 33,306 | 29,181 | 3,242 | 13,828 | 9,821 | 109 | 13,274 | 58,959 | 20,202 | 59,228 |
| Montgomery | 828,604 | 178,218 | 147,124 | 17,347 | 65,743 | 46,770 | 530 | 63,941 | 280,276 | 47,317 | 204,331 |
| Northampton | 304,807 | 60,926 | 57,955 | 5,930 | 24,602 | 17,747 | 195 | 24,442 | 105,196 | 29,917 | 73,337 |
| Philadelphia | 1,584,138 | 343,970 | 216,276 | 33,481 | 125,116 | 77,536 | 1,009 | 103,994 | 517,325 | 372,322 | 1,039,969 |
| Somerset | 73,952 | 13,224 | 16,535 | 1,287 | 6,115 | 4,706 | 48 | 6,574 | 26,551 | 8,289 | 4,324 |
| Susquehanna | 40,589 | 7,498 | 9,604 | 730 | 3,335 | 2,676 | 26 | 3,752 | 14,634 | 5,128 | 1,525 |
| Tioga | 40,763 | 8,140 | 8,983 | 792 | 3,280 | 2,522 | 26 | 3,534 | 14,236 | 5,894 | 1,601 |
| Washington | 207,346 | 40,332 | 42,617 | 3,926 | 16,847 | 12,623 | 133 | 17,492 | 72,688 | 18,274 | 16,532 |
| Westmoreland | 350,611 | 64,117 | 79,652 | 6,241 | 28,867 | 22,565 | 224 | 31,543 | 125,835 | 31,749 | 21,836 |
| York | 448,273 | 99,020 | 78,216 | 9,638 | 35,336 | 25,144 | 287 | 34,297 | 150,669 | 38,582 | 76,751 |
| Totals | 11,421,224 | 2,378,339 | 2,049,277 | 231,498 | 912,526 | 643,300 | 7,304 | 882,008 | 3,881,295 | 1,356,340 | 2,965,814 |

PENNSYLVANIA

American Lung Association in Pennsylvania

www.Lung.org/pennsylvania

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|--------------|--------|-----|--------|-----------|-------|
| Adams | 7 | 0 | 0 | 2.3 | D |
| Allegheny | 23 | 1 | 0 | 8.2 | F |
| Armstrong | 6 | 0 | 0 | 2.0 | C |
| Beaver | 12 | 0 | 0 | 4.0 | F |
| Berks | 13 | 0 | 0 | 4.3 | F |
| Blair | 2 | 0 | 0 | 0.7 | B |
| Bradford | 0 | 0 | 0 | 0.0 | A |
| Bucks | 30 | 3 | 0 | 11.5 | F |
| Cambria | 0 | 0 | 0 | 0.0 | A |
| Centre | 2 | 0 | 0 | 0.7 | B |
| Chester | 15 | 0 | 0 | 5.0 | F |
| Clearfield | 2 | 0 | 0 | 0.7 | B |
| Cumberland | DNC | DNC | DNC | DNC | DNC |
| Dauphin | 5 | 0 | 0 | 1.7 | C |
| Delaware | 11 | 0 | 0 | 3.7 | F |
| Elk | 3 | 0 | 0 | 1.0 | C |
| Erie | 3 | 0 | 0 | 1.0 | C |
| Fayette | INC | INC | INC | INC | INC |
| Franklin | 0 | 0 | 0 | 0.0 | A |
| Greene | 1 | 0 | 0 | 0.3 | B |
| Indiana | 5 | 0 | 0 | 1.7 | C |
| Lackawanna | 4 | 0 | 0 | 1.3 | C |
| Lancaster | 9 | 0 | 0 | 3.0 | D |
| Lawrence | 1 | 0 | 0 | 0.3 | B |
| Lebanon | 7 | 0 | 0 | 2.3 | D |
| Lehigh | 8 | 0 | 0 | 2.7 | D |
| Luzerne | 2 | 0 | 0 | 0.7 | B |
| Lycoming | 1 | 0 | 0 | 0.3 | B |
| Mercer | 8 | 0 | 0 | 2.7 | D |
| Monroe | 5 | 0 | 0 | 1.7 | C |
| Montgomery | 19 | 0 | 0 | 6.3 | F |
| Northampton | 13 | 0 | 0 | 4.3 | F |
| Philadelphia | 28 | 3 | 0 | 10.8 | F |
| Somerset | 1 | 0 | 0 | 0.3 | B |
| Susquehanna | DNC | DNC | DNC | DNC | DNC |
| Tioga | 2 | 0 | 0 | 0.7 | B |
| Washington | 5 | 0 | 0 | 1.7 | C |
| Westmoreland | 7 | 0 | 0 | 2.3 | D |
| York | 6 | 0 | 0 | 2.0 | C |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.6 | PASS |
| 26 | 2 | 0 | 0 | 9.7 | F | 12.6 | FAIL |
| 0 | 0 | 0 | 0 | 0.0 | A | 9.3 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 9.1 | PASS |
| 4 | 0 | 0 | 0 | 1.3 | C | 8.5 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 8.1 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.0 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 9.7 | PASS |
| 2 | 0 | 0 | 0 | 0.7 | B | 8.1 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 9.7 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 2 | 0 | 0 | 0 | 0.7 | B | 8.1 | PASS |
| 3 | 0 | 0 | 0 | 1.0 | C | 8.6 | PASS |
| 2 | 0 | 0 | 0 | 0.7 | B | 10.7 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.1 | PASS |
| INC | INC | INC | INC | INC | INC | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.2 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.3 | PASS |
| 6 | 0 | 0 | 0 | 2.0 | C | 9.8 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 3 | 0 | 0 | 0 | 1.0 | C | 9.3 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 9.0 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 9.3 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| INC | INC | INC | INC | INC | INC | INC | INC |
| 2 | 0 | 0 | 0 | 0.7 | B | 8.4 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 10.1 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| INC | INC | INC | INC | INC | INC | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.7 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.5 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.7 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 9.3 | PASS |

RHODE ISLAND

American Lung Association in Rhode Island

www.Lung.org/rhodeisland

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|----------------|----------------|------------------|---------------|---------------|-------------|---------------|----------------|----------------|-----------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Kent | 163,861 | 30,623 | 30,962 | 2,407 | 15,783 | 9,707 | 113 | 13,087 | 57,341 | 12,620 | 19,509 |
| Providence | 636,084 | 130,676 | 97,217 | 10,272 | 59,838 | 33,355 | 439 | 44,070 | 210,372 | 98,431 | 248,891 |
| Washington | 126,179 | 20,842 | 26,164 | 1,638 | 12,462 | 7,734 | 87 | 10,569 | 45,415 | 9,507 | 11,430 |
| Totals | 926,124 | 182,141 | 154,343 | 14,318 | 88,083 | 50,796 | 640 | 67,726 | 313,129 | 120,558 | 279,830 |

EMBARGOED

RHODE ISLAND

American Lung Association in Rhode Island

www.Lung.org/rhodeisland

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|------------|--------|-----|--------|-----------|-------|
| Kent | 16 | 0 | 0 | 5.3 | F |
| Providence | 16 | 0 | 0 | 5.3 | F |
| Washington | 12 | 2 | 0 | 5.0 | F |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 0 | 0 | 0 | 0 | 0.0 | A | 5.0 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.8 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 5.1 | PASS |

