

## Bureau of Air Quality Planning

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### NAAQS Overview

The Federal Clean Air Act requires the United States Environmental Protection Agency (USEPA) to set [National Ambient Air Quality Standards](#) (NAAQS) for six common air pollutants. These commonly found air pollutants (also known as "criteria pollutants") are particle pollution (often referred to as particulate matter), ground-level ozone, carbon monoxide (CO), sulfur oxides (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), and lead. These pollutants can harm your health and the environment, and cause property damage. The USEPA calls these pollutants "criteria" air pollutants because it regulates them by developing human health-based and/or environmentally-based criteria (science-based guidelines) for setting permissible levels. Limits based on human health are called primary standards. The USEPA also can establish a second set of limits intended to prevent environmental and property damage, which are referred to as secondary standards. In every case except for SO<sub>2</sub>, the secondary standards established by the USEPA for the criteria pollutants are identical in level and form to their respective primary standards. The Federal Clean Air Act further requires the USEPA to review and, if appropriate, revise the NAAQS for each criteria air pollutant every five years to insure they continue to adequately protect human health and welfare. For more information on the criteria pollutants, visit the [USEPA's website](#).

When a NAAQS is established or revised, the USEPA goes through a formal process to designate all areas of the country as either in attainment or in nonattainment. The Federal Clean Air Act further classifies ozone, carbon monoxide, and some particulate matter nonattainment areas based on the magnitude of an area's problem. Nonattainment classifications may be used to specify what air pollution reduction measures an area must adopt, and when the area must reach attainment. The technical details underlying these classifications are discussed in the Code of Federal Regulations, Part 81 (40 CFR 81). For a historical perspective of the designations for the criteria pollutants, visit the [USEPA's website](#). States with areas designated as nonattainment for any criteria pollutant must develop plans that show how they will bring those areas into attainment of the standard by their designated attainment dates. Once an area meets its attainment date, it can be re-designated to attainment, but states must submit maintenance plans for these areas to the USEPA to insure continued attainment of the areas over a period of 10 years. These re-designated areas are referred to as "maintenance areas."

Currently, the entire State of New Jersey is designated as nonattainment for the 1997 and 2008 8-hour ozone NAAQS and portions of the State are designated as nonattainment for the 1997 annual PM<sub>2.5</sub>, 2006 24-hour PM<sub>2.5</sub> and the 1971 SO<sub>2</sub>

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NAAQS. Portions of New Jersey are designated as a maintenance area for CO. The State was designated as nonattainment under the 1-hour ozone NAAQS but that standard has since been revoked because of the newer 8-hour standard.

### **1-Hour Ozone NAAQS (Revoked)**

In 1979, the USEPA established a 1-hour ozone standard of 0.12 ppm. Under the 1-hour ozone standard, the entire State of New Jersey was designated as nonattainment. There were three multi-state nonattainment areas and a New Jersey-only nonattainment area for the 1-hour NAAQS. The first multi-state area was the Philadelphia-Wilmington-Trenton nonattainment area, which consisted of Burlington, Camden, Cumberland, Gloucester, Mercer, and Salem Counties of New Jersey. The second multi-state area was the New York-N. New Jersey-Long Island nonattainment area, which consisted of Bergen, Essex, Hudson, Hunterdon, Middlesex, Morris, Monmouth, Ocean, Passaic, Somerset, Sussex, and Union Counties of New Jersey. The third multi-state area was the Allentown-Bethlehem-Easton nonattainment area, which consisted of Warren County of New Jersey. The New Jersey-only nonattainment area was Atlantic City, which consisted of Atlantic and Cape May Counties.

On June 15, 2005, the 1-hour ozone standard was revoked for all areas except the 8-hour ozone nonattainment Early Action Compact Areas (EAC) areas. This happened by virtue of 40 CFR 50.9(b). Due to the revocation of the 1-hour ozone standard, effective June 15, 2005, a recent notice [70 FR 44470] removed from 40 CFR part 81 the 1-hour designations and classifications for all areas except EAC areas that have deferred effective dates for their designations under the 8-hour ozone standard. The former 1-hour ozone designations and classifications as of June 15, 2004, are being retained in subpart C of Part 81 for purposes of the anti-backsliding provisions of 40 CFR 51.905. 40 CFR 51.905(c) references subpart C of part 81 for the areas affected by the anti-backsliding regulation. The anti-backsliding provision is in place to prevent areas from undoing any air quality improvement measures or to make sure areas keep their commitments to improving air quality as committed to in their federally approved state implementation plans (SIPs).

