

State Implementation Plans (SIPs)

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What is a SIP?

New Jersey's State Implementation Plan (SIP) for air quality is required by the Federal Clean Air Act (CAA). It is the state's plan for how it will attain or maintain compliance with the National Ambient Air Quality Standards (NAAQS) for an air quality control region, and in the case of a nonattainment area, by the attainment date established for the standard. States in the same nonattainment area must work together to develop plans to address air quality in the entire area.

New Jersey's SIP is comprised of several reports and regulations developed by the state, designed to reduce air pollution in the state. As part of the SIP, a state must implement programs that ensure compliance with the NAAQS such as air pollution control regulations, ambient air monitoring, permitting, actual emissions reporting, compliance and enforcement, stack testing and vehicle inspection and maintenance. For nonattainment areas, or areas that were redesignated to attainment and are considered in maintenance, the SIP must also ensure that no backsliding occurs regarding existing air pollution control measures. This means that the control measures that were approved into the SIP to attain and maintain the standard either continue to remain in place or are replaced with comparable measures that would reduce similar emissions of the pollutant or pollutant precursors. A state is also responsible for ensuring in its SIP that no significant adverse air pollution impacts from the state are transported downwind to other states.

SIPs are often described as a "living document" because there are continuous revisions made to a state's plan to clean the air. Although there are many types of SIP revisions, each revision works towards achieving, maintaining, and enforcing the NAAQS set by the USEPA. Several things can trigger the development of a SIP revision including a change to the NAAQS, a change in compliance as demonstrated by air monitoring data, or new state air regulations.

What are the NAAQS?

The NAAQS are concentration levels set by the United States Environmental Protection Agency (USEPA) for six different air pollutants, referred to as "criteria pollutants" including: ozone, particulate matter, carbon monoxide, lead, nitrogen dioxide and sulfur dioxide. The USEPA has established both primary and secondary national standards. Primary standards are designed to provide protection to public health, while secondary standards provide protection to public welfare, such as protection against decreased visibility, and damage to animals, crops and buildings. The USEPA reviews the NAAQS every five years to determine if revisions are warranted for the current standards in place.

What are Nonattainment Areas, Designations and Classifications?

An air quality control region (AQCR) is a federally designated area that is required to meet and maintain the NAAQS. The CAA defines an air AQCR as a contiguous area where air quality, and thus air pollution, is relatively uniform. In those cases where topography is a factor in air movement, AQCRs often correspond with airsheds. AQCRs may consist of two or more cities, counties or other governmental entities, and may cross state lines. 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 not in attainment (known as nonattainment areas) based on air quality monitoring data and other factors such as commuting patterns. States have one year from the date the NAAQS is promulgated to provide recommendations to USEPA on designations. New Jersey is part of multiple single state and multi-state air quality control regions. Based on the CAA, the USEPA further classifies ozone, carbon monoxide, and particulate matter nonattainment areas based on the magnitude of an area's exceedance of the NAAQS into categories such as Marginal (ozone only), Moderate, Serious, Severe or Extreme. Each classification has different SIP requirements. Maps of the United States nonattainment areas for each criteria pollutant NAAQS can be found on USEPA's website at: <https://www.epa.gov/green-book>.

Attainment Dates and Reclassifications

The required attainment date may be from three to 20 years after a new NAAQS is set based on the pollutant and how severe the problem is. If an area does not meet its attainment date, then it may be reclassified, or "bumped up" to a higher classification, and given additional SIP requirements and a new attainment deadline. If an area measures attainment at its ambient air monitors prior to the deadline for attainment, then the state may receive a "Clean Data Determination" from EPA and be exempt from several portions of the attainment

demonstration. However, the area will remain designated as nonattainment until the USEPA approves a state's redesignation to attainment request and the state's maintenance plan.

Public Participation and USEPA Approval of the SIP

All SIPs are proposed for public review and comment by the state as required by the CAA. The New Jersey Department of Environmental Protection (NJDEP) posts all SIP proposals on its website. The NJDEP also provides a public hearing, if requested by the public, and is required to provide a minimum of 30 days for the public to submit comments. However, New Jersey's public comment periods for SIP proposals are typically longer than 30 days. Once the public comment period has ended, the public comments received and the NJDEP's response to those comments are added to the final SIP document.