EMBARGOED

SOUTH CAROLINA

American Lung Association in South Carolina

www.Lung.org/southcarolina

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|----------------|----------------|------------------|----------------|----------------|--------------|----------------|------------------|----------------|------------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Abbeville | 24,541 | 4,924 | 5,343 | 352 | 1,769 | 1,736 | 15 | 2,238 | 8,735 | 4,545 | 7,624 |
| Aiken | 169,401 | 36,849 | 32,901 | 2,637 | 11,999 | 11,369 | 103 | 14,426 | 58,536 | 25,095 | 57,686 |
| Anderson | 200,482 | 45,852 | 36,185 | 3,282 | 14,036 | 13,075 | 121 | 16,433 | 68,045 | 28,843 | 45,645 |
| Berkeley | 221,091 | 52,749 | 30,410 | 3,775 | 15,382 | 13,089 | 135 | 15,752 | 72,505 | 27,687 | 80,553 |
| Charleston | 405,905 | 79,933 | 66,621 | 5,721 | 29,612 | 25,751 | 246 | 31,548 | 140,850 | 55,971 | 142,289 |
| Cherokee | 57,078 | 13,140 | 9,598 | 940 | 3,999 | 3,645 | 35 | 4,529 | 19,241 | 9,394 | 15,558 |
| Chesterfield | 45,754 | 10,032 | 8,395 | 718 | 3,249 | 3,070 | 28 | 3,867 | 15,796 | 9,453 | 18,154 |
| Colleton | 37,660 | 8,390 | 7,595 | 600 | 2,647 | 2,562 | 23 | 3,277 | 12,998 | 7,440 | 16,190 |
| Darlington | 66,802 | 14,817 | 12,678 | 1,060 | 4,713 | 4,459 | 40 | 5,644 | 22,963 | 15,356 | 30,255 |
| Edgefield | 27,052 | 4,894 | 5,074 | 350 | 2,014 | 1,866 | 17 | 2,337 | 9,741 | 4,489 | 11,716 |
| Florence | 138,159 | 32,590 | 23,471 | 2,332 | 9,591 | 8,729 | 83 | 10,871 | 46,178 | 24,375 | 66,992 |
| Greenville | 514,213 | 118,364 | 81,136 | 8,471 | 36,044 | 31,886 | 312 | 39,169 | 171,994 | 55,837 | 163,199 |
| Horry | 344,147 | 61,715 | 82,431 | 4,417 | 25,384 | 25,499 | 209 | 33,265 | 126,421 | 48,595 | 77,287 |
| Lexington | 295,032 | 68,294 | 46,581 | 4,888 | 20,688 | 18,574 | 179 | 22,867 | 98,995 | 36,432 | 75,300 |
| Oconee | 78,374 | 15,615 | 18,196 | 1,118 | 5,647 | 5,684 | 48 | 7,409 | 28,123 | 11,159 | 12,423 |
| Pickens | 124,937 | 23,712 | 20,660 | 1,697 | 9,181 | 7,896 | 76 | 9,657 | 43,583 | 19,471 | 18,028 |
| Richland | 414,576 | 88,630 | 52,790 | 6,343 | 29,740 | 23,817 | 251 | 28,023 | 138,156 | 64,210 | 239,888 |
| Spartanburg | 313,888 | 72,501 | 50,812 | 5,189 | 21,970 | 19,654 | 190 | 24,257 | 105,176 | 41,706 | 100,392 |
| York | 274,118 | 66,495 | 39,236 | 4,759 | 19,001 | 16,696 | 166 | 20,296 | 90,243 | 26,453 | 81,682 |
| Totals | 3,753,210 | 819,496 | 630,113 | 58,651 | 266,667 | 239,056 | 2,277 | 295,868 | 1,278,280 | 516,511 | 1,260,861 |

SOUTH CAROLINA

American Lung Association in South Carolina

www.Lung.org/southcarolina

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|--------------|--------|-----|--------|-----------|-------|
| Abbeville | INC | INC | INC | INC | INC |
| Aiken | 0 | 0 | 0 | 0.0 | A |
| Anderson | 0 | 0 | 0 | 0.0 | A |
| Berkeley | 0 | 0 | 0 | 0.0 | A |
| Charleston | 1 | 0 | 0 | 0.3 | B |
| Cherokee | INC | INC | INC | INC | INC |
| Chesterfield | 1 | 0 | 0 | 0.3 | B |
| Colleton | 0 | 0 | 0 | 0.0 | A |
| Darlington | 0 | 0 | 0 | 0.0 | A |
| Edgefield | 1 | 0 | 0 | 0.3 | B |
| Florence | DNC | DNC | DNC | DNC | DNC |
| Greenville | 1 | 0 | 0 | 0.3 | B |
| Horry | 0 | 0 | 0 | 0.0 | A |
| Lexington | DNC | DNC | DNC | DNC | DNC |
| Oconee | 1 | 0 | 0 | 0.3 | B |
| Pickens | 1 | 0 | 0 | 0.3 | B |
| Richland | 5 | 0 | 0 | 1.7 | C |
| Spartanburg | 3 | 0 | 0 | 1.0 | C |
| York | 5 | 0 | 0 | 1.7 | C |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 1 | 2 | 0 | 0 | 1.3 | C | 7.2 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 1 | 1 | 0 | 0 | 0.8 | B | 8.2 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| 3 | 2 | 0 | 0 | 2.0 | C | 8.3 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 2 | 0 | 0 | 1.0 | C | 8.5 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 2 | 0 | 0 | 1.0 | C | 7.8 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.0 | PASS |
| INC | INC | INC | INC | INC | INC | INC | INC |

SOUTH DAKOTA

American Lung Association in South Dakota

www.Lung.org/southdakota

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|----------------|---------------|------------------|---------------|---------------|-------------|---------------|----------------|---------------|-----------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Brookings | 35,232 | 7,223 | 4,195 | 517 | 2,227 | 985 | 21 | 1,873 | 12,098 | 3,744 | 3,614 |
| Brown | 39,316 | 9,416 | 6,747 | 674 | 2,348 | 1,375 | 23 | 2,753 | 13,167 | 4,195 | 5,537 |
| Codington | 28,015 | 6,724 | 4,949 | 481 | 1,669 | 1,013 | 17 | 2,032 | 9,404 | 3,115 | 2,082 |
| Custer | 8,726 | 1,343 | 2,621 | 96 | 568 | 450 | 5 | 953 | 3,335 | 853 | 830 |
| Hughes | 17,650 | 4,251 | 3,057 | 304 | 1,051 | 632 | 10 | 1,264 | 5,914 | 1,590 | 3,212 |
| Jackson | 3,307 | 1,105 | 442 | 79 | 173 | 97 | 2 | 192 | 967 | 1,070 | 2,003 |
| Meade | 28,294 | 6,463 | 4,316 | 463 | 1,721 | 940 | 17 | 1,849 | 9,567 | 2,309 | 3,665 |
| Minnehaha | 192,876 | 49,051 | 25,229 | 3,511 | 11,371 | 5,934 | 114 | 11,455 | 62,848 | 18,035 | 35,825 |
| Pennington | 111,729 | 25,603 | 20,087 | 1,832 | 6,753 | 4,072 | 66 | 8,179 | 38,016 | 14,567 | 22,323 |
| Union | 15,619 | 3,779 | 2,832 | 270 | 927 | 574 | 9 | 1,155 | 5,238 | 915 | 1,257 |
| Totals | 480,764 | 114,958 | 74,475 | 8,227 | 28,810 | 16,073 | 284 | 31,703 | 160,553 | 50,393 | 80,348 |

EMBARGOED

SOUTH DAKOTA

American Lung Association in South Dakota

www.Lung.org/southdakota

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|------------|--------|-----|--------|-----------|-------|
| Brookings | 2 | 0 | 0 | 0.7 | B |
| Brown | DNC | DNC | DNC | DNC | DNC |
| Codington | DNC | DNC | DNC | DNC | DNC |
| Custer | 0 | 0 | 0 | 0.0 | A |
| Hughes | DNC | DNC | DNC | DNC | DNC |
| Jackson | 0 | 0 | 0 | 0.0 | A |
| Meade | 0 | 0 | 0 | 0.0 | A |
| Minnehaha | 4 | 0 | 0 | 1.3 | C |
| Pennington | DNC | DNC | DNC | DNC | DNC |
| Union | 2 | 0 | 0 | 0.7 | B |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 0 | 0 | 0 | 0 | 0.0 | A | 4.6 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 6.0 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 6.8 | PASS |
| 2 | 1 | 0 | 0 | 1.2 | C | 3.6 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 4.0 | PASS |
| 3 | 0 | 0 | 0 | 1.0 | C | 3.7 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 5.9 | PASS |
| 6 | 1 | 0 | 0 | 2.5 | D | 6.8 | PASS |
| 2 | 0 | 0 | 0 | 0.7 | B | 6.2 | PASS |

