

EPA's Designations for 8-Hour Ozone Nonattainment Areas in New England Questions and Answers

What is EPA announcing today?

On April 15, 2004, EPA took action to let the public know whether their area has a ground-level ozone air quality problem, or is contributing to a problem nearby. This action, known as "designating" areas as meeting or not meeting the new more protective 8-hour ozone standard, is an important step in helping states and local governments improve air quality. Areas that do not meet the standard are called nonattainment areas. These areas have (or contribute to) ozone levels higher than allowed under EPA's 8-hour ozone national air quality standard. These designations take effect on June 15, 2004.

What is the new ozone standard?

In July 1997, based on information that the 1-hour ground-level ozone standard did not adequately protect public health, EPA established the 8-hour ozone standard. Scientific information shows that ozone can affect human health at low levels and over longer exposure times than one hour. The old 1-hour standard limits ozone concentrations to 0.12 parts per million (ppm), measured in hourly readings. The new, more protective 8-hour standard limits ozone concentrations to 0.08 ppm, averaged over eight hours. Under the 1-hour standard, New England states averaged 10 unhealthy days per summer over the last five years. With the more protective 8-hour standard, New England averaged 29 unhealthy days for the same time period.

What is ozone?

Ozone (O₃) is a gas composed of three oxygen atoms. It is not usually emitted directly into the air, but at ground level is created by a chemical reaction between nitrogen oxides (NO_x) and volatile organic compounds (VOC) in the presence of heat and sunlight.



Ozone has the same chemical structure whether it occurs miles above the earth or at ground level and can be "good" or "bad," depending on its location in the atmosphere. "Good" ozone occurs naturally in the stratosphere approximately 10 to 30 miles above the earth's surface and forms a layer that protects life on earth from the sun's harmful rays. "Bad" ozone is present in the earth's lower atmosphere at ground level where it can be inhaled and pose serious health risks.

What are the health effects associated with exposure to ozone?

Ozone is unhealthy to breathe – especially for people with respiratory diseases, and for children and adults who are active outdoors. Ozone can irritate a person's airways, reduce lung function, aggravate asthma, and inflame and damage the cells lining the lungs. It also may aggravate chronic lung diseases like emphysema and bronchitis, may reduce the immune system's ability to fight off bacterial infections in the respiratory system and may cause permanent lung damage.

How did EPA establish the 8-Hour Ozone Standard?

EPA issued the 8-hour ozone standard in July 1997, based on information demonstrating that the 1-hour standard did not adequately protect public health. Scientific information shows that ozone can affect human health at low levels and over longer exposure times than one hour. The U.S. Supreme Court upheld the EPA’s approach to setting the 8-hour ozone standard in February 2001. In late 2002, all remaining legal challenges were cleared. In June 2003, EPA proposed an implementation rule that outlined requirements for nonattainment areas. EPA published a portion of the final implementation rule today. This final rule also addresses how areas will transition from the 1-hour ozone standard to the 8-hour standard.

What areas in New England are affected?

In New England, EPA has designated all areas in the three southernmost states (Connecticut, Massachusetts, and Rhode Island), as well as coastal sections of New Hampshire and Maine, as nonattainment. All other areas in New England, including the entire state of Vermont, are in attainment of the 8-hour ozone standard. In July 2003, the New England states submitted recommendations to EPA suggesting 8-hour nonattainment boundaries. The areas in New England that EPA has designated as nonattainment are consistent with these proposed boundaries.

8-Hour Ozone Designations for New England

State	Area	Designation	Classification	Attainment Date
Connecticut	Connecticut portion of the New York-N. New Jersey-Long Island, NY-NJ-CT	Nonattainment	Moderate	June, 2010
	Greater Connecticut*	Nonattainment	Moderate	June, 2010
Maine	Portland	Nonattainment	Marginal	June, 2010
	Portions of Hancock, Knox, Lincoln, and Waldo Counties	Nonattainment	Basic	June, 2009
	All Other Areas*	Attainment	-	-
Massachusetts	Eastern Massachusetts*	Nonattainment	Moderate	June, 2010
	Western Massachusetts	Nonattainment	Moderate	June, 2010
New Hampshire	Boston-Manchester-Portsmouth (Southeast NH)	Nonattainment	Moderate	June, 2010
	All Other Areas	Attainment	-	-
Rhode Island	Statewide*	Nonattainment	Moderate	June, 2010
Vermont	Statewide	Attainment	-	-

* Includes Indian country not under state jurisdiction.