For a map of the nonattainment areas in New Jersey for the revoked 1-hour standard, click [here](#). For more information on the 1-hour ozone nonattainment designation, visit [USEPA's website](#).

### **8-Hour Ozone NAAQS**

In 1997, the USEPA established an 8-hour ozone standard of 0.08 ppm. The USEPA finalized attainment/nonattainment designations for the 1997 8-hour ozone NAAQS on June 15, 2004. The entire state of New Jersey is associated with two multi-state nonattainment areas, the New York-Northern New Jersey-Long Island (NY-NJ-CT) nonattainment area and the Philadelphia-Wilmington-Atlantic City (PA-NJ-DE-MD) nonattainment area. The NY-NJ-CT nonattainment area includes the New Jersey counties of: Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Passaic, Somerset, Sussex, Union, and Warren. The PA-NJ-DE-MD nonattainment area includes the New Jersey counties of: Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Ocean, and Salem.

The USEPA revised the 8-hour ozone NAAQS on March 12, 2008. The primary 8-hour ozone standard was lowered from 0.08 ppm to 0.075 ppm. The secondary standard was strengthened to make it equal to the primary standard. New Jersey submitted recommendations for designating nonattainment areas for the 2008 revised ozone standard to the USEPA on April 1, 2009. The USEPA announced on [September 16, 2009](#) that the 0.075 ppm standard was being reconsidered, and the designations were stayed (put on hold). For more details on New Jersey's submission to the USEPA, click [here](#).

On [January 6, 2010](#), the USEPA proposed to strengthen the 8-hour ozone NAAQS set in March 2008 to a level within the range of 0.060-0.070 parts per million (ppm). The USEPA also proposed establishment of a distinct cumulative, seasonal "secondary"



standard, designed to protect sensitive vegetation and ecosystems, including forests, parks, wildlife refuges and wilderness areas within the range of 7-15 ppm-hours. In September of 2011, the USEPA announced it would not adopt its proposed ozone NAAQS and that it would instead proceed with implementation of the 2008 0.075 ppm 8-hour standard.

On May 21, 2012, the USEPA designated the entire state of New Jersey as nonattainment for the 0.075 ppm 8-hour ozone NAAQS. The nonattainment areas are the same as those designated for the 0.08 ppm standard.

For a map of the existing nonattainment areas in New Jersey for the 8-hour standard, click [here](#). For a table of the above counties/municipalities designated as nonattainment for both ozone standards, click [here](#). For more information on the 8-hour ozone nonattainment designations, visit [USEPA's website](#).

### **PM2.5 NAAQS**

In 1997, the USEPA established annual and 24-hour NAAQS for PM2.5 for the first time. The NAAQS were set at 15 µg/m<sup>3</sup> for the annual standard and 65 µg/m<sup>3</sup> for the 24-hour standard.

Thirteen of New Jersey's 21 counties were designated as nonattainment for the 1997 annual standards, and are associated with two multi-state nonattainment areas (the Northern New Jersey/New York/ Connecticut (NNJ/NY/CT) nonattainment area and the Southern New Jersey/Philadelphia (SNJ/Phila.) nonattainment area). New Jersey counties that are in the NNJ/NY/CT nonattainment area are Passaic, Bergen, Morris, Essex, Hudson, Union, Somerset, Middlesex, Monmouth, and Mercer Counties. New Jersey counties that are in the SNJ/Phila nonattainment area are Burlington, Camden, and Gloucester Counties.

For a map of the nonattainment areas in New Jersey for the annual 15 µg/m<sup>3</sup> PM2.5 standard, click [here](#).

In 2006, the USEPA revised the 24-hour NAAQS for PM2.5 from 65 µg/m<sup>3</sup> to 35 µg/m<sup>3</sup>. The State submitted its recommendation of nonattainment areas in New Jersey to the USEPA on [December 18, 2007](#). On [August 19, 2008](#), the USEPA responded to state designation recommendations and proposed designations for areas for the 35 µg/m<sup>3</sup> 24-hour PM2.5 NAAQS.