The final SIP is then submitted to the USEPA for review and approval. Within 60 days of the USEPA receipt of a SIP or SIP revision, the USEPA must make a determination if the submittal is complete. Within 12 months of a determination of completeness the USEPA must act on the submission. Act can mean a full or partial approval or disapproval, a conditional approval or a call for plan revisions. When the USEPA proposes action on a state's SIP, there is another opportunity for public comment on the SIP revision. If the USEPA approves a SIP revision, it is considered federally enforceable and part of the state's SIP. If the state fails to submit a required SIP revision or if the SIP revision does not fully comply with the CAA, then the USEPA can issue a Federal Implementation Plan (FIP), which is an air quality plan developed by the USEPA. In some cases, the USEPA may also impose sanctions on the state per the CAA, including the loss of transportation project funding.

Types of SIP revisions

Some SIPs are required for all air pollution control areas and others are only required if the air pollution control area has been designated nonattainment.

Infrastructure SIP and Transport

An infrastructure SIP is required for all air pollution control areas in the country regardless of their attainment status. It demonstrates that a state has the necessary structure and programs in place to attain and/or maintain a new or revised NAAQS including regulations, a monitoring program, a permitting program, an enforcement program and the ability to complete SIPs, attainment planning and modeling. The state must also have emergency air pollution episode plans and the authority to implement them to protect public health in an emergency. An Infrastructure SIP also requires states to demonstrate the ability to control any emission source that significantly impacts surrounding states, to prohibit emissions that will significantly contribute to nonattainment of a NAAQS in a downwind state, and to prohibit a downwind state from maintaining attainment of a NAAQS. This portion of the Infrastructure SIP is referred to as the "Transport" or "Good Neighbor" SIP. A state has three years to submit an infrastructure SIP once a standard is revised.

The CAA requires that states include a permitting program in their SIP to ensure stationary sources of air pollution do not interfere with the attainment or maintenance of a NAAQS. The prevention of significant deterioration (PSD) program applies to new and modified major sources in an attainment or unclassifiable area. New Jersey's PSD permitting program applies when a major source that is located in an area designated as attainment or unclassifiable for any criteria pollutant, is constructed, or undergoes a major modification. All PSD permits require the installation of the "Best Available Control Technology" (BACT), an air quality analysis, an additional impact analysis, and public participation. New Jersey's minor New Source Review (NSR) program applies to the construction or modification of minor sources, whether the area in which the source is located is designated as attainment or nonattainment. States can customize the requirements of the minor NSR program if their program meets the minimum requirements. Note, the entire state of New Jersey is in nonattainment for ozone, therefore, nonattainment new source review (NNSR discussed further below) and not PSD applies in New Jersey for ozone.

Attainment Demonstration SIP

If USEPA designates an area as nonattainment for a certain pollutant, then the state must show how it plans to reach attainment of the area by the attainment date in an "Attainment Demonstration SIP". For some pollutants, the required components of the Attainment Demonstration SIP are based on the nonattainment area's classification, or severity of the nonattainment. For example, an attainment demonstration SIP is required for ozone nonattainment areas classified as Moderate, Serious, Severe and Extreme but not needed for a Marginally classified area. For fine particulate matter (PM_{2.5}), areas classified as Moderate and Serious are required to provide an attainment demonstration SIP.

The components of an attainment demonstration SIP include an air monitoring analysis, air pollution control strategies, emissions inventory for base and future years, atmospheric modeling for base and future years and a

conformity analysis for Federally funded projects to ensure that they conform with the goals of the SIP. The components of the SIP are explained further below.

Depending on the classification, nonattainment areas may also be required to have programs for major source emission statement reporting, nonattainment area permitting (explained further below), vehicle inspection and maintenance (IM) and transportation conformity. Basic IM is required for all ozone Moderate areas, enhanced IM is required for all ozone Severe areas as well as all areas in the Ozone Transport Region (OTR) ¹ regardless of classification (an “enhanced” IM program is more stringent than a “basic” IM program). Compliance with these program requirements must be documented in the SIP.

The air pollution control measure portion of the SIP may contain four components, depending on the pollutant: a Reasonable Further Progress (RFP) analysis, a Reasonably Available Control Measures (RACM) analysis, a Reasonably Available Control Technology (RACT) analysis and contingency control measures.

RFP

An attainment SIP must demonstrate RFP, in the years prior to the attainment date, to show that the State is on target for meeting the goal of attainment. For example, the CAA requires Moderate areas to obtain 15 percent ozone precursor emission reductions over the first 6 years after the baseline year. Serious and above areas must obtain 18 percent ozone precursor emission reductions in the 6 year period.