Why does EPA designate areas as nonattainment?

To protect public health, the Clean Air Act requires state and local governments to take steps to control ozone pollution in areas that do not meet air quality standards (nonattainment areas). These steps may include requiring pollution controls on industrial facilities, additional planning requirements for transportation sources, and inspection and maintenance programs for vehicles. State and local governments must explain these control requirements in their state implementation plan (SIP). States must revise their plans to demonstrate how they will meet the 8-hour ozone standard and submit their revised plan to EPA by June 2007.

Nonattainment areas are subject to a measure known as “transportation conformity,” which requires local transportation and air quality officials to coordinate planning to ensure that transportation projects, such as road construction, do not affect an area’s ability to reach its clean air goals. Transportation conformity requirements become effective one year after an area is designated as nonattainment (June 2005). Once designated, nonattainment areas also are subject to New Source Review (NSR) requirements. NSR is a permitting program for industrial facilities to ensure that new and modified sources of pollution do not impede progress toward cleaner air.

How did EPA make these designations?

Based on air quality and other factors, in July 2003, states and tribes made recommendations to EPA regarding the geographic boundaries of areas that do not meet the 8-hour ozone standard. In December 2003, EPA responded to those recommendations with letters describing the changes the Agency intended to make to state and tribal recommendations. EPA also requested that states provide additional information if they wanted to bolster their original recommendation regarding nonattainment boundaries. Based on all information we received, on April 15, 2004, EPA finalized the boundaries of the nation’s nonattainment areas as well as the classification of each area. In New England, EPA Region 1 agreed with the state recommendations. EPA will publish the notice of our decision in the Federal Register. This notice is the legal document codifying the nonattainment boundaries and classification. Ultimately, the list of nonattainment areas will be published in the Code of Federal Regulations (40 CFR Part 81).

How did EPA and the states obtain the air quality data underlying the ozone designations?

With financial and in-kind support from EPA Region 1, the six New England states operate a robust network of 300 ambient air quality monitors. In 2003, EPA awarded the New England states over \$13.8 million to implement programs that will help areas meet air quality standards. These grants are used to support the states’ air quality monitoring programs, enforcement efforts, and their development of emission control requirements. An important piece of the states’ efforts is the maintenance of New England’s network of 300 monitors, which provide the monitoring data used to determine attainment/nonattainment, measure progress and trends, and warn the public when air quality levels are unhealthy. This monitoring network includes over 55 ground-level ozone monitors which provided the monitoring information used as the basis of the April 15, 2004 announcement of ozone nonattainment areas. In 2003, EPA New England also provided the states an additional \$2,970,000 for the implementation of air monitoring networks to measure fine particles and toxic air pollutants, two serious emerging air quality problems. The following table provides specific state-by-state information on EPA’s financial support for the general air quality programs and the specific monitoring programs operated by the New England states.

2003 EPA Air Quality Grants to New England States				
STATE	Grants for State Air Quality Programs (including Ambient Monitoring Programs)	Grants for Support of State Monitoring of Fine Particles	Grants for Support of State Monitoring of Air Toxics	Totals
CT	\$3,500,000	\$515,000	\$100,000	\$4,115,000
ME	\$1,341,000	\$455,000		\$1,796,000
MA	\$5,123,000	\$822,000	\$100,000	\$6,045,000
NH	\$1,449,000	\$340,000		\$1,789,000
RI	\$1,519,000	\$295,000		\$1,814,000
VT	\$937,000	\$243,000	\$100,000	\$1,280,000

What is the difference between implementing the 1-hour ozone standard and the 8-hour ozone standard?