[On December 22, 2008](#), the USEPA signed a notice on the final designations but it was not published in the Federal Register due to the change in Federal Administration which required that all rules not yet finalized would undergo review before being released.

[On October 8, 2009](#), the designations were finalized. They were published in the Federal Register on [November 13, 2009](#).

The New Jersey nonattainment areas for the 24-hour 35 µg/m<sup>3</sup> standard are the same as for the annual 15 µg/m<sup>3</sup> standard. For a map of the final attainment and nonattainment areas in New Jersey designated by the USEPA for the 24-hour 35 µg/m<sup>3</sup> PM2.5 standard, click [here](#).

More information on the PM2.5 nonattainment designations can be found at USEPA's websites at:

<http://www.epa.gov/airquality/particlepollution/designations/index.htm> and <http://www.epa.gov/oar/oaqps/greenbk/>

On December 14, 2012, the USEPA revised the annual NAAQS for PM2.5 from 15 µg/m<sup>3</sup> to 12 µg/m<sup>3</sup>. For more information on this action see USEPA's website at: <http://www.epa.gov/pm/actions.html>

### **Sulfur Dioxide (SO<sub>2</sub>) NAAQS**

The USEPA established three SO<sub>2</sub> NAAQS in 1971: 1) an annual arithmetic mean of 0.03 ppm (80 µg/m<sup>3</sup>), 2) a 24-hour level of 0.14 ppm (365 µg/m<sup>3</sup>), and 3) a 3-hour



level of 0.50 ppm (1300 ug/m<sup>3</sup>). The first two standards are primary (health-related) standards, while the 3-hour NAAQS is a secondary (welfare-related) standard. The annual mean standard is not to be exceeded, while the short-term standards are not to be exceeded more than once per year. Ambient SO<sub>2</sub> results largely from stationary sources such as coal and oil combustion, steel mills, refineries, pulp and paper mills and from nonferrous smelters.

The only area that is currently designated as nonattainment for the 1971 SO<sub>2</sub> standard in New Jersey is Warren County (part of the Northeast Pennsylvania-Upper Delaware Valley Interstate AQCR). For a map of the current nonattainment areas in New Jersey for the 1971 SO<sub>2</sub> NAAQS, click [here](#). For more information on SO<sub>2</sub> area designations, visit [USEPA's website](#).

On November 16, 2009, the USEPA proposed revisions to the SO<sub>2</sub> primary NAAQS. On June 2, 2010, the USEPA revised the primary SO<sub>2</sub> standard, designed to protect public health, to 75 parts per billion (ppb) measured over 1-hour. The USEPA is revoking the two existing primary standards of 140 ppb evaluated over 24-hours, and 30 ppb evaluated over an entire year because they will not add additional public health protection given a 1-hour standard at 75 ppb.

On June 23, 2011, New Jersey recommended the entire state be designated unclassifiable for the 1-hour sulfur dioxide NAAQS except for the areas in New Jersey identified in New Jersey's Section 126 petition to the USEPA. New Jersey recommended those areas be designated nonattainment, including all of Warren County and portions of Hunterdon, Morris, and Sussex counties. All monitoring locations for sulfur dioxide in New Jersey, with the exception of the Columbia monitor located in Warren County, New Jersey, are measuring levels below the 75 ppb 1-hour sulfur dioxide NAAQS (See Attachment 1 of June 23, 2011 letter).

The USEPA intends to complete designations for the new standard by June 2013. The USEPA is also revising the ambient air monitoring requirements for SO<sub>2</sub>.

### **Carbon Monoxide (CO) NAAQS**

In 1971, the USEPA established the NAAQS for CO: 35 ppm for a 1-hour average and 9 ppm for an 8-hour nonoverlapping average. An area meets the CO NAAQS if no more than one 8-hour value per year exceeds the threshold. (High values that occur within 8 hours of the first one are exempted. This is known as using "nonoverlapping averages.") To be in attainment, an area must meet the NAAQS for two consecutive years and carry out air quality monitoring during the entire time.

