



## The Mission Statement of the NJDEP

To assist the residents of New Jersey in preserving, sustaining, protecting and enhancing the environment to ensure the integration of high environmental quality, public health and economic vitality. We will accomplish our mission in partnership with the general public, business, environmental community and all levels of government.

**Speak out for clean air. Let your local officials know that you are concerned about the effect air pollution may be having on your health, and that you would support stronger pollution control measures.**

### For more information Contact:

- New Jersey Department of Environmental Protection  
Division of Air Quality  
Bureau of Air Quality Evaluation  
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Trenton, NJ 08625  
(609) 633-1110

### NJDEP websites:

- Air Compliance & Enforcement: [www.nj.gov/dep/enforcement/air.html](http://www.nj.gov/dep/enforcement/air.html)
- Air Monitoring: [www.nj.gov/dep/airmon](http://www.nj.gov/dep/airmon)
- Air Toxics: [www.nj.gov/dep/airtoxics](http://www.nj.gov/dep/airtoxics)
- Air Quality Planning: [www.nj.gov/dep/baqp](http://www.nj.gov/dep/baqp)
- Air Quality Permitting: [www.nj.gov/dep/aqpp](http://www.nj.gov/dep/aqpp)
- Asthma: [www.nj.gov/dep/airtoxics/asthma.htm](http://www.nj.gov/dep/airtoxics/asthma.htm)
- Environmental Justice: [www.nj.gov/dep/ej](http://www.nj.gov/dep/ej)

### New Jersey Department of Health & Senior Services website:

- Asthma: [www.state.nj.us/health/fhs/asthma.pdf](http://www.state.nj.us/health/fhs/asthma.pdf)

### U.S. Environmental Protection Agency websites:

- Air Quality Index: [www.epa.gov/airnow](http://www.epa.gov/airnow)
- Office of Children's Health Protection:  
<http://yosemite.epa.gov/ochnp/ochpweb.nsf/homepage>
- Air Pollution & Health Risk: [www.epa.gov/oar/oaqps/air\\_risc/3\\_90\\_022.html](http://www.epa.gov/oar/oaqps/air_risc/3_90_022.html)

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# GETTING TO KNOW ABOUT AIR POLLUTION



New Jersey  
Department of  
Environmental  
Protection

## What is Air Pollution?

Air pollution is the result of air being contaminated by pollutants emitted from power plants, factories, motor vehicles (e.g. cars, buses) and many other sources, including products we use in our homes. The pollutants that contribute to air pollution are ozone, carbon monoxide, lead, particulate matter, nitrogen dioxide, sulfur dioxide, and a variety of other chemicals referred to as “air toxics.” The impact of air pollution depends on the amount of pollution in the air and an individual’s health status.

## What Are the Effects of Air Pollution?

Exposure to high levels of air pollution can cause a wide range of effects, from eye irritation and runny nose to cancer and birth defects. Air pollution can also cause heart and lung disease, and brain and nerve damage.

## How Many People Are Affected by Air Pollution?

All of NJ’s 8 million residents are breathing in unhealthy amounts of ozone pollution at some point during the summer. Approximately 620,000 NJ residents have been

diagnosed with asthma, which can make them more sensitive to air pollution. In general, children and the elderly are also more sensitive to air pollution.

## Are There Federal Regulations to Control Air Pollution?

The Clean Air Act requires the Environmental Protection Agency (USEPA) to establish regulations that limit and control the amount of pollutants emitted into the air in order to protect public health. Also, it required the development of National Ambient Air Quality Standards (NAAQS). Primary NAAQS are protective of people (including sensitive populations such as asthmatics), while secondary NAAQS address impacts on crops, visibility and property. The Act requires States to enforce these regulations in order to ensure that all Americans have the same health and environmental protection.