EMBARGOED

TENNESSEE

American Lung Association in Tennessee

www.Lung.org/tennessee

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|----------------|----------------|------------------|----------------|----------------|--------------|----------------|------------------|----------------|------------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Anderson | 76,482 | 16,078 | 15,356 | 1,566 | 6,003 | 6,909 | 55 | 8,161 | 27,938 | 12,433 | 8,366 |
| Blount | 131,349 | 26,559 | 26,575 | 2,587 | 10,429 | 12,028 | 95 | 14,202 | 48,512 | 12,816 | 12,028 |
| Claiborne | 31,756 | 6,060 | 6,334 | 590 | 2,544 | 2,896 | 23 | 3,399 | 11,836 | 7,129 | 1,496 |
| Davidson | 692,587 | 144,027 | 84,795 | 14,027 | 52,537 | 52,557 | 501 | 56,480 | 242,197 | 102,623 | 303,675 |
| DeKalb | 20,138 | 4,351 | 3,699 | 424 | 1,571 | 1,789 | 15 | 2,082 | 7,280 | 3,435 | 2,531 |
| Dyer | 37,320 | 8,927 | 6,566 | 869 | 2,806 | 3,149 | 27 | 3,653 | 13,019 | 6,735 | 7,549 |
| Hamilton | 364,286 | 75,645 | 64,030 | 7,367 | 28,313 | 31,175 | 264 | 35,859 | 131,428 | 46,021 | 105,494 |
| Jefferson | 54,012 | 10,618 | 10,818 | 1,034 | 4,328 | 4,995 | 39 | 5,881 | 20,102 | 7,241 | 4,307 |
| Knox | 465,289 | 97,591 | 73,661 | 9,505 | 35,804 | 38,307 | 337 | 43,213 | 165,829 | 59,817 | 82,453 |
| Lawrence | 43,734 | 10,932 | 7,794 | 1,065 | 3,248 | 3,676 | 32 | 4,287 | 15,084 | 7,643 | 2,822 |
| Loudon | 53,054 | 10,295 | 14,026 | 1,003 | 4,279 | 5,223 | 39 | 6,482 | 20,171 | 4,754 | 6,681 |
| McMinn | 53,285 | 11,306 | 10,458 | 1,101 | 4,177 | 4,802 | 39 | 5,651 | 19,413 | 8,307 | 5,825 |
| Madison | 97,605 | 21,872 | 16,615 | 2,130 | 7,444 | 8,212 | 70 | 9,430 | 34,515 | 16,631 | 43,222 |
| Maury | 94,340 | 22,094 | 15,014 | 2,152 | 7,114 | 7,808 | 68 | 8,886 | 32,888 | 10,032 | 19,819 |
| Montgomery | 205,950 | 54,985 | 19,005 | 5,355 | 14,325 | 13,727 | 150 | 14,232 | 65,815 | 24,251 | 76,668 |
| Putnam | 78,843 | 16,455 | 13,134 | 1,603 | 6,043 | 6,452 | 57 | 7,334 | 28,094 | 10,996 | 9,378 |
| Roane | 53,140 | 9,981 | 12,108 | 972 | 4,337 | 5,169 | 39 | 6,222 | 20,223 | 7,779 | 3,928 |
| Sevier | 97,892 | 20,173 | 19,341 | 1,965 | 7,742 | 8,916 | 71 | 10,492 | 35,969 | 13,466 | 10,050 |
| Shelby | 935,764 | 232,721 | 127,099 | 22,665 | 68,612 | 72,650 | 675 | 80,599 | 316,259 | 198,554 | 602,781 |
| Sullivan | 157,668 | 30,362 | 34,529 | 2,957 | 12,684 | 14,830 | 114 | 17,731 | 59,195 | 25,549 | 10,570 |
| Sumner | 187,149 | 43,922 | 29,664 | 4,278 | 14,164 | 15,653 | 136 | 17,819 | 65,383 | 16,426 | 30,336 |
| Williamson | 231,729 | 63,088 | 30,480 | 6,144 | 16,798 | 18,454 | 168 | 20,589 | 76,951 | 8,794 | 36,349 |
| Wilson | 140,625 | 33,332 | 22,065 | 3,246 | 10,622 | 11,749 | 102 | 13,362 | 49,002 | 10,888 | 21,561 |
| Totals | 4,303,997 | 971,374 | 663,166 | 94,604 | 325,922 | 351,123 | 3,116 | 396,045 | 1,507,103 | 622,320 | 1,407,889 |

TENNESSEE

American Lung Association in Tennessee

www.Lung.org/tennessee

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|------------|--------|-----|--------|-----------|-------|
| Anderson | 0 | 0 | 0 | 0.0 | A |
| Blount | 5 | 0 | 0 | 1.7 | C |
| Claiborne | 1 | 0 | 0 | 0.3 | B |
| Davidson | 8 | 1 | 0 | 3.2 | D |
| DeKalb | 0 | 0 | 0 | 0.0 | A |
| Dyer | DNC | DNC | DNC | DNC | DNC |
| Hamilton | 5 | 0 | 0 | 1.7 | C |
| Jefferson | 3 | 0 | 0 | 1.0 | C |
| Knox | 3 | 0 | 0 | 1.0 | C |
| Lawrence | DNC | DNC | DNC | DNC | DNC |
| Loudon | 8 | 0 | 0 | 2.7 | D |
| McMinn | DNC | DNC | DNC | DNC | DNC |
| Madison | DNC | DNC | DNC | DNC | DNC |
| Maury | DNC | DNC | DNC | DNC | DNC |
| Montgomery | DNC | DNC | DNC | DNC | DNC |
| Putnam | DNC | DNC | DNC | DNC | DNC |
| Roane | DNC | DNC | DNC | DNC | DNC |
| Sevier | 6 | 0 | 0 | 2.0 | C |
| Shelby | 17 | 1 | 0 | 6.2 | F |
| Sullivan | 3 | 0 | 0 | 1.0 | C |
| Sumner | 2 | 0 | 0 | 0.7 | B |
| Williamson | 2 | 0 | 0 | 0.7 | B |
| Wilson | 2 | 0 | 0 | 0.7 | B |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 1 | 2 | 0 | 0 | 1.3 | C | 7.8 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 2 | 0 | 0 | 0 | 0.7 | B | 8.4 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.9 | PASS |
| 0 | 1 | 0 | 0 | 0.5 | B | 8.3 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 2 | 3 | 0 | 0 | 2.2 | D | 9.3 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.6 | PASS |
| 0 | 2 | 0 | 0 | 1.0 | C | 7.4 | PASS |
| 0 | 1 | 0 | 0 | 0.5 | B | 8.1 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.7 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.9 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.9 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.2 | PASS |
| 0 | 1 | 0 | 0 | 0.5 | B | 7.6 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.4 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.3 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.4 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |

TEXAS

American Lung Association in Texas

www.Lung.org/texas

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|-------------------|------------------|------------------|------------------|------------------|----------------|---------------|------------------|------------------|------------------|-------------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Bell | 355,642 | 98,517 | 38,585 | 7,796 | 19,075 | 14,784 | 176 | 21,459 | 90,216 | 44,865 | 196,139 |
| Bexar | 1,986,049 | 507,669 | 240,621 | 40,173 | 110,192 | 88,909 | 983 | 129,620 | 525,960 | 334,215 | 1,442,742 |
| Bowie | 94,324 | 22,392 | 15,605 | 1,772 | 5,410 | 4,910 | 47 | 7,256 | 26,496 | 16,794 | 34,759 |
| Brazoria | 370,200 | 97,945 | 43,678 | 7,751 | 20,416 | 16,784 | 184 | 24,485 | 98,047 | 36,342 | 199,319 |
| Brewster | 9,267 | 1,744 | 2,144 | 138 | 568 | 574 | 5 | 859 | 2,847 | 1,475 | 4,601 |
| Cameron | 423,908 | 128,553 | 57,415 | 10,173 | 22,072 | 18,937 | 209 | 27,830 | 106,653 | 117,193 | 386,787 |
| Collin | 1,005,146 | 260,476 | 110,655 | 20,612 | 55,957 | 45,454 | 497 | 66,141 | 268,418 | 64,180 | 442,771 |
| Dallas | 2,637,772 | 689,692 | 283,154 | 54,576 | 145,314 | 114,140 | 1,305 | 165,674 | 690,633 | 368,310 | 1,882,256 |
| Denton | 859,064 | 211,996 | 87,414 | 16,776 | 48,448 | 37,934 | 425 | 54,957 | 230,539 | 62,151 | 357,924 |
| Ector | 162,124 | 48,856 | 15,760 | 3,866 | 8,401 | 6,381 | 81 | 9,232 | 39,595 | 20,485 | 110,649 |
| Ellis | 179,436 | 47,950 | 22,981 | 3,794 | 9,893 | 8,426 | 89 | 12,341 | 47,889 | 15,609 | 71,985 |
| El Paso | 840,758 | 228,000 | 103,092 | 18,042 | 45,680 | 37,224 | 416 | 54,345 | 218,435 | 169,120 | 742,873 |
| Galveston | 337,890 | 81,893 | 48,605 | 6,480 | 19,293 | 16,919 | 167 | 24,872 | 93,965 | 40,109 | 145,198 |
| Gregg | 123,707 | 31,951 | 19,016 | 2,528 | 6,889 | 6,126 | 61 | 9,034 | 33,583 | 18,108 | 53,082 |
| Harris | 4,698,619 | 1,251,684 | 494,264 | 99,047 | 257,086 | 201,143 | 2,328 | 291,795 | 1,220,954 | 767,367 | 3,331,840 |
| Harrison | 66,726 | 16,865 | 11,277 | 1,335 | 3,765 | 3,506 | 33 | 5,194 | 18,563 | 9,584 | 24,559 |
| Hidalgo | 865,939 | 281,965 | 96,025 | 22,312 | 43,404 | 34,745 | 428 | 50,647 | 206,610 | 256,985 | 813,576 |
| Hood | 60,537 | 12,905 | 14,870 | 1,021 | 3,624 | 3,874 | 30 | 5,825 | 18,450 | 6,108 | 9,997 |
| Hunt | 96,493 | 23,183 | 15,282 | 1,835 | 5,529 | 5,001 | 48 | 7,381 | 27,097 | 12,715 | 28,005 |
| Jefferson | 255,001 | 61,181 | 36,809 | 4,841 | 14,538 | 12,545 | 127 | 18,429 | 70,443 | 44,682 | 153,437 |
| Johnson | 171,361 | 44,541 | 24,219 | 3,525 | 9,548 | 8,358 | 85 | 12,288 | 46,465 | 17,965 | 49,428 |
| Kaufman | 128,622 | 35,656 | 15,367 | 2,822 | 6,979 | 5,805 | 64 | 8,480 | 33,601 | 14,539 | 48,638 |
| Kleberg | 31,129 | 7,540 | 4,029 | 597 | 1,739 | 1,363 | 16 | 1,986 | 8,213 | 7,369 | 24,948 |
| Lubbock | 307,412 | 73,288 | 38,200 | 5,799 | 17,342 | 13,670 | 152 | 19,906 | 82,197 | 52,037 | 144,425 |
| McLennan | 254,607 | 62,861 | 36,615 | 4,974 | 14,300 | 12,114 | 126 | 17,783 | 68,872 | 46,457 | 112,971 |
| Maverick | 58,485 | 18,246 | 6,916 | 1,444 | 2,996 | 2,445 | 29 | 3,571 | 14,321 | 14,859 | 56,911 |
| Montgomery | 590,925 | 155,734 | 77,263 | 12,323 | 32,775 | 28,127 | 293 | 41,232 | 158,939 | 54,400 | 206,109 |
| Navarro | 49,565 | 13,139 | 8,429 | 1,040 | 2,751 | 2,582 | 25 | 3,829 | 13,586 | 9,739 | 22,112 |
| Nueces | 362,265 | 88,977 | 52,215 | 7,041 | 20,476 | 17,631 | 179 | 25,902 | 99,120 | 57,694 | 257,166 |
| Orange | 83,572 | 20,764 | 13,466 | 1,643 | 4,739 | 4,328 | 41 | 6,396 | 23,270 | 11,101 | 16,403 |
| Parker | 138,371 | 34,364 | 21,302 | 2,719 | 7,876 | 7,176 | 69 | 10,589 | 38,720 | 11,289 | 23,629 |
| Polk | 50,031 | 10,088 | 9,422 | 798 | 3,035 | 2,924 | 25 | 4,342 | 15,111 | 6,834 | 14,622 |
| Potter | 119,648 | 32,848 | 14,922 | 2,599 | 6,489 | 5,377 | 60 | 7,862 | 31,166 | 22,262 | 67,678 |
| Randall | 136,271 | 32,501 | 20,536 | 2,572 | 7,765 | 6,729 | 67 | 9,898 | 37,611 | 11,343 | 39,839 |
| Rockwall | 100,657 | 27,150 | 12,594 | 2,148 | 5,543 | 4,733 | 50 | 6,930 | 26,873 | 5,125 | 29,939 |
| Smith | 230,221 | 56,582 | 38,010 | 4,477 | 13,044 | 11,827 | 114 | 17,486 | 63,841 | 33,744 | 93,682 |
| Tarrant | 2,084,931 | 549,063 | 235,187 | 43,448 | 114,981 | 92,803 | 1,030 | 135,089 | 549,979 | 248,032 | 1,127,499 |
| Travis | 1,248,743 | 270,726 | 123,395 | 21,423 | 72,560 | 53,877 | 621 | 77,667 | 340,744 | 146,724 | 638,924 |
| Victoria | 92,035 | 23,330 | 14,822 | 1,846 | 5,156 | 4,636 | 45 | 6,849 | 25,181 | 13,855 | 51,251 |
| Webb | 275,910 | 90,830 | 26,087 | 7,187 | 13,761 | 10,588 | 136 | 15,337 | 65,071 | 69,860 | 266,071 |
| Totals | 21,943,363 | 5,753,645 | 2,550,248 | 455,293 | 1,209,410 | 975,407 | 10,864 | 1,420,798 | 5,778,268 | 3,261,625 | 13,724,744 |