For New England, there will no difference in the mandatory control requirements specified under the Clean Air Act to implement the 8-hour standard versus the 1-hour ozone standard. All of New England is already required to perform NSR on new sources and continue to enforce reasonably available control technology (RACT) on existing sources. All nonattainment areas are also required to meet conformity requirements. Control measures familiar to the general public, such as inspection and maintenance programs for cars, gasoline vapor controls on gasoline dispensing pumps, and new vehicle standards will not change in New England due to the 8-hour ozone designations.

Many states will likely need to adopt new rules to further control local emissions of the air pollutants that form ozone. Since the new 8-hour standard is more stringent than the 1-hour standard, these additional controls will be necessary to bring areas into attainment by the established deadlines.

What are the new attainment dates?

In New England, attainment dates range from June, 2007 to June, 2010 depending upon the severity of the ozone problem in each area.

The Clean Air Act and EPA’s final implementation rule set forth the attainment dates for each of the nonattainment classifications. These dates are:

<u>Classification</u>	<u>Attainment Date</u>
Marginal	June, 2007
Moderate	June, 2010
Serious	June, 2013 – None in New England

Severe and Extreme classifications do not exist in the eastern United States under the 8-hour standard.

The Hancock, Knox, Lincoln and Waldo county area is the only area in New England not classified under the above method. This area, because it currently meets the 1-hour standard, is classified in a different way and will have until June 2009 to attain the 8-hour standard. (See the table on page 2 of this document.)

What is the 8-hour implementation rule?

Because many of the Clean Air Act requirements regarding ozone focus on the 1-hour ozone standard, the Supreme Court directed EPA to interpret how these Clean Air Act requirements would apply to implementing the new 8-hour standard. EPA has developed a new rule outlining how the Agency expects areas will implement the 8-hour standard. EPA will be issuing this "Implementation Policy" in 2 parts. The first part of the Implementation Policy will explain how EPA will classify designated ozone nonattainment areas based on the severity of the pollution problem, the process by which EPA will revoke the old 1-hour ozone standard, and anti-backsliding provisions to prevent areas from abandoning the emission control programs already in place. The second part of the Implementation Policy will address the issues that will arise later in the planning process, such as the requirements for attainment demonstrations, reasonable further progress, conformity, and the specific control measures required for areas based on the severity of the pollution problem.

How are the various deadlines for SIP submittals and attainment dates established?

EPA was required by court order to designate all areas in the country as attainment or nonattainment of the 8-hour ozone standard by April 15, 2004. These designations take effect on June 15, 2004. Section 110(a) of the Clean Air Act requires that each state submit an implementation plan to EPA by June 2007, demonstrating how the state will meet the 8-hour ozone standard. The attainment dates are established under either section 172(a)(2) or section 181(a)(1) depending on an area's 1-hour ozone air quality status, and the severity of the 8-hour ozone standard violations. Attainment dates in New England will range from June, 2007 for marginal areas to June, 2010 for moderate areas. Serious areas have an attainment date of June 2013. For areas that do not violate the old 1-hour standard and are designated under a separate subpart of the Clean Air Act, attainment dates will be from June, 2009 to June, 2014.

What is the legal authority for making designations?

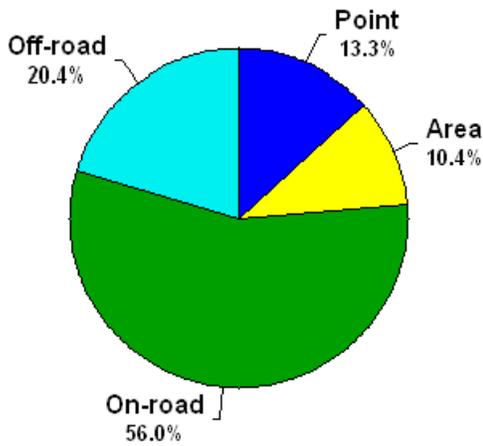
Section 107 of the Clean Air Act gives EPA authority to make these designations. Under this section, any time EPA issues a new or revised national ambient air quality standard, state governors must submit a list of all areas to be designated as nonattainment. That list must include any area that does not meet the national air quality standard for a pollutant, along with any area that contributes to poor air quality in a nearby area that does not meet the standard. The EPA Administrator makes final nonattainment designations, through a rulemaking action. On April 15, 2004, EPA Administrator Leavitt signed the final notice. Once designations take effect on June 15, 2004, they become an important component of state and local governments' efforts to reduce ground-level ozone. By law, nonattainment areas are subject to a number of requirements to reduce ozone-forming pollution.

