The State of New Jersey
Department of Environmental Protection

State Implementation Plan (SIP) Revision
for
Maintenance of the Fine Particulate Matter (PM2.5)
2006 24-hour 35 µg/m^3
National Ambient Air Quality Standards

Limited Maintenance Plan

July 2023

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ACRONYMS AND ABBREVIATIONS

µg/m^3	Micrograms per cubic meter
BPU	Board of Public Utilities
CAA	Clean Air Act
CASAC	Clean Air Scientific Advisory Committee
CDV	Critical Design Value
CFR	Code of Federal Regulations
CSAPR	Cross-State Air Pollution Rule
CTG	Control Technique Guideline
DV	Design Value
EDA	Economic Development Authority
EGU	Electric Generating Unit
EO	Executive Order
EV	Electric Vehicle
Fed. Reg.	Federal Register
FRM	Federal Reference Method
HDDV	Heavy Duty Diesel Vehicle
HEDD	High Electric Demand Day
ISA	Integrated Science Assessment
ICI	Industrial, Commercial, and Institutional
I/M	Inspection and Maintenance
kW	Kilowatt
LEV	Low Emission Vehicle
LMP	Limited Maintenance Plan
MACT	Maximum Available Control Technology
MOU	Memorandum of Understanding
MOVES	Motor Vehicle Emission Simulator
MPO	Metropolitan Planning Organization
NAA	Nonattainment Area
NAAQS	National Ambient Air Quality Standards
NESCAUM	Northeast States for Coordinated Air Use Management
NESHAP	National Emission Standards for Hazardous Air Pollutants
NH_3	Ammonia
NJDEP	New Jersey Department of Environmental Protection
NJDOT	New Jersey Department of Transportation
NJPACT	New Jersey Protecting Against Climate Threats
N.J.R.	New Jersey Register
NNSR	Nonattainment New Source Review
NO_x	Nitrogen Oxides

NSPS	New Source Performance Standard
NSR	New Source Review
OBD	On-Board Diagnostics
PA	Policy Assessment
PM2.5	Fine Particulate Matter
ppm	parts per million
PSD	Prevention of Significant Deterioration
PSEG	Public Service Electric and Gas Company
RACT	Reasonably Available Control Technology
RGGI	Regional Greenhouse Gas Initiative
RICE	Reciprocating Internal Combustion Engine
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
TDM	Travel Demand Model
U.S.C.	United States Code
USEPA	United States Environmental Protection Agency
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds
ZEV	Zero Emission Vehicle

EXECUTIVE SUMMARY

The Clean Air Act (CAA) Section 175A requires that, eight years after redesignation of any area to an attainment area, states submit an additional revision of the SIP for maintaining the National Ambient Air Quality Standard for the ten years beyond the initial ten-year maintenance period. This SIP revision is the second PM2.5 maintenance plan for the 2006 24-hour PM2.5 standard of 35 micrograms per cubic meter ($\mu g/m^3$) in accordance with the requirements of CAA Section 175A. This maintenance plan is a limited maintenance plan (LMP) for PM2.5 for both of New Jersey's multi-state maintenance areas.

This LMP demonstrates that both of New Jersey's multi-state maintenance areas (the Northern New Jersey-New York-Connecticut and Southern New Jersey-Pennsylvania Areas) are meeting the 24-hour 35 $\mu g/m^3$ National Ambient Air Quality Standard (NAAQS) for fine particulates (PM2.5). Air quality monitoring data show measured PM2.5 levels are well below the NAAQS, with a historical trend of improving PM2.5 air quality for both of New Jersey's multi-state PM2.5 areas. Measured PM2.5 concentrations in the compliance monitors have demonstrated attainment of the PM2.5 NAAQS for at least 13 years. The latest 2022 monitoring data is approximately 37 percent below the 24-hour 35 $\mu g/m^3$ standard in New Jersey's northern area and approximately 34 percent below the standard in New Jersey's southern area.

PM2.5 has significant health effects with no clear threshold below which adverse effects are not experienced by at least certain segments of the population. Exposure to PM2.5 can cause a variety of health problems, such as premature mortality, decreased lung function, difficulty breathing, and asthma attacks. Other effects include reduced visibility, loss of biodiversity, damage to manmade structures, sensitive forests, and farm crops, and contribution to global warming and the formation of acid rain.