TEXAS

American Lung Association in Texas

www.Lung.org/texas

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|------------|--------|-----|--------|-----------|-------|
| Bell | 10 | 0 | 0 | 3.3 | F |
| Bexar | 19 | 1 | 0 | 6.8 | F |
| Bowie | DNC | DNC | DNC | DNC | DNC |
| Brazoria | 13 | 2 | 0 | 5.3 | F |
| Brewster | 0 | 0 | 0 | 0.0 | A |
| Cameron | 0 | 0 | 0 | 0.0 | A |
| Collin | 27 | 0 | 0 | 9.0 | F |
| Dallas | 23 | 1 | 0 | 8.2 | F |
| Denton | 33 | 1 | 0 | 11.5 | F |
| Ector | DNC | DNC | DNC | DNC | DNC |
| Ellis | 8 | 0 | 0 | 2.7 | D |
| El Paso | 28 | 2 | 0 | 10.3 | F |
| Galveston | 20 | 0 | 1 | 7.3 | F |
| Gregg | 0 | 0 | 0 | 0.0 | A |
| Harris | 50 | 10 | 1 | 22.3 | F |
| Harrison | 0 | 0 | 0 | 0.0 | A |
| Hidalgo | 0 | 0 | 0 | 0.0 | A |
| Hood | 9 | 0 | 0 | 3.0 | D |
| Hunt | 3 | 1 | 0 | 1.5 | C |
| Jefferson | 12 | 1 | 0 | 4.5 | F |
| Johnson | 19 | 1 | 0 | 6.8 | F |
| Kaufman | 2 | 0 | 0 | 0.7 | B |
| Kleberg | DNC | DNC | DNC | DNC | DNC |
| Lubbock | DNC | DNC | DNC | DNC | DNC |
| McLennan | 1 | 0 | 0 | 0.3 | B |
| Maverick | DNC | DNC | DNC | DNC | DNC |
| Montgomery | 21 | 1 | 0 | 7.5 | F |
| Navarro | 3 | 0 | 0 | 1.0 | C |
| Nueces | 0 | 0 | 0 | 0.0 | A |
| Orange | 7 | 0 | 0 | 2.3 | D |
| Parker | 6 | 2 | 0 | 3.0 | D |
| Polk | 0 | 0 | 0 | 0.0 | A |
| Potter | DNC | DNC | DNC | DNC | DNC |
| Randall | 11 | 0 | 0 | 3.7 | F |
| Rockwall | 6 | 0 | 0 | 2.0 | C |
| Smith | 3 | 0 | 0 | 1.0 | C |
| Tarrant | 34 | 4 | 0 | 13.3 | F |
| Travis | 10 | 0 | 0 | 3.3 | F |
| Victoria | 2 | 0 | 0 | 0.7 | B |
| Webb | 0 | 0 | 0 | 0.0 | A |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 1 | 0 | 0 | 0 | 0.3 | B | 8.1 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| INC | INC | INC | INC | INC | INC | INC | INC |
| 1 | 0 | 0 | 0 | 0.3 | B | 9.9 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 3 | 2 | 0 | 0 | 2.0 | C | 8.9 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| INC | INC | INC | INC | INC | INC | INC | INC |
| 1 | 0 | 0 | 0 | 0.3 | B | 8.4 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 9.1 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 6.6 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 3 | 0 | 0 | 0 | 1.0 | C | 10.2 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 8.5 | PASS |
| 4 | 0 | 0 | 0 | 1.3 | C | 10.7 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| INC | INC | INC | INC | INC | INC | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| INC | INC | INC | INC | INC | INC | INC | INC |
| INC | INC | INC | INC | INC | INC | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 9.1 | PASS |
| INC | INC | INC | INC | INC | INC | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| INC | INC | INC | INC | INC | INC | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.6 | PASS |
| 4 | 0 | 0 | 0 | 1.3 | C | 9.8 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| INC | INC | INC | INC | INC | INC | INC | INC |

UTAH

American Lung Association in Utah

www.Lung.org/utah

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|----------------|----------------|------------------|----------------|---------------|-------------|----------------|----------------|----------------|-----------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Box Elder | 54,950 | 17,430 | 7,109 | 957 | 3,530 | 1,692 | 14 | 2,478 | 9,591 | 3,986 | 7,168 |
| Cache | 127,068 | 38,511 | 12,009 | 2,113 | 8,181 | 3,394 | 32 | 4,570 | 21,648 | 15,830 | 21,173 |
| Carbon | 20,269 | 5,227 | 3,530 | 287 | 1,424 | 731 | 5 | 1,119 | 3,912 | 2,853 | 3,437 |
| Davis | 351,713 | 112,970 | 35,317 | 6,200 | 22,328 | 9,983 | 90 | 13,898 | 60,011 | 19,798 | 58,000 |
| Duchesne | 19,964 | 6,720 | 2,408 | 369 | 1,244 | 587 | 5 | 852 | 3,370 | 2,335 | 3,002 |
| Garfield | 5,080 | 1,183 | 1,175 | 65 | 372 | 208 | 1 | 335 | 1,036 | 551 | 604 |
| Iron | 52,775 | 15,317 | 6,700 | 841 | 3,498 | 1,606 | 13 | 2,310 | 9,418 | 7,444 | 7,456 |
| Salt Lake | 1,152,633 | 312,889 | 125,157 | 17,171 | 78,549 | 35,187 | 294 | 49,059 | 211,172 | 102,660 | 338,240 |
| San Juan | 15,449 | 4,719 | 2,187 | 259 | 1,014 | 502 | 4 | 747 | 2,772 | 3,419 | 8,706 |
| Tooele | 69,907 | 22,807 | 6,403 | 1,252 | 4,409 | 1,955 | 18 | 2,687 | 11,849 | 4,744 | 11,984 |
| Uintah | 35,438 | 11,754 | 3,855 | 645 | 2,219 | 1,016 | 9 | 1,442 | 5,985 | 4,031 | 6,636 |
| Utah | 622,213 | 207,710 | 48,050 | 11,399 | 38,230 | 15,362 | 159 | 20,064 | 100,766 | 57,136 | 111,686 |
| Washington | 171,700 | 44,808 | 36,844 | 2,459 | 12,001 | 6,463 | 44 | 10,322 | 33,138 | 16,435 | 27,119 |
| Weber | 256,359 | 72,484 | 29,897 | 3,978 | 17,237 | 7,912 | 65 | 11,229 | 46,518 | 23,839 | 62,335 |
| Totals | 2,955,518 | 874,529 | 320,641 | 47,993 | 194,234 | 86,599 | 753 | 121,112 | 521,185 | 265,061 | 667,546 |