<b>Pollutant</b>	<b>Lead</b>
<b>Health effects</b>	Causes damage to the brain and other parts of the body’s nervous system. Children are most susceptible to the effects of lead.
<b>Where it comes from</b>	Mostly from a few industrial facilities, but also from the sanding or wearing away of old lead-based paint.
<b>Pollutant</b>	<b>Carbon monoxide</b>
<b>Health effects</b>	Weakens the heart’s contractions and lowers the amount of oxygen carried by the blood. It reduces your ability to exercise and is dangerous for people with chronic heart disease. It can cause nausea, dizziness, headaches, and when it’s very concentrated, even death. When carbon monoxide reaches unhealthy levels, people with heart disease are most at risk.
<b>Where it comes from</b>	Primarily from motor vehicles, but also from incomplete burning of any fuel.
<b>Pollutant</b>	<b>Nitrogen dioxide</b>
<b>Health effects</b>	Irritates the nose and throat. Appears to increase susceptibility to respiratory infections. Also combines with volatile organic compounds (VOCs) to form ozone. When nitrogen dioxide reaches unhealthy levels, children and people with respiratory disease are most at risk.
<b>Where it comes from</b>	Power plants, large industrial facilities, and motor vehicles.
<b>Pollutant</b>	<b>Sulfur dioxide</b>
<b>Health effects</b>	Aggravates existing lung diseases, especially bronchitis. Constricts the breathing passages, especially in asthmatic people and people doing moderate to heavy exercise. Causes wheezing, shortness of breath, and coughing. High levels of particulates appear to worsen the effect of sulfur dioxide, and long-term exposures to both pollutants leads to higher rates of respiratory illness. When sulfur dioxide reaches unhealthy levels, people with asthma are most at risk.
<b>Where it comes from</b>	Power plants, large industrial facilities, diesel vehicles, and even oil-burning home heaters.

## How Does Air Pollution Directly Affect My Health?

<b>Pollutant</b>	<b>Ozone</b>
<b>Health effects</b>	Irritates the lungs and breathing passages, causing coughing and pain in the chest and throat. Increases susceptibility to respiratory infections and reduces the ability to exercise. Effects are more severe in people with asthma and other respiratory ailments. Long-term exposure may lead to scarring of lung tissue and lowered lung efficiency. When ozone reaches unhealthy levels, active children and adults, and people with asthma are most at risk.
<b>Where it comes from</b>	Ozone does not come directly from tailpipes or smokestacks. Ozone is created by the chemical reaction between volatile organic compounds (VOC) and nitrogen oxide in the presence of sunlight. The VOCs that form ozone come from vehicle and industrial exhaust as well as evaporation of gasoline, solvents and paints, and many other sources. Nitrogen oxides are formed when fuel is burned at high temperatures from sources like electric utilities, motor vehicles and residential heating.
<b>Pollutant</b>	<b>Particulates</b>
<b>Health effects</b>	Aggravate existing heart and lung diseases, change the body's defenses against inhaled materials, and damage lung tissue. The elderly, children and those with chronic lung or heart disease are most sensitive. Lung impairment can persist for 2-3 weeks after exposure to high levels of particulate matter. When PM2.5 reaches unhealthy levels, people with respiratory or heart disease, the elderly and children are most at risk.
<b>Where it comes from</b>	Particulates can be emitted directly into the air in the form of dirt, soot, smoke and dust from many kinds of air pollution sources. Particulates are also formed in the atmosphere as a result of chemical reactions between pollutants emitted by fuel burning in diesel cars, trucks and buses, power plants, industry and other sources.
<b>Pollutant</b>	<b>Air Toxics</b>
<b>Health effects</b>	With increased exposure the risk of developing cancer, birth defects, learning disabilities, heart and lung disease, and brain and nerve damage is increased.
<b>Where it comes from</b>	Factories, refineries, power plants, cars, trucks, buses and cleaning products.

## What is New Jersey Doing to Control Air Pollution?

New Jersey Department of Environmental Protection (DEP) has long been in the forefront with programs aimed at cleaning the air. New Jersey was the first state to implement an inspection and maintenance program for motor vehicles in February 1974. In the early 1970s, NJ enacted rules to control open burning, particulate matter emissions from fuel combustion and manufacturing processes, and to establish a permit process for facilities.

The NJ Air Pollution Control Act resulted in reducing air pollution emissions from power plants, factories and many more sources. States develop state implementation plans (SIPs) that explain how each state will do its job under the Clean Air Act. A state implementation plan is a collection of the regulations a state will use to clean up polluted areas. The DEP involves the public, through hearings and opportunities to comment, in the development of their state implementation plans.