This LMP includes the following components: an LMP eligibility demonstration, emissions inventories, a maintenance demonstration that includes a statement of continued applicability of Prevention of Significant Deterioration (PSD) requirements and a summary of control measures in the SIP, a discussion of New Jersey's monitoring network, monitoring results and verification of continued attainment, a contingency plan and a conformity discussion.

New Jersey is required to demonstrate that it meets the criteria for qualifying for an LMP. The critical design value (CDV) demonstration shows the likelihood of future violations of the NAAQS given the current average design value and its variability. The demonstration shows that for all the monitors in New Jersey's multi-state areas that have a minimum of three years of design value data, the average design values are less than the respective site-specific CDV. For transportation conformity, New Jersey has demonstrated that it would be unreasonable to expect that the Northern and Southern New Jersey multi-state areas would experience enough motor vehicle emissions growth for a NAAQS violation to occur.

New Jersey attained the standards due to permanent and enforceable measures that the State and federal government adopted and/or implemented. Continued attainment is projected through 2033 based on inventory trends, current monitoring data, monitoring data historical trends and permanent and enforceable control measures that the State and federal government have adopted and/or implemented. The year 2033 represents the end of the second maintenance period.

New Jersey will continue to track and evaluate PM2.5 air concentrations and take appropriate steps to maintain the NAAQS. To verify that the New Jersey portions of its shared multi-state PM2.5 areas remain in attainment, New Jersey will continue to operate an appropriate air monitoring network. New Jersey will work with the other states in the shared multi-state areas,

as necessary. The LMP includes a contingency plan that will be promptly implemented to assess and correct a violation of the NAAQS should one occur.

1.0 INTRODUCTION

The purpose of this State Implementation Plan (SIP) revision is to meet the requirements of the Clean Air Act (CAA) regarding the fine particulate matter (PM2.5) National Ambient Air Quality Standards (NAAQS). The CAA Section 101 requires all areas of the nation to attain and maintain compliance with the NAAQS. These standards are designed to protect public health and welfare from specific pollutants.

The CAA Section 175A requires that eight years after redesignation of any area as an attainment area, states submit an additional revision of the SIP for maintaining the National Ambient Air Quality Standard for the ten years beyond the initial ten-year maintenance period.

This SIP revision is the second PM2.5 maintenance plan for the 2006 24-hour PM2.5 standard of 35 micrograms per cubic meter ($\mu g/m^3$) [1] in accordance with the requirements of CAA Section 175A. This maintenance plan is a limited maintenance plan (LMP) for PM2.5 for both of New Jersey's multi-state maintenance areas which include:

- The New Jersey portion of the Northern New Jersey, New York, and Connecticut (NNJ-NY-CT) PM2.5 area including the following ten counties: Bergen, Essex, Hudson, Mercer, Middlesex, Monmouth, Morris, Passaic, Somerset, and Union. Other States' counties in this maintenance area include Bronx, Kings, Nassau, New York, Orange, Queens, Richmond, Rockland, Suffolk and Westchester Counties in New York, and Fairfield and New Haven counties in Connecticut; and