UTAH

American Lung Association in Utah

www.Lung.org/utah

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|------------|--------|-----|--------|-----------|-------|
| Box Elder | 7 | 1 | 0 | 2.8 | D |
| Cache | 2 | 0 | 0 | 0.7 | B |
| Carbon | 5 | 0 | 0 | 1.7 | C |
| Davis | 39 | 1 | 0 | 13.5 | F |
| Duchesne | 19 | 6 | 0 | 9.3 | F |
| Garfield | INC | INC | INC | INC | INC |
| Iron | INC | INC | INC | INC | INC |
| Salt Lake | 74 | 2 | 0 | 25.7 | F |
| San Juan | 0 | 0 | 0 | 0.0 | A |
| Tooele | 27 | 1 | 0 | 9.5 | F |
| Uintah | 11 | 11 | 4 | 11.8 | F |
| Utah | 35 | 2 | 0 | 12.7 | F |
| Washington | 2 | 0 | 0 | 0.7 | B |
| Weber | 40 | 1 | 0 | 13.8 | F |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 16 | 1 | 0 | 0 | 5.8 | F | 7.7 | PASS |
| 26 | 4 | 0 | 0 | 10.7 | F | 7.6 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 15 | 0 | 0 | 0 | 5.0 | F | 8.3 | PASS |
| 4 | 0 | 0 | 0 | 1.3 | C | 6.3 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| INC | INC | INC | INC | INC | INC | INC | INC |
| 27 | 5 | 0 | 0 | 11.5 | F | 8.8 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 7 | 0 | 0 | 0 | 2.3 | D | 7.0 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| 22 | 10 | 0 | 0 | 12.3 | F | 8.3 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 5.2 | PASS |
| 18 | 3 | 0 | 0 | 7.5 | F | 8.3 | PASS |

EMBARGOED

VERMONT

American Lung Association in Vermont

www.Lung.org/vermont

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|---------------|---------------|------------------|---------------|---------------|-------------|---------------|---------------|---------------|-----------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Bennington | 35,631 | 6,756 | 8,162 | 594 | 3,459 | 1,970 | 22 | 2,515 | 13,048 | 3,905 | 2,237 |
| Chittenden | 164,572 | 29,165 | 24,673 | 2,565 | 16,693 | 7,144 | 100 | 8,950 | 58,135 | 16,039 | 19,535 |
| Rutland | 58,672 | 10,438 | 12,955 | 918 | 5,799 | 3,220 | 36 | 4,097 | 21,696 | 5,842 | 2,844 |
| Totals | 258,875 | 46,359 | 45,790 | 4,078 | 25,951 | 12,335 | 157 | 15,562 | 92,878 | 25,786 | 24,616 |

EMBARGOED

VERMONT

American Lung Association in Vermont

www.Lung.org/vermont

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|------------|--------|-----|--------|-----------|-------|
| Bennington | 3 | 0 | 0 | 1.0 | C |
| Chittenden | 0 | 0 | 0 | 0.0 | A |
| Rutland | 0 | 0 | 0 | 0.0 | A |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 0 | 0 | 0 | 0 | 0.0 | A | 5.4 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 5.7 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.9 | PASS |

EMBARGOED

VIRGINIA

American Lung Association in Virginia

www.Lung.org/virginia

AT-RISK GROUPS

| County | Total Population | | | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------------|------------------|------------------|----------------|------------------|----------------|----------------|--------------|----------------|------------------|----------------|------------------|
| | Total Population | Under 18 | 65 & Over | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Albemarle | 108,718 | 21,528 | 20,248 | 1,541 | 7,402 | 5,761 | 62 | 7,598 | 33,294 | 8,912 | 25,438 |
| Arlington | 237,521 | 42,959 | 25,209 | 3,075 | 16,811 | 10,477 | 137 | 12,482 | 70,137 | 14,842 | 92,122 |
| Caroline | 30,772 | 7,079 | 5,050 | 507 | 2,023 | 1,573 | 18 | 2,046 | 9,070 | 2,930 | 11,221 |
| Charles City | 6,941 | 1,052 | 1,708 | 75 | 497 | 450 | 4 | 617 | 2,358 | 851 | 3,976 |
| Chesterfield | 348,556 | 82,795 | 52,028 | 5,926 | 22,775 | 17,231 | 200 | 22,099 | 101,027 | 26,093 | 135,536 |
| Fairfax | 1,150,795 | 269,162 | 154,840 | 19,264 | 75,830 | 55,228 | 663 | 69,580 | 331,792 | 69,377 | 572,332 |
| Fauquier | 70,675 | 16,513 | 11,620 | 1,182 | 4,632 | 3,700 | 41 | 4,821 | 20,927 | 4,260 | 14,578 |
| Frederick | 88,355 | 20,386 | 15,264 | 1,459 | 5,793 | 4,610 | 51 | 6,050 | 26,189 | 6,107 | 15,357 |
| Giles | 16,844 | 3,486 | 3,681 | 249 | 1,127 | 971 | 10 | 1,320 | 5,258 | 2,064 | 916 |
| Hanover | 107,239 | 23,572 | 19,032 | 1,687 | 7,135 | 5,786 | 62 | 7,612 | 32,443 | 5,509 | 17,456 |
| Henrico | 329,261 | 74,272 | 51,045 | 5,316 | 21,816 | 16,448 | 188 | 21,162 | 96,753 | 29,502 | 155,803 |
| Loudoun | 406,850 | 115,028 | 37,802 | 8,232 | 25,338 | 17,141 | 234 | 20,642 | 107,899 | 14,700 | 181,773 |
| Madison | 13,295 | 2,706 | 2,959 | 194 | 894 | 783 | 8 | 1,067 | 4,192 | 1,330 | 2,060 |
| Prince Edward | 22,950 | 3,767 | 3,779 | 270 | 1,635 | 1,148 | 13 | 1,467 | 7,110 | 3,782 | 8,956 |
| Prince William | 468,011 | 127,210 | 46,319 | 9,104 | 29,535 | 19,997 | 270 | 24,216 | 125,932 | 29,545 | 271,371 |
| Roanoke | 94,073 | 18,648 | 20,151 | 1,335 | 6,372 | 5,386 | 54 | 7,282 | 29,518 | 6,145 | 13,644 |
| Rockbridge | 22,752 | 3,985 | 5,909 | 285 | 1,571 | 1,431 | 13 | 1,991 | 7,502 | 2,670 | 1,850 |
| Rockingham | 81,244 | 17,785 | 15,472 | 1,273 | 5,384 | 4,367 | 47 | 5,811 | 24,549 | 6,909 | 9,513 |
| Stafford | 149,960 | 39,088 | 15,674 | 2,798 | 9,603 | 6,614 | 87 | 8,062 | 41,164 | 7,822 | 59,400 |
| Wythe | 28,754 | 5,672 | 6,213 | 406 | 1,951 | 1,677 | 17 | 2,270 | 9,087 | 4,391 | 1,841 |
| Bristol City | 16,482 | 3,323 | 3,476 | 238 | 1,111 | 927 | 9 | 1,250 | 5,126 | 3,324 | 2,002 |
| Hampton City | 134,313 | 28,086 | 20,745 | 2,010 | 9,084 | 6,645 | 77 | 8,504 | 39,923 | 19,954 | 83,471 |
| Lynchburg City | 82,126 | 15,946 | 11,823 | 1,141 | 5,651 | 3,731 | 47 | 4,677 | 24,116 | 14,789 | 30,887 |
| Norfolk City | 244,076 | 47,785 | 27,334 | 3,420 | 16,914 | 10,590 | 142 | 12,740 | 70,764 | 41,471 | 138,496 |
| Richmond City | 228,783 | 40,064 | 30,172 | 2,867 | 16,219 | 10,813 | 131 | 13,347 | 69,163 | 48,424 | 133,599 |
| Salem City | 25,643 | 5,115 | 4,836 | 366 | 1,743 | 1,382 | 15 | 1,828 | 7,886 | 2,280 | 3,845 |
| Suffolk City | 91,185 | 22,132 | 13,164 | 1,584 | 5,924 | 4,454 | 52 | 5,689 | 26,212 | 9,846 | 46,396 |
| Virginia Beach City | 450,189 | 99,573 | 64,004 | 7,126 | 30,059 | 21,541 | 259 | 27,256 | 131,107 | 33,084 | 174,180 |
| Totals | 5,056,363 | 1,158,717 | 689,557 | 82,929 | 334,827 | 240,861 | 2,908 | 303,486 | 1,460,496 | 420,913 | 2,208,019 |