Based on prior violations of the 8-hour carbon monoxide standard, New Jersey had eleven nonattainment areas, all of which have since been redesignated to attainment and are currently considered maintenance areas (continued compliance with the CO standards). New Jersey's three 8-hour carbon monoxide maintenance plans cover the following areas of the State: 1) Camden County – All of Camden County; 2) Nine Not-Classified Areas - the City of Atlantic City (in Atlantic County), the City of Burlington (in Burlington County), the Borough of Freehold (in Monmouth County), the Town of Morristown (in Morris County), the Borough of Penns Grove (in Salem County), the City of Perth Amboy (in Middlesex County), the Borough of Somerville (in Somerset County), the Toms River Area (in Ocean County), and the City of Trenton (in Mercer County); and 3) Northeastern New Jersey - Hudson, Essex, Bergen and Union Counties, and the municipalities of Clifton, Passaic and Paterson in Passaic County (part of the New York City/Northern New Jersey/Long Island carbon monoxide maintenance area).

On August 12, 2011, USEPA issued a decision to retain the existing NAAQS for CO.

USPA is revising minimum requirements for CO monitoring by requiring CO monitors to be sited near roads in certain urban areas. For more details see the USEPA Fact Sheet at: <http://www.epa.gov/airquality/carbonmonoxide/pdfs/COFactSheetAugust12v4.pdf>

For a map of the maintenance areas in New Jersey for the CO standard, click [here](#). For a table of the above counties/municipalities designated as nonattainment for CO, click



[here](#). For more information on the CO nonattainment designation, visit the [USEPA's website](#).

### **Nitrogen Dioxide (NO<sub>2</sub>) NAAQS**

In 1971, the USEPA established the NAAQS for nitrogen dioxide (NO<sub>2</sub>) as an annual (arithmetic mean) standard set at 0.053 ppm (100 µg/m<sup>3</sup>), which the State of New Jersey has never exceeded.

On June 26, 2009, the USEPA proposed revised NO<sub>2</sub> standards. On January 22, 2010, the USEPA established a new 1-hour NO<sub>2</sub> standard at 100 parts per billion (ppb) and retained the current annual average NO<sub>2</sub> standard of 53 ppb. To determine compliance with the new standard, the USEPA is establishing new ambient air monitoring and reporting requirements for NO<sub>2</sub> by requiring NO<sub>2</sub> monitors to be sited near roads in certain urban areas.

On February 11, 2011, New Jersey submitted its recommendations for NO<sub>2</sub> designations to the USEPA (<http://www.state.nj.us/dep/baqp/NO2.pdf>). On February 12, 2012, New Jersey was designated by the USEPA as unclassifiable/attainment. For more information on NO<sub>2</sub> area designations, visit the [USEPA's website](#).

### **Lead (Pb) NAAQS**

In 1978, the USEPA established a lead NAAQS as a quarterly average standard set at 1.5 µg/m<sup>3</sup>. On October 15, 2008, the USEPA revised the lead NAAQS and established it as a rolling 3-month average (maximum) not to exceed 0.15 µg/m<sup>3</sup> over a 3-year period.

The State has not exceeded the 1978 standard since the early 1970s, and currently the entire state is designated as attainment for lead under the 1.5 µg/m<sup>3</sup> standard, established in 1978. The USEPA will retain the 1978 lead NAAQS until one year after designations for the new standards, except in current nonattainment areas. In those areas, the USEPA will retain the 1978 standard until the area submits, and the USEPA approves, attainment and/or maintenance demonstrations for the new standards.

On October 15, 2009, New Jersey submitted its [recommendations](#) for lead designations to the USEPA. On June 15, 2010, the USEPA responded to these recommendations, click [here](#).

On December 23, 2009, the USEPA proposed to lower the lead emissions monitoring threshold from 1.0 tons per year (tpy) to 0.50 tpy and require lead monitoring at NCore Network sites instead of the current requirement to place lead monitors in each Core Based Statistical Area with a population of 500,000 or more people. For more details on this proposal, click [here](#).

On November 22, 2011, New Jersey was designated by the USEPA as unclassifiable/attainment. For more details on this designation click [here](#). For more information on the USEPA's designation process for the lead NAAQS, click [here](#).

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