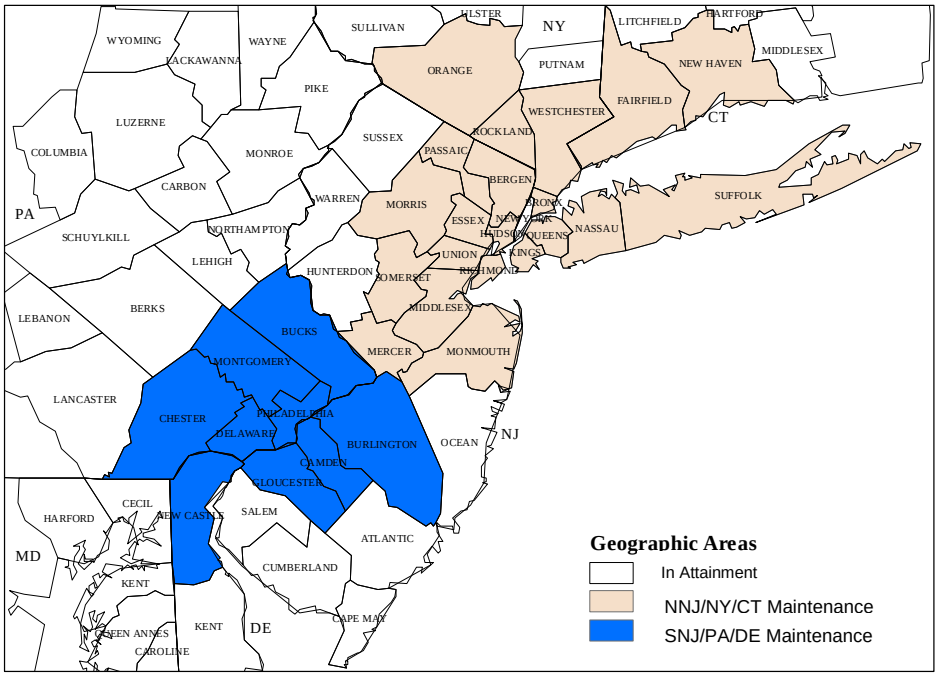
- The New Jersey portion of the Southern New Jersey, Pennsylvania, and Delaware (SNJ-PA-DE) PM2.5 maintenance area including three counties: Burlington, Camden, and Gloucester. Other States' counties in this maintenance area include Bucks, Chester, Delaware, Montgomery, and Pennsylvania Counties in Pennsylvania, and New Castle County in Delaware.

This second ten-year maintenance plan will cover the period from November 20, 2023, to November 20, 2033.

Figure 1-1 shows New Jersey's multi-state PM2.5 maintenance areas.

[1] 71 Fed. Reg. 61144 (October 17, 2006)

Figure 1-1:
New Jersey's Multi-State PM2.5 Maintenance Areas



1.1 Background

The primary NAAQS are designed to protect the public health with a margin of safety, including sensitive populations such as asthmatics, children, and the elderly. There are two primary PM2.5 NAAQS:

- a 2012 annual PM2.5 health-based standard of 12 micrograms per cubic meter ($\mu g/m^3$); and
- a 2006 24-hour PM2.5 health-based standard of 35 micrograms per cubic meter ($\mu g/m^3$).[2]

Simultaneously, the United States Environmental Protection Agency (USEPA) established secondary (welfare based) PM2.5 standards. The secondary PM2.5 standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. The annual PM2.5 secondary standard is 15 $\mu g/m^3$ and the 24-hour PM2.5 secondary standard is 35 $\mu g/m^3$.

The USEPA set the PM2.5 standards with 24-hour and annual averaging times to protect against effects from short- and long-term exposure identified by a number of published epidemiological studies. Attainment of the PM2.5 NAAQS represents a significant health benefit to the citizens of New Jersey. Exposure to PM2.5 can cause a variety of health problems, such as premature mortality, decreased lung function and difficulty breathing, asthma attacks, and other effects, such as reduced visibility, loss of biodiversity, and damage to manmade structures, sensitive forests, and farm crops, and contributes to global warming and the formation of acid rain.

[2] 71 Fed. Reg. 61144 (October 17, 2006).

1.1.1 PM2.5 Historical Summary for New Jersey

On July 18, 1997, the annual 15 µg/m^3 PM2.5 NAAQS was promulgated.

On January 5, 2005, 13 New Jersey counties were designated nonattainment for the annual standard of 15 µg/m^3.

On October 16, 2006, the 24-hour 35 µg/m^3 PM2.5 NAAQS was promulgated.

On December 22, 2006, New Jersey submitted a letter to the USEPA addressing the Transport portion of the CAA Section 110(a)(2)D for the 1997 annual 15 µg/m^3 PM2.5 NAAQS.

On February 25, 2008, New Jersey submitted an Infrastructure SIP revision to the USEPA addressing the remaining requirements under Section 110(a)(1) and (2) of the CAA for the 1997 annual PM2.5 15 µg/m^3 NAAQS.