RACM and RACT

A RACM analysis ensures that all reasonable measures are implemented to meet RFP requirements and to reach attainment of the NAAQS as expeditiously as practicable. RACT measures are a subset of RACM that apply to major stationary sources and are the lowest emission that a source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility. RACT is required for all Moderate areas and all areas in the OTR regardless of classification.

Contingency Measures

A state must include contingency control measures in the SIP in the event that the state fails to attain the standard by the attainment date with the attainment control measures that have been included in the SIP. Contingency control measures are those measures not otherwise included in the SIP modeling and RFP demonstrations.

Conformity

The SIP includes a conformity analysis for Federally funded projects to ensure that they conform with the goals of the SIP in accordance with CAA requirements. The CAA requires that Federal actions conform to a state’s SIP. Specifically, the act requires the Federal action/activity will not:

- Cause or contribute to any new violation of any standard in any area;
- Increase the frequency or severity of any existing violation of any standard in any area; or,
- Delay timely attainment of any standard or any required interim emission reductions or any other milestones in any area.

To implement this requirement, the CAA directed the USEPA to issue rules that govern how conformity determinations would be conducted for two categories of actions/activities: a) those dealing with transportation plans, programs and projects (Transportation Conformity), and b) all other actions, e.g., projects requiring Federal permits. This latter category is referred to as General Conformity.

NNSR

The Nonattainment New Source Review (NNSR) program is implemented when a new, major stationary source is constructed in a nonattainment area, or if the emissions from a modified, existing, major stationary source exceed certain thresholds in a nonattainment area. NNSR applicability threshold requirements and offset requirements are different depending on the classification of the area; however, New Jersey implements the requirements for a Severe area statewide based on its previous classification for 1-hour ozone. All NNSR

¹ The OTR is a multi-state region created under the CAA consisting of Connecticut, Delaware, the District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Virginia.

programs must include the installation of controls that meet the lowest achievable emission rate (LAER), emission offsets, and an opportunity for public participation. Offsets are emission reductions generally obtained from existing sources located in the vicinity of a proposed source that must (1) offset the emissions increase from the new source or modification and (2) provide a net air quality benefit.

Redesignation and Maintenance SIPs

A state may submit a request to USEPA to redesignate an area to attainment when an area's monitors demonstrate compliance with a standard. If the area includes multiple states, then all of the monitors in each state must measure attainment in order for a state to submit a redesignation request. However, not all states have to submit at the same time in order for the USEPA to approve a state's redesignation request. The SIP must demonstrate that the area is estimated to continue to meet the NAAQS for at least ten years after redesignation. At the end of the first ten-year period, another maintenance plan SIP is required to ensure compliance with the NAAQS for the next ten years. A state must also include contingency control measures in the SIP in the event that the state fails to maintain the standard with designated maintenance control measures.

Regional Haze SIP

The Clean Air Act provides specific requirements to improve visibility at certain federally-designated Class I areas (national parks and wilderness areas). New Jersey is home to a Class I area: the Brigantine Wilderness Area of the Edwin B. Forsythe National Wildlife Refuge, located in southern New Jersey. States are required to address visibility through the reduction of haze in Regional Haze SIPs with the ultimate goal of returning visibility levels within Class I areas to their natural conditions by the year 2064. Regional Haze SIPs are prepared every 10 years, with 5-year progress reports in-between, to demonstrate incremental progress towards the 2064 goal.

Helpful Websites

NJDEP: Attainment Status and SIP webpages

<https://dep.nj.gov/airplanning/naaqs-and-attainment-area-status/>

<https://dep.nj.gov/airplanning/state-implementation-plans-sips/>

USEPA: The Clean Air Act

<https://www.USEPA.gov/clean-air-act-overview/clean-air-act-text>

USEPA: Basic Information about Air Quality SIPs

<https://www.USEPA.gov/sips/basic-information-air-quality-sips>

USEPA: SIP Requirements for Ozone Nonattainment Areas:

<https://www.USEPA.gov/ground-level-ozone-pollution/required-sip-elements-nonattainment-classification>

USEPA: SIP Requirements for Particulate Matter Nonattainment Areas:

<https://www.USEPA.gov/pm-pollution/particulate-matter-pm-nonattainment-area-sip-requirements>

USEPA: Nonattainment Areas for Criteria Pollutants (Green Book)

<https://www.USEPA.gov/green-book>

USEPA: Air Quality Implementation Plans

<https://www.USEPA.gov/air-quality-implementation-plans>