What sources contribute to New England’s air pollution problem?

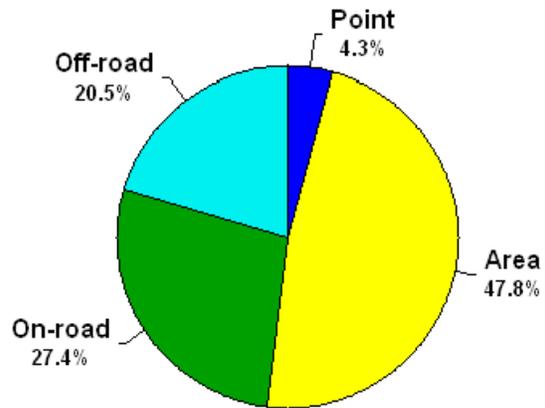
EPA recently released its preliminary 2002 emissions inventory estimates. The chart below shows the relative contribution of each major sector to emissions in New England.

2002 Air Emission Estimates for New England

NOx Emissions



VOC Emissions



Point = large industry such as electric utilities and manufacturers

Area = smaller sources such as commercial and residential fuel combustion

On-road = motor vehicles such as passenger vehicles, buses and trucks

Off-road = engines used in diverse equipment used in construction, farming, lawn-care, etc.

What are EPA and the New England states doing to reduce these emissions?

In the last few years, EPA and the states have adopted control measures that will help to improve future air quality. These federal and state air quality control measures will reduce pollution from both in-state and upwind sources. These strategies include:

Power Plants

- EPA has taken aggressive steps to reduce pollution from power plants in the eastern United States. Nineteen eastern states and the District of Columbia have adopted requirements that establish emission caps on the amount of nitrogen oxide emissions that can be emitted from power plants from May through September each year. These emissions caps will result in a reduction of approximately 600,000 tons of nitrogen oxide emissions by the summer of 2004.
- The Administration's proposed interstate air quality rule is designed to dramatically reduce and permanently cap emissions of nitrogen oxides from electric utilities. The proposed rule would apply to 25 eastern states and the District of Columbia that were found to contribute to unhealthy levels of ozone in downwind states. By 2015, the rule would reduce NO_x emissions by approximately 1.8 million tons.
- In Massachusetts, recent regulations require significant reductions of SO₂, NO_x, mercury and carbon dioxide from the six dirtiest power plants.

Future Highway Vehicle Standards

- EPA has set very stringent standards for passenger vehicles. Beginning this year, new cars, pick-up trucks, and sport utility vehicles are 77 to 95 percent cleaner than vehicles already on the road.
- Also beginning this year, EPA is requiring the sulfur content of gasoline be reduced by 90 percent.
- Once fully implemented, these new tailpipe and gasoline sulfur standards will achieve the equivalent of removing the pollution created by 164 million cars.

Future Truck and Bus Standards

- EPA has also set very stringent standards for heavy duty trucks and buses. Beginning this year, heavy duty trucks and buses are reducing NO_x emissions by more than 40 percent. In 2007, these vehicles will meet even more stringent standards that will reduce both PM and NO_x emissions by more than 90 percent.
- Starting in June, 2006, EPA will require the sulfur content of diesel fuel to be reduced by 97 percent.
- Once fully implemented, the 2007 emission standards and new diesel sulfur restrictions will achieve the equivalent of removing the pollution created by 13 million trucks and buses.