In February 2009, the US Court of Appeals for the DC Circuit remanded the 2006 PM2.5 24-hour standards after a challenge to the standards by several environmental groups and states. By remanding the standards rather that vacating, the Court left the standards intact while EPA reconsidered the standards.

On March 26, 2009, New Jersey submitted a PM2.5 Attainment Demonstration SIP to the USEPA to demonstrate how the State's two shared multi-state nonattainment areas would come into attainment with the 1997 annual PM2.5 NAAQS by their attainment date of April 5, 2010. New Jersey provided technical supplements to the attainment plan on December 17, 2009, and June 29, 2010.

On November 13, 2009, USEPA designated 13 counties in the NNJ-NY-CT area as nonattainment for 2006 24-hour PM2.5 NAAQS.[3]

On January 15, 2010, New Jersey submitted an Infrastructure Certification to the USEPA addressing the requirements under Section 110(a)(1) and (2) of the CAA for the 24-hour PM2.5 35 µg/m^3 NAAQS.

On August 2, 2010, the USEPA proposed to issue a determination[4] that the NNJ-NY-CT PM2.5 nonattainment area met the 1997 annual 15 µg/m^3 PM2.5 NAAQS. The USEPA finalized this decision on November 15, 2010.[5] This final action suspended the requirements for this area to submit an attainment demonstration and other planning SIPs related to attainment of the 1997 PM2.5 NAAQS for so long as the area continues to attain the 1997 PM2.5 NAAQS.

On July 20, 2011, the USEPA issued a disapproval[6] of the transport section of the January 15, 2010 Infrastructure Certification for Section 110(a)(2)D. USEPA's intention was for the Cross State Air Pollution Rule (CSAPR), which was finalized on July 6, 2011, to be the Federal Implementation Plan (FIP) that USEPA implemented for the State.

October 5, 2011, NJDEP sent a request to the USEPA to determine that the NNJ-NY-CT PM2.5 nonattainment area had attained the 2006 24-hour 35 µg/m^3 PM2.5 NAAQS and that the SNJ-PA-

[3] 74 Fed. Reg. 58688 (November 13, 2009).
[4] 75 Fed Reg. 45076 (August 2, 2010).
[5] 75 Fed. Reg. 69589 (November 15, 2010).
[6] 76 Fed. Reg. 43153 (July 20, 2011).

DE nonattainment area had attained both the 35 µg/m^3 24-hour and the 15 µg/m^3 annual PM2.5 NAAQS.

On January 23, 2012, USEPA proposed to determine that the SNJ-PA-DE PM2.5 nonattainment area met the 1997 annual 15 µg/m^3 PM2.5 NAAQS. The USEPA finalized this decision on May 16, 2012.[7]

On December 14, 2012, EPA finalized an update to the NAAQS for PM2.5. The annual standard was reduced from 15 µg/m^3 to 12 µg/m^3. The 24-hour 35 µg/m^3 PM2.5 standard was not changed. The revised 2012 PM standard became effective on March 18, 2013.[8]

On December 26, 2012, NJDEP sent a SIP request to USEPA to redesignate the NNJ-NY-CT and SNJ-PA-DE nonattainment areas from nonattainment to attainment for the 1997 annual and 2006 24-hr 24-hour PM2.5 NAAQS. The SIP also included the areas first ten-year maintenance plan.

On September 4, 2013, USEPA approved the redesignation request to attainment and maintenance plan for the NNJ-NJ-CT and SNJ-PA-DE for the 1997 annual and 2006 24-hr PM2.5 NAAQS.[9]

On November 7, 2013, New Jersey withdrew its 2009 attainment demonstration SIP for the annual PM2.5 standard of 15 µg/m^3. Since the time that the Department submitted its PM2.5 SIP in 2009, USEPA determined that New Jersey attained the standard by the attainment date of April 5, 2010 (Federal Registers dated 11/15/10[10] and 5/16/12[11]) and also redesignated New Jersey as attainment/maintenance (effective 9/4/2013[12]). Therefore, the SIP submittal required no action by USEPA.

On December 17, 2013, NJDEP recommended to USEPA that the entire State of New Jersey be designated attainment of the 2012 annual 12 µg/m^3 PM2.5 NAAQS.