VIRGINIA

American Lung Association in Virginia

www.Lung.org/virginia

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|---------------------|--------|-----|--------|-----------|-------|
| Albemarle | 1 | 0 | 0 | 0.3 | B |
| Arlington | 12 | 0 | 0 | 4.0 | F |
| Caroline | 1 | 0 | 0 | 0.3 | B |
| Charles City | 2 | 0 | 0 | 0.7 | B |
| Chesterfield | 1 | 0 | 0 | 0.3 | B |
| Fairfax | 7 | 0 | 0 | 2.3 | D |
| Fauquier | 0 | 0 | 0 | 0.0 | A |
| Frederick | 0 | 0 | 0 | 0.0 | A |
| Giles | 2 | 0 | 0 | 0.7 | B |
| Hanover | 2 | 0 | 0 | 0.7 | B |
| Henrico | 4 | 1 | 0 | 1.8 | C |
| Loudoun | 1 | 0 | 0 | 0.3 | B |
| Madison | 1 | 0 | 0 | 0.3 | B |
| Prince Edward | 1 | 0 | 0 | 0.3 | B |
| Prince William | 3 | 0 | 0 | 1.0 | C |
| Roanoke | 0 | 0 | 0 | 0.0 | A |
| Rockbridge | 0 | 0 | 0 | 0.0 | A |
| Rockingham | 1 | 0 | 0 | 0.3 | B |
| Stafford | 2 | 0 | 0 | 0.7 | B |
| Wythe | 0 | 0 | 0 | 0.0 | A |
| Bristol City | DNC | DNC | DNC | DNC | DNC |
| Hampton City | 2 | 0 | 0 | 0.7 | B |
| Lynchburg City | DNC | DNC | DNC | DNC | DNC |
| Norfolk City | DNC | DNC | DNC | DNC | DNC |
| Richmond City | DNC | DNC | DNC | DNC | DNC |
| Salem City | DNC | DNC | DNC | DNC | DNC |
| Suffolk City | 2 | 0 | 0 | 0.7 | B |
| Virginia Beach City | DNC | DNC | DNC | DNC | DNC |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.5 | PASS |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.5 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.6 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| 1 | 0 | 0 | 0 | 0.3 | B | 6.8 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.4 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.1 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.1 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.7 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.0 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 1 | 0 | 0 | 0 | 0.3 | B | 7.3 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.2 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.5 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.7 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.2 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.7 | PASS |

WASHINGTON

American Lung Association in Washington

www.Lung.org/washington

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|------------------|----------------|------------------|----------------|----------------|--------------|----------------|------------------|----------------|------------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Benton | 201,877 | 54,000 | 30,097 | 3,947 | 14,191 | 7,540 | 109 | 11,647 | 56,098 | 19,597 | 61,006 |
| Chelan | 77,036 | 18,022 | 14,696 | 1,317 | 5,705 | 3,281 | 41 | 5,208 | 22,956 | 8,283 | 25,025 |
| Clallam | 76,737 | 13,055 | 22,720 | 954 | 6,220 | 4,140 | 41 | 6,931 | 25,971 | 9,968 | 13,411 |
| Clark | 481,857 | 115,356 | 74,530 | 8,432 | 35,315 | 19,006 | 259 | 29,262 | 139,895 | 41,980 | 106,021 |
| King | 2,233,163 | 452,859 | 295,110 | 33,103 | 169,665 | 83,663 | 1,202 | 125,808 | 660,298 | 202,628 | 918,713 |
| Kitsap | 269,805 | 55,252 | 48,094 | 4,039 | 20,627 | 11,319 | 145 | 17,733 | 82,143 | 23,613 | 64,009 |
| Kittitas | 47,364 | 8,096 | 7,592 | 592 | 3,720 | 1,867 | 25 | 2,890 | 14,557 | 7,049 | 7,694 |
| Okanogan | 42,132 | 9,769 | 9,094 | 714 | 3,150 | 1,916 | 23 | 3,087 | 12,841 | 7,049 | 14,878 |
| Pierce | 891,299 | 209,270 | 123,135 | 15,297 | 65,285 | 33,364 | 479 | 50,668 | 255,881 | 76,391 | 300,347 |
| Skagit | 128,206 | 27,977 | 26,591 | 2,045 | 9,695 | 5,695 | 69 | 9,131 | 39,219 | 12,239 | 33,368 |
| Snohomish | 814,901 | 184,547 | 109,768 | 13,490 | 60,643 | 31,252 | 439 | 47,028 | 237,856 | 60,590 | 253,858 |
| Spokane | 514,631 | 114,051 | 83,279 | 8,337 | 38,439 | 20,536 | 277 | 31,830 | 152,153 | 65,365 | 80,882 |
| Stevens | 45,260 | 9,761 | 10,542 | 714 | 3,486 | 2,207 | 24 | 3,565 | 14,335 | 6,045 | 6,148 |
| Thurston | 286,419 | 61,378 | 49,514 | 4,487 | 21,625 | 11,787 | 154 | 18,417 | 85,986 | 24,459 | 72,841 |
| Whatcom | 225,685 | 43,910 | 39,158 | 3,210 | 17,350 | 9,201 | 121 | 14,405 | 68,644 | 32,753 | 48,048 |
| Yakima | 251,446 | 74,480 | 34,524 | 5,444 | 16,911 | 8,764 | 135 | 13,490 | 66,527 | 40,961 | 144,155 |
| Totals | 6,587,818 | 1,451,783 | 978,444 | 106,123 | 492,026 | 255,539 | 3,544 | 391,100 | 1,935,360 | 638,970 | 2,150,404 |

WASHINGTON

American Lung Association in Washington

www.Lung.org/washington

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|-----------|--------|-----|--------|-----------|-------|
| Benton | 16 | 0 | 0 | 5.3 | F |
| Chelan | DNC | DNC | DNC | DNC | DNC |
| Clallam | 0 | 0 | 0 | 0.0 | A |
| Clark | 4 | 0 | 0 | 1.3 | C |
| King | 12 | 6 | 0 | 7.0 | F |
| Kitsap | DNC | DNC | DNC | DNC | DNC |
| Kittitas | DNC | DNC | DNC | DNC | DNC |
| Okanogan | DNC | DNC | DNC | DNC | DNC |
| Pierce | 4 | 0 | 0 | 1.3 | C |
| Skagit | 0 | 0 | 0 | 0.0 | A |
| Snohomish | DNC | DNC | DNC | DNC | DNC |
| Spokane | 5 | 0 | 0 | 1.7 | C |
| Stevens | DNC | DNC | DNC | DNC | DNC |
| Thurston | 2 | 1 | 0 | 1.2 | C |
| Whatcom | 2 | 0 | 0 | 0.7 | B |
| Yakima | DNC | DNC | DNC | DNC | DNC |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| INC | INC | INC | INC | INC | INC | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 9 | 3 | 0 | 0 | 4.5 | F | 7.5 | PASS |
| 11 | 7 | 0 | 0 | 7.2 | F | 8.4 | PASS |
| 6 | 3 | 0 | 0 | 3.5 | F | 4.6 | PASS |
| 17 | 6 | 2 | 0 | 10.0 | F | 8.1 | PASS |
| 7 | 22 | 1 | 1 | 14.8 | F | INC | INC |
| 9 | 9 | 0 | 0 | 7.5 | F | 7.7 | PASS |
| 3 | 3 | 0 | 0 | 2.5 | D | 5.8 | PASS |
| 21 | 7 | 0 | 0 | 10.5 | F | 7.4 | PASS |
| 13 | 7 | 4 | 0 | 10.5 | F | 9.6 | PASS |
| INC | INC | INC | INC | INC | INC | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 6 | 3 | 0 | 0 | 3.5 | F | 5.1 | PASS |
| 25 | 15 | 3 | 0 | 17.8 | F | 9.8 | PASS |