Future Non-road Standards

- EPA has proposed new emission standards for non-road diesel engines used in construction, agricultural and industrial operations. The Agency has also proposed a more than 99 percent reduction in the sulfur content in fuel used by these engines. The proposed emission standards and diesel sulfur restrictions would achieve a reduction in PM and NO_x emissions of more than 90 percent from these engines.

Diesel Retrofits

A retrofitted diesel engine is cleaner either because it has been fitted with a device designed to reduce pollution and/or it uses a cleaner fuel. EPA is working with state and local governments to retrofit diesel engines in a variety of vehicle types, such as the following:

Connecticut

- *New Haven, CT:* CT DEP and CT DOT are requiring construction equipment used on the Q Bridge reconstruction project to be retrofitted with diesel exhaust controls. To date, 50 pieces of equipment have been retrofitted with diesel oxidation catalysts.
- *Norwich, CT:* The entire fleet of 42 school buses has been retrofitted with either an oxidation catalyst or a diesel particulate matter filter, and is using ultra-low sulfur diesel fuel (ULSD).
- *Stamford, CT:* 31 of the 48 buses in the Stamford CT transit fleet are equipped with particulate matter filters, and the entire fleet is fueled with ULSD.

Maine

- *Maine, Statewide:* With grant funds from EPA's Clean School Bus USA program and significant matching funds from the state, the Maine Department of Environmental Protection will retrofit 446 school buses with diesel oxidation catalysts.

Massachusetts

- *Boston, MA:* Currently, the MBTA is using ULSD in all of its diesel buses. The MBTA is on track to retrofit all of its existing and new diesel buses with particulate matter filters, by June 2004 (approximately 600 buses). In addition, 358 transit buses run on compressed natural gas (CNG).
- *Boston, MA:* As a result of two different supplemental environmental projects (resulting from the settlement of enforcement cases) the MBTA will use low sulfur (highway) diesel fuel in the 55 commuter trains operating out of North Station and South Station. In addition, the MBTA will equip between 15 and 20 commuter trains operating out of North Station with oxidation catalysts.
- *Boston, MA:* With funds from two separate supplemental environmental projects, the city of Boston is retrofitting the entire fleet of 600 school buses with particulate matter filters and fueling these buses with ULSD.
- *Boston, MA:* More than 120 construction vehicles used on the Big Dig -- 25% of the construction vehicles for the project -- were retrofitted with oxidation catalysts.
- *Greater Boston, MA:* The Medical Academic and Scientific Community Organization (MASCO), owner of the shuttle buses that serve the Longwood Medical area in Boston, is the first private fleet in New England to install diesel particulate matter filters and use ULSD in their fleet of 17 buses.
- *Medford, MA:* With grant funds from EPA's Clean School Bus USA program, Medford will retrofit 54 school buses with diesel particulate matter filters and fuel the entire fleet of 65 buses with ULSD.

Rhode Island

- *Rhode Island, Statewide:* As a result of a supplemental environmental project, the Rhode Island Public Transit Authority is fueling 156 buses with ULSD and plans to retrofit all buses with particulate matter filters.

Public Outreach

- Each weekday, in cooperation with the Northeastern states, EPA Region 1 prepares an air quality forecast for the general public to inform them about predicted air quality and associated health effects. These forecasts are posted to EPA's web site www.epa.gov/ne/aqi. When poor air quality is predicted, EPA and the states also issue press releases and air quality alerts. In the next several weeks, as the summer ozone season approaches, EPA will provide detailed outreach materials that specifically address the 8-hour ozone standard.

How will emissions change in the future?

EPA developed emission inventory estimates for 2010. The base case scenario in 2010 accounts for emission reductions that will occur as states adopt federal standards for passenger vehicles, heavy-duty trucks and buses, as well as construction and farm equipment. The base case 2010 inventories do not reflect emission reductions from EPA's proposed interstate air quality rule.

The following charts illustrate the VOC and NO_x emission trends based on the projected base case 2010 emission estimates contained in EPA's interstate air quality rule modeling.