On October 17, 2014, New Jersey submitted an Infrastructure SIP for the 2012 annual 12 µg/m^3 PM2.5 NAAQS.

On January 15, 2015, the USEPA designated the New Jersey portions of the NNJ-NY-CT and SNJ-PA-DE areas unclassifiable/attainment for the 2012 annual 12 µg/m^3 PM2.5 NAAQS.[13]

On August 14, 2018, the USEPA approved the portion of New Jersey's October 17, 2014, Infrastructure SIP submission that addresses interstate transport provisions for the 2012 annual 12 µg/m^3 PM2.5 NAAQS at CAA Section 110(a)(2)(D)(i)(I).[14]

On May 30, 2018, the USEPA approved New Jersey's Infrastructure SIP dated October 17, 2014, as supplemented on March 15, 2017, for the 2012 annual PM2.5 NAAQS. Additionally, USEPA approved three infrastructure requirements of 2006 24-hour 35 µg/m^3 PM2.5 NAAQS.[15]

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[7] 77 Fed. Reg. 28782 (May 16, 2012).
[8] 78 Fed. Reg. 3085 (January 15, 2013).
[9] 78 Fed. Reg. 54396 (September 4, 2013).
[10] 75 Fed. Reg. 69589 (November 15, 2010).
[11] 77 Fed. Reg. 28782 (May 16, 2012).
[12] 78 Fed. Reg. 54396 (September 4, 2013).
[13] 80 Fed. Reg. 2255 (January 15, 2015).
[14] 83 Fed. Reg. 40151 (August 14, 2018).
[15] 83 Fed. Reg. 24661 (May 30, 2018).

On December 18, 2020, USEPA retained the PM2.5 annual and 24-hour standards without revision.[16]

On June 10, 2021, the USEPA announced that it will reconsider the previous administration's decision to retain the PM NAAQS which were last strengthened in 2012.[17]

In May 2022 the USEPA issued a final Policy Assessment (PA)[18] regarding the reconsideration of the 2020 final decision on the NAAQS for PM and a supplement to the 2019 Integrated Science Assessment (ISA).[19] The draft ISA Supplement and the draft PA were reviewed by the Clean Air Scientific Advisory Committee (CASAC).[20] The final PA reflects consideration of the advice and comments from the CASAC, as well as public comments, on the draft PA.

The final PA concluded that the scientific evidence and information support revising the level of the annual standard for the PM2.5 NAAQS to below the current level of 12 $\mu g/m^3$ (as low as 8 $\mu g/m^3$) while retaining the 24-hour standard. With respect to CASAC advice, which is summarized in the final PA, the CASAC reached consensus that the current level of 12 $\mu g/m^3$ is not adequate for the primary annual PM2.5 standard but did not reach consensus on an alternate level. Majority of members recommend revision to a level of 8-10 $\mu g/m^3$. Minority of members recommend revision to a level of 10-11 $\mu g/m^3$. Regarding the primary 24-hour PM2.5 standard, the CASAC did not reach consensus on adequacy with the majority recommending revising to a level of 25-30 $\mu g/m^3$ and the minority recommending retaining the existing standard. The next step is for USEPA to propose a revised PM NAAQS.

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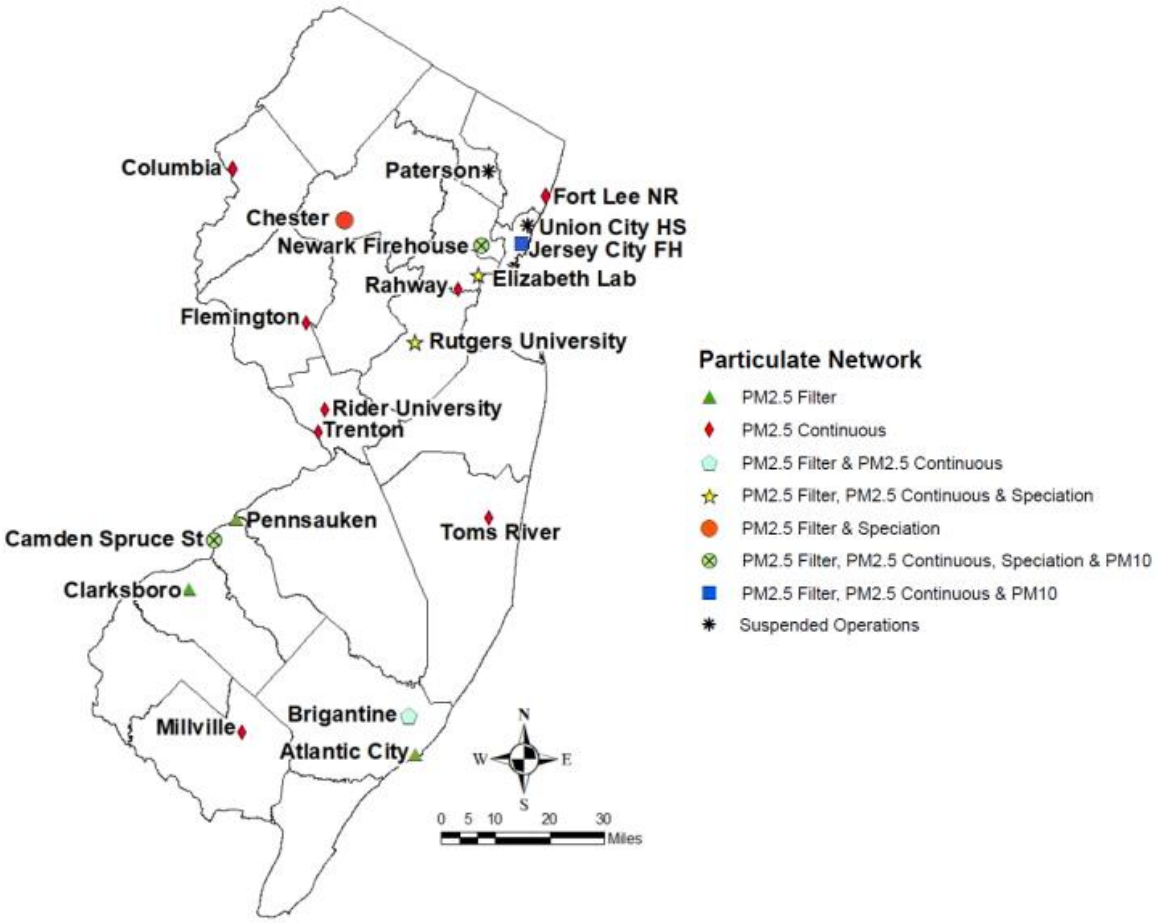
[16] 85 Fed. Reg. 82684 (December 18, 2020).
[17] USEPA, EPA to Reexamine Health Standards for Harmful Soot that Previous Administration Left Unchanged, EPA Press Office, June 10, 2021, epa.gov/newsreleases/.
[18] USEPA, Policy Assessment for the Reconsideration of the National Ambient Air Quality Standards for Particulate Matter, Office of Air Quality Planning and Standards, May 2022.
[19] USEPA, Supplement to the 2019 Integrated Science Assessment for Particulate Matter, Office of Research and Development, Center for Public Health & Environmental Assessment, Research Triangle Park, NC, May 2022.
[20] Dr. Elizabeth A. (Lianne) Sheppard, Chair CASAC, CASAC Review of the EPA's Policy Assessment for the Reconsideration of the National Ambient Air Quality Standards for Particulate Matter (External Review Draft – October 2021), March 18, 2022.

2.0 AIR QUALITY MONITORING

To determine compliance with the NAAQS for PM2.5, the USEPA established criteria for the monitoring of ambient concentrations of PM2.5 at 40 C.F.R. 58. The NJDEP particulate monitoring network in 2021 consisted of 20 PM2.5 monitoring sites as shown in Figure 2-1.

Figure 2-1:
PM2.5 Monitoring Locations in New Jersey



Compliance with the NAAQS is determined using data from air quality monitors to calculate design values (DV) at each site. A design value is a calculated concentration according to 40 CFR Appendix N to Part 50. The design value for the annual standard is the 3-year average of annual PM2.5 arithmetic mean for a single monitoring site or a group of monitoring sites. The design value for the 24-hour standard is the 3-year average of the 98th percentile 24-hour average values recorded at each monitoring site per year. The data from the monitor with the highest design value in the area are used to determine compliance with the NAAQS.

Historical PM2.5 design value trends are shown in Figures 2-2 through 2-5. As shown in the graphs, measured PM2.5 concentrations in the compliance monitors have demonstrated attainment of the PM2.5 NAAQS for at least 13 years. The latest 2022 monitoring data is approximately 37 percent below the 24-hour 35 $\mu g/m^3$ standard in New Jersey's northern area and approximately 34 percent below the standard in New Jersey's southern area. The historical trends demonstrate a significant decreasing trend from 2001 to 2022 of approximately 49 percent in the northern area and 60 percent in the southern area. The trends continue to show a decreasing

trend from 2010 to 2022 of approximately 26 percent in the northern area and 30 percent in the southern area. While data in the recent four to five years is relatively flat, some recent design values appear to be biased high as they have incomplete data, however, they are still significantly below the standard.

A tabular summary of historical monitoring data design values for both of New Jersey's multi-state maintenance areas, from 1999 to 2022, is included in Appendix 1.

Figure 2-2:
PM2.5 Design Value Trends
24-Hour Design Values 1999-2022
Northern NJ-NY-CT Area

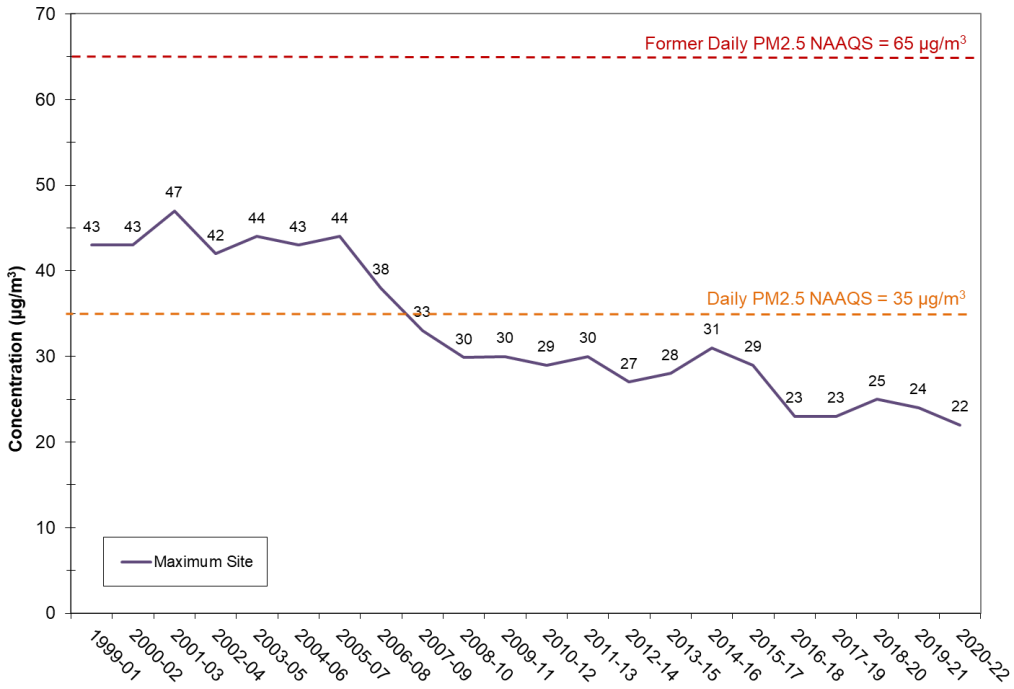


Figure 2-3:
PM2.5 Design Value Trends
24-Hour Design Values 1999-2022
Southern NJ-PA-DE Maintenance Area