WEST VIRGINIA

American Lung Association in West Virginia

www.Lung.org/westvirginia

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|----------------|----------------|------------------|---------------|----------------|-------------|----------------|----------------|----------------|-----------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Berkeley | 117,123 | 27,230 | 17,175 | 2,564 | 11,106 | 13,146 | 90 | 12,598 | 44,556 | 13,275 | 18,798 |
| Brooke | 22,203 | 3,930 | 5,290 | 370 | 2,254 | 2,944 | 17 | 3,065 | 9,087 | 2,930 | 960 |
| Cabell | 93,224 | 18,395 | 17,542 | 1,732 | 9,088 | 10,935 | 71 | 10,978 | 36,949 | 17,242 | 9,240 |
| Gilmer | 8,026 | 1,150 | 1,405 | 108 | 832 | 963 | 6 | 942 | 3,388 | 1,521 | 1,521 |
| Greenbrier | 34,786 | 6,747 | 8,099 | 635 | 3,462 | 4,526 | 27 | 4,707 | 13,947 | 5,389 | 2,629 |
| Hancock | 29,094 | 5,507 | 6,722 | 518 | 2,928 | 3,844 | 22 | 3,977 | 11,751 | 3,788 | 1,887 |
| Harrison | 67,554 | 14,434 | 13,140 | 1,359 | 6,564 | 8,245 | 52 | 8,303 | 26,388 | 11,089 | 3,999 |
| Kanawha | 180,454 | 36,012 | 37,272 | 3,390 | 17,804 | 22,511 | 138 | 22,891 | 71,723 | 30,248 | 22,283 |
| Marion | 56,097 | 11,260 | 10,963 | 1,060 | 5,486 | 6,757 | 43 | 6,819 | 22,200 | 9,084 | 3,920 |
| Marshall | 30,785 | 5,950 | 6,886 | 560 | 3,077 | 3,999 | 24 | 4,117 | 12,362 | 4,200 | 1,036 |
| Monongalia | 106,420 | 17,326 | 13,448 | 1,631 | 10,630 | 11,212 | 82 | 10,415 | 43,605 | 18,156 | 12,690 |
| Ohio | 41,755 | 7,937 | 9,105 | 747 | 4,149 | 5,265 | 32 | 5,413 | 16,774 | 4,953 | 3,266 |
| Tucker | 6,955 | 1,077 | 1,821 | 101 | 729 | 978 | 5 | 1,030 | 2,930 | 907 | 192 |
| Wood | 84,203 | 17,621 | 17,209 | 1,659 | 8,236 | 10,477 | 64 | 10,640 | 33,099 | 12,449 | 4,141 |
| Totals | 878,679 | 174,576 | 166,077 | 16,436 | 86,344 | 105,803 | 672 | 105,894 | 348,757 | 135,231 | 86,562 |

WEST VIRGINIA

American Lung Association in West Virginia

www.Lung.org/westvirginia

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|------------|--------|-----|--------|-----------|-------|
| Berkeley | 1 | 0 | 0 | 0.3 | B |
| Brooke | DNC | DNC | DNC | DNC | DNC |
| Cabell | 3 | 0 | 0 | 1.0 | C |
| Gilmer | 1 | 0 | 0 | 0.3 | B |
| Greenbrier | 0 | 0 | 0 | 0.0 | A |
| Hancock | 1 | 0 | 0 | 0.3 | B |
| Harrison | DNC | DNC | DNC | DNC | DNC |
| Kanawha | 4 | 0 | 0 | 1.3 | C |
| Marion | DNC | DNC | DNC | DNC | DNC |
| Marshall | DNC | DNC | DNC | DNC | DNC |
| Monongalia | 0 | 0 | 0 | 0.0 | A |
| Ohio | 4 | 0 | 0 | 1.3 | C |
| Tucker | 1 | 0 | 0 | 0.3 | B |
| Wood | 1 | 0 | 0 | 0.3 | B |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.4 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.9 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.9 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.1 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.4 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.0 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | INC | INC |
| 0 | 0 | 0 | 0 | 0.0 | A | 9.1 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.2 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.9 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.9 | PASS |

EMBARGOED

WISCONSIN

American Lung Association in Wisconsin

www.Lung.org/wisconsin

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|----------------|----------------|------------------|----------------|----------------|--------------|----------------|------------------|----------------|-----------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Ashland | 15,600 | 3,409 | 3,055 | 288 | 1,106 | 688 | 9 | 1,008 | 5,289 | 2,356 | 2,770 |
| Brown | 263,378 | 62,704 | 39,133 | 5,291 | 18,474 | 10,344 | 155 | 14,360 | 85,354 | 21,944 | 50,989 |
| Columbia | 57,358 | 12,182 | 10,250 | 1,028 | 4,125 | 2,509 | 34 | 3,570 | 19,536 | 4,255 | 4,325 |
| Dane | 542,364 | 110,624 | 74,433 | 9,334 | 39,978 | 20,486 | 320 | 28,078 | 180,405 | 57,062 | 112,124 |
| Dodge | 87,847 | 17,436 | 15,497 | 1,471 | 6,440 | 3,857 | 52 | 5,459 | 30,355 | 7,283 | 9,064 |
| Door | 27,610 | 4,489 | 8,215 | 379 | 2,040 | 1,508 | 16 | 2,383 | 10,381 | 2,289 | 1,729 |
| Eau Claire | 104,534 | 21,327 | 16,374 | 1,800 | 7,656 | 4,078 | 62 | 5,768 | 34,984 | 12,906 | 10,793 |
| Fond du Lac | 103,066 | 22,030 | 19,083 | 1,859 | 7,382 | 4,488 | 61 | 6,473 | 35,010 | 9,513 | 11,054 |
| Forest | 8,991 | 1,751 | 2,064 | 148 | 651 | 435 | 5 | 652 | 3,186 | 1,294 | 1,912 |
| Grant | 51,554 | 10,762 | 8,895 | 908 | 3,733 | 2,096 | 31 | 3,020 | 17,323 | 6,595 | 2,645 |
| Jefferson | 85,129 | 17,958 | 14,436 | 1,515 | 6,152 | 3,632 | 50 | 5,123 | 28,874 | 6,701 | 8,972 |
| Kenosha | 169,290 | 38,674 | 23,925 | 3,263 | 12,062 | 6,735 | 100 | 9,173 | 55,586 | 19,819 | 41,338 |
| Kewaunee | 20,383 | 4,385 | 4,168 | 370 | 1,448 | 930 | 12 | 1,366 | 6,989 | 1,472 | 1,176 |
| La Crosse | 118,230 | 23,386 | 19,399 | 1,973 | 8,710 | 4,767 | 70 | 6,773 | 40,093 | 12,334 | 12,189 |
| Manitowoc | 79,074 | 16,260 | 16,193 | 1,372 | 5,689 | 3,654 | 47 | 5,346 | 27,450 | 8,124 | 7,699 |
| Marathon | 135,428 | 30,846 | 23,980 | 2,603 | 9,542 | 5,763 | 80 | 8,252 | 45,138 | 10,027 | 15,552 |
| Milwaukee | 948,201 | 227,422 | 129,003 | 19,190 | 66,630 | 35,206 | 558 | 48,385 | 303,032 | 177,263 | 464,911 |
| Outagamie | 187,365 | 44,129 | 27,589 | 3,724 | 13,195 | 7,426 | 111 | 10,252 | 61,012 | 13,196 | 23,793 |
| Ozaukee | 89,147 | 18,995 | 17,603 | 1,603 | 6,365 | 4,025 | 53 | 5,862 | 30,559 | 3,674 | 7,944 |
| Racine | 196,584 | 45,351 | 32,460 | 3,827 | 13,852 | 8,200 | 116 | 11,550 | 65,051 | 24,084 | 55,689 |
| Rock | 163,129 | 37,701 | 27,022 | 3,181 | 11,486 | 6,747 | 96 | 9,539 | 53,847 | 17,477 | 28,620 |
| Sauk | 64,249 | 14,644 | 11,900 | 1,236 | 4,514 | 2,766 | 38 | 4,005 | 21,463 | 5,416 | 5,915 |
| Sheboygan | 115,456 | 25,431 | 20,789 | 2,146 | 8,211 | 4,980 | 68 | 7,138 | 38,889 | 8,432 | 18,681 |
| Taylor | 20,412 | 4,776 | 3,905 | 403 | 1,419 | 905 | 12 | 1,312 | 6,826 | 2,072 | 929 |
| Vilas | 21,938 | 3,711 | 6,758 | 313 | 1,602 | 1,230 | 13 | 1,949 | 8,256 | 2,359 | 3,337 |
| Walworth | 103,718 | 21,406 | 18,334 | 1,806 | 7,523 | 4,444 | 61 | 6,344 | 35,358 | 10,114 | 15,220 |
| Waukesha | 403,072 | 86,695 | 75,190 | 7,315 | 28,805 | 17,877 | 238 | 25,691 | 137,354 | 19,937 | 47,618 |
| Totals | 4,183,107 | 928,484 | 669,653 | 78,344 | 298,787 | 169,775 | 2,467 | 238,831 | 1,387,600 | 467,998 | 966,988 |