New Jersey has worked at complying with the National Ambient Air Quality Standards since the passage of the Clean Air

Act in 1970. After decades of regulations on mobile and stationary sources of air pollution, New Jersey has made great strides, but is still out of compliance for ozone. Air toxics and fine particulates also remain a public health concern in New Jersey.

## How Harmful is Particulate Matter?

Protecting the public from the harmful effects of air pollution is the primary goal of the Clean Air Act. In 1997, USEPA set new particulate matter standards for very fine particulate matter known as PM2.5 (smaller than 2.5 microns in diameter - much smaller than the width of a human hair). The new standards reflect recent studies showing that fine particles can cause very serious health effects-including an increase in respiratory illness and even premature deaths - at very low levels. Programs to achieve the new standards will provide additional protection to all NJ residents, but most importantly to residents living in urban areas and high traffic areas where the current standards are not being met.

## What Can You Do to Protect Yourself and Your Family?

Are you or someone in your family sensitive to ozone or fine particulates? Children, the elderly, people with breathing problems such as asthma, and adults who are active outdoors, including outdoor workers and healthy exercisers are all considered “sensitive groups”. They are the first to feel the effects of ozone air pollution and need to take extra steps to protect themselves from harm. For fine particulates, the most sensitive people are all those who react to ozone, plus people with heart conditions.

Keep track of air pollution levels. Find out if the Air Quality Index is reported by your local newspaper or radio station, which will give you the previous day’s information and today’s forecast. You may also find your local air quality forecast by watching NJ Network or other TV broadcasts or by calling 1-800-782-0160 for a recorded summary of the day’s forecast.

If the air quality is unhealthy, you may need to adjust your plans for the day. Avoid prolonged vigorous activity outdoors. The health effects of ozone are worsened over extended periods of exposure, and by the deep, rapid breathing that accompanies exercise. Plan the most strenuous activities for the early morning hours, before ozone levels climb. On days with high levels of fine particulate, even the early morning hours can be unhealthy. So on high particulate days, strenuous outdoor activities should be avoided throughout the day.

Avoid driving on high ozone days. Instead take mass transit, walk or share a ride or car pool.

## What is the Air Quality Index (AQI)?

The AQI is a way to report past and future air quality. It compares pollutant levels to their health standards, takes into account multiple pollutants and assigns an air quality rating like “good” or “unhealthy.” The AQI focuses on health effects you may experience within a few hours or days after breathing polluted air. The five pollutants used in the AQI are those for which there are national health standards: carbon monoxide, nitrogen dioxide, ground-level ozone, particulates and sulfur dioxide.

<b>Air Quality Index (AQI) Categories</b>	<b>AQI Category</b> <b>Health Effects</b>	<b>VERY UNHEALTHY</b> Increasingly severe symptoms and impaired breathing likely in active children and adults, and people with heart and/or lung diseases, such as asthma; increasing likelihood of respiratory effects in general population.
	<b>Actions to Take</b>	Active children and adults, and people with respiratory diseases, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should avoid prolonged outdoor exertion.
	<b>AQI Index Values</b>	201-300
	<b>AQI Category</b> <b>Health Effects</b>	<b>UNHEALTHY</b> Greater likelihood of respiratory symptoms and breathing difficulty in active children and adults, and people with heart and/or lung diseases, such as asthma; possible respiratory effects in general population.
	<b>Actions to Take</b>	Active children and adults, and people with heart problems such as congestive heart failure or respiratory diseases, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.
<b>AQI Index Values</b>	151-200	
<b>AQI Category</b> <b>Health Effects</b>	<b>UNHEALTHY FOR SENSITIVE GROUPS</b> Increasing likelihood of heart or respiratory symptoms and breathing discomfort in active children and adults, and for people with lung diseases, such as asthma.	
<b>Actions to Take</b>	Active children and adults, and people with heart and/or lung diseases, such as asthma, should limit prolonged outdoor or heavy exertion.	
<b>AQI Index Values</b>	101-150	
<b>AQI Category</b> <b>Health Effects</b>	<b>MODERATE</b> Unusually sensitive individuals may experience breathing problems.	
<b>Actions to Take</b>	Unusually sensitive individuals should consider limiting prolonged outdoor exertion.	
<b>AQI Index Values</b>	51-100	
<b>AQI Category</b>	<b>GOOD</b>	
<b>AQI Index Values</b>	0-50	