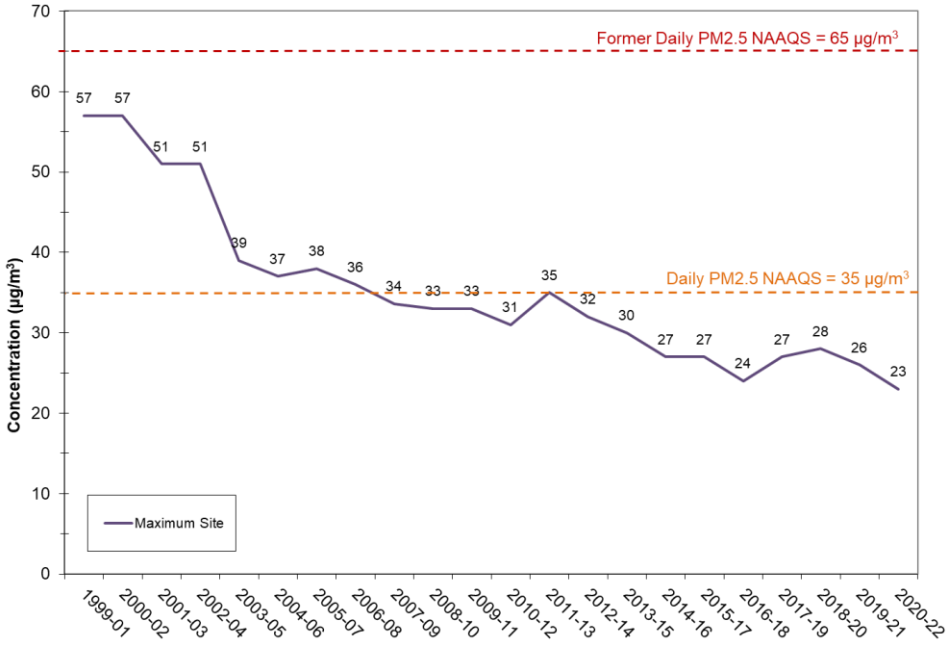


Figure 2-4:
PM2.5 Design Value Trends
Annual Design Values 1999-2022
Northern NJ-NY-CT Area

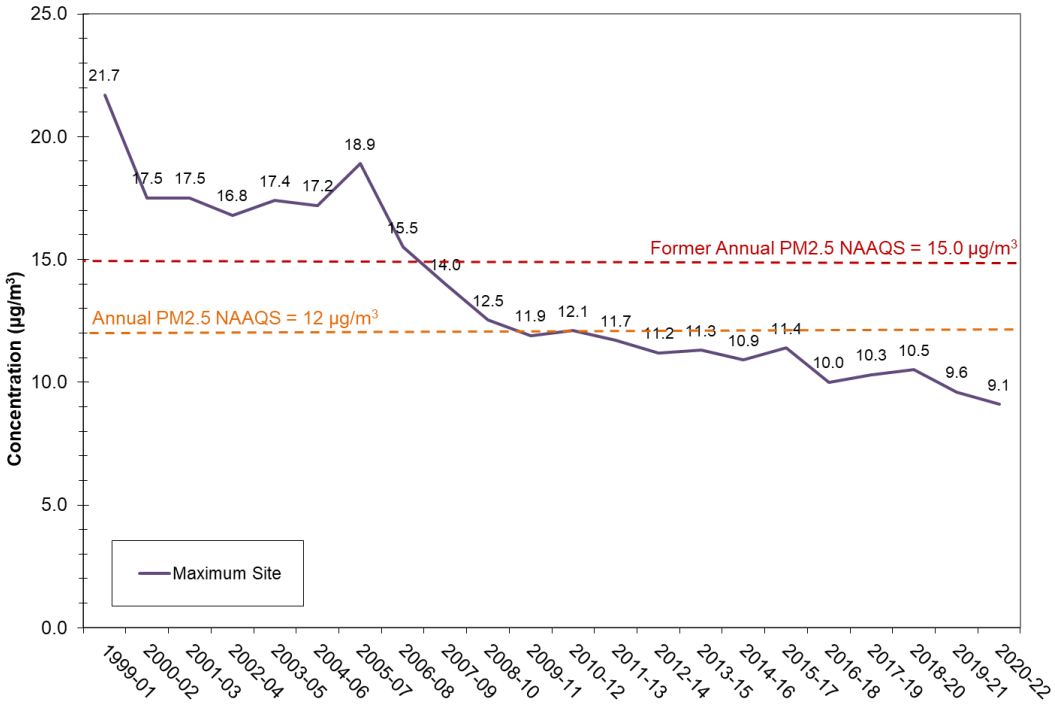