WISCONSIN

American Lung Association in Wisconsin

www.Lung.org/wisconsin

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|-------------|--------|-----|--------|-----------|-------|
| Ashland | 0 | 0 | 0 | 0.0 | A |
| Brown | 4 | 0 | 0 | 1.3 | C |
| Columbia | 4 | 0 | 0 | 1.3 | C |
| Dane | 1 | 0 | 0 | 0.3 | B |
| Dodge | 5 | 0 | 0 | 1.7 | C |
| Door | 15 | 0 | 0 | 5.0 | F |
| Eau Claire | 1 | 0 | 0 | 0.3 | B |
| Fond du Lac | 4 | 0 | 0 | 1.3 | C |
| Forest | 0 | 0 | 0 | 0.0 | A |
| Grant | DNC | DNC | DNC | DNC | DNC |
| Jefferson | 6 | 0 | 0 | 2.0 | C |
| Kenosha | 34 | 5 | 0 | 13.8 | F |
| Kewaunee | 11 | 1 | 0 | 4.2 | F |
| La Crosse | 0 | 0 | 0 | 0.0 | A |
| Manitowoc | 16 | 2 | 0 | 6.3 | F |
| Marathon | 0 | 0 | 0 | 0.0 | A |
| Milwaukee | 15 | 2 | 0 | 6.0 | F |
| Outagamie | 3 | 0 | 0 | 1.0 | C |
| Ozaukee | 21 | 3 | 0 | 8.5 | F |
| Racine | 28 | 3 | 0 | 10.8 | F |
| Rock | 6 | 0 | 0 | 2.0 | C |
| Sauk | 2 | 0 | 0 | 0.7 | B |
| Sheboygan | 32 | 4 | 0 | 12.7 | F |
| Taylor | 0 | 0 | 0 | 0.0 | A |
| Vilas | 0 | 0 | 0 | 0.0 | A |
| Walworth | 7 | 0 | 0 | 2.3 | D |
| Waukesha | 3 | 0 | 0 | 1.0 | C |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 0 | 0 | 0 | 0 | 0.0 | A | 4.2 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.4 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 1 | 0 | 0 | 0 | 0.3 | B | 8.1 | PASS |
| 2 | 0 | 0 | 0 | 0.7 | B | 6.8 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.8 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 4.2 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.3 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 7.1 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.8 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.0 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.3 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.3 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 6.5 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 5.5 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 4.5 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 0 | 0 | 0 | 0 | 0.0 | A | 8.3 | PASS |

WYOMING

American Lung Association in Wyoming

www.Lung.org/wyoming

AT-RISK GROUPS

| County | Total Population | Under 18 | 65 & Over | Lung Diseases | | | | Heart Disease | Ever Smoked | Poverty | People of Color |
|---------------|------------------|----------------|---------------|------------------|---------------|---------------|-------------|---------------|----------------|---------------|-----------------|
| | | | | Pediatric Asthma | Adult Asthma | COPD | Lung Cancer | | | | |
| Albany | 38,601 | 6,287 | 4,530 | 540 | 2,795 | 1,629 | 17 | 2,041 | 14,217 | 7,451 | 6,920 |
| Big Horn | 11,881 | 3,003 | 2,495 | 258 | 773 | 650 | 5 | 843 | 4,060 | 1,519 | 1,463 |
| Campbell | 46,140 | 12,611 | 4,642 | 1,083 | 2,912 | 1,944 | 21 | 2,333 | 14,942 | 4,200 | 5,814 |
| Carbon | 14,971 | 3,419 | 2,563 | 294 | 1,005 | 766 | 7 | 969 | 5,222 | 1,894 | 3,412 |
| Converse | 13,640 | 3,354 | 2,267 | 288 | 895 | 699 | 6 | 876 | 4,662 | 1,287 | 1,571 |
| Fremont | 39,531 | 10,104 | 7,222 | 868 | 2,561 | 2,041 | 18 | 2,605 | 13,369 | 6,070 | 12,039 |
| Goshen | 13,376 | 2,685 | 2,934 | 231 | 931 | 769 | 6 | 997 | 4,878 | 1,567 | 1,952 |
| Johnson | 8,460 | 1,854 | 2,004 | 159 | 576 | 506 | 4 | 659 | 3,038 | 859 | 737 |
| Laramie | 98,976 | 23,032 | 15,864 | 1,979 | 6,600 | 4,891 | 45 | 6,161 | 34,216 | 8,839 | 21,278 |
| Natrona | 79,115 | 19,040 | 12,180 | 1,636 | 5,222 | 3,850 | 36 | 4,826 | 27,052 | 7,677 | 10,602 |
| Park | 29,324 | 6,039 | 6,805 | 519 | 2,028 | 1,733 | 13 | 2,256 | 10,669 | 2,921 | 2,664 |
| Sheridan | 30,233 | 6,462 | 6,347 | 555 | 2,069 | 1,704 | 14 | 2,196 | 10,842 | 2,551 | 2,575 |
| Sublette | 9,813 | 2,209 | 1,911 | 190 | 662 | 540 | 4 | 688 | 3,464 | 658 | 1,077 |
| Sweetwater | 43,051 | 11,290 | 5,214 | 970 | 2,759 | 1,909 | 19 | 2,338 | 14,206 | 3,540 | 8,906 |
| Teton | 23,081 | 4,239 | 3,558 | 364 | 1,637 | 1,177 | 10 | 1,464 | 8,461 | 1,443 | 4,269 |
| Uinta | 20,299 | 5,844 | 2,858 | 502 | 1,257 | 933 | 9 | 1,161 | 6,514 | 2,010 | 2,558 |
| Weston | 6,967 | 1,447 | 1,429 | 124 | 481 | 401 | 3 | 511 | 2,522 | 777 | 700 |
| Totals | 527,459 | 122,919 | 84,823 | 10,561 | 35,162 | 26,143 | 238 | 32,923 | 182,333 | 55,263 | 88,537 |

WYOMING

American Lung Association in Wyoming

www.Lung.org/wyoming

HIGH OZONE DAYS 2016–2018

| County | Orange | Red | Purple | Wgt. Avg. | Grade |
|------------|--------|-----|--------|-----------|-------|
| Albany | 4 | 0 | 0 | 1.3 | C |
| Big Horn | 0 | 0 | 0 | 0.0 | A |
| Campbell | 2 | 0 | 0 | 0.7 | B |
| Carbon | 0 | 0 | 0 | 0.0 | A |
| Converse | 0 | 0 | 0 | 0.0 | A |
| Fremont | 0 | 0 | 0 | 0.0 | A |
| Goshen | INC | INC | INC | INC | INC |
| Johnson | INC | INC | INC | INC | INC |
| Laramie | 1 | 0 | 0 | 0.3 | B |
| Natrona | 0 | 0 | 0 | 0.0 | A |
| Park | INC | INC | INC | INC | INC |
| Sheridan | INC | INC | INC | INC | INC |
| Sublette | 7 | 0 | 0 | 2.3 | D |
| Sweetwater | 2 | 0 | 0 | 0.7 | B |
| Teton | 0 | 0 | 0 | 0.0 | A |
| Uinta | 1 | 0 | 0 | 0.3 | B |
| Weston | 1 | 0 | 0 | 0.3 | B |

HIGH PARTICLE POLLUTION DAYS 2016–2018

| 24-Hour | | | | | | Annual | |
|---------|-----|--------|--------|-----------|-------|--------------|-----------|
| Orange | Red | Purple | Maroon | Wgt. Avg. | Grade | Design Value | Pass/Fail |
| 0 | 1 | 0 | 0 | 0.5 | B | 4.6 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 3 | 3 | 0 | 0 | 2.5 | D | 4.5 | PASS |
| INC | INC | INC | INC | INC | INC | INC | INC |
| 1 | 0 | 0 | 0 | 0.3 | B | INC | INC |
| 2 | 0 | 0 | 0 | 0.7 | B | 7.2 | PASS |
| INC | INC | INC | INC | INC | INC | INC | INC |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| 1 | 2 | 0 | 0 | 1.3 | C | 4.4 | PASS |
| 2 | 0 | 0 | 0 | 0.7 | B | 5.0 | PASS |
| 2 | 0 | 0 | 0 | 0.7 | B | 4.3 | PASS |
| 4 | 1 | 0 | 0 | 1.8 | C | 7.2 | PASS |
| 2 | 0 | 0 | 0 | 0.7 | B | 5.3 | PASS |
| 0 | 0 | 0 | 0 | 0.0 | A | 5.3 | PASS |
| 2 | 0 | 0 | 0 | 0.7 | B | 4.8 | PASS |
| DNC | DNC | DNC | DNC | DNC | DNC | DNC | DNC |
| INC | INC | INC | INC | INC | INC | INC | INC |

EMBARGOED

About the American Lung Association

The American Lung Association is the leading organization working to save lives by improving lung health and preventing lung disease through education, advocacy and research. The work of the American Lung Association is focused on four strategic imperatives: to defeat lung cancer; to champion clean air for all; to improve the quality of life for those with lung disease and their families; and to create a tobacco-free future.

For more information about the American Lung Association, a holder of the coveted 4-star rating from Charity Navigator and a Gold-Level GuideStar Member, or to support the work it does, call 1-800-LUNGUSA (1-800-586-4872) or visit: [Lung.org](https://www.lung.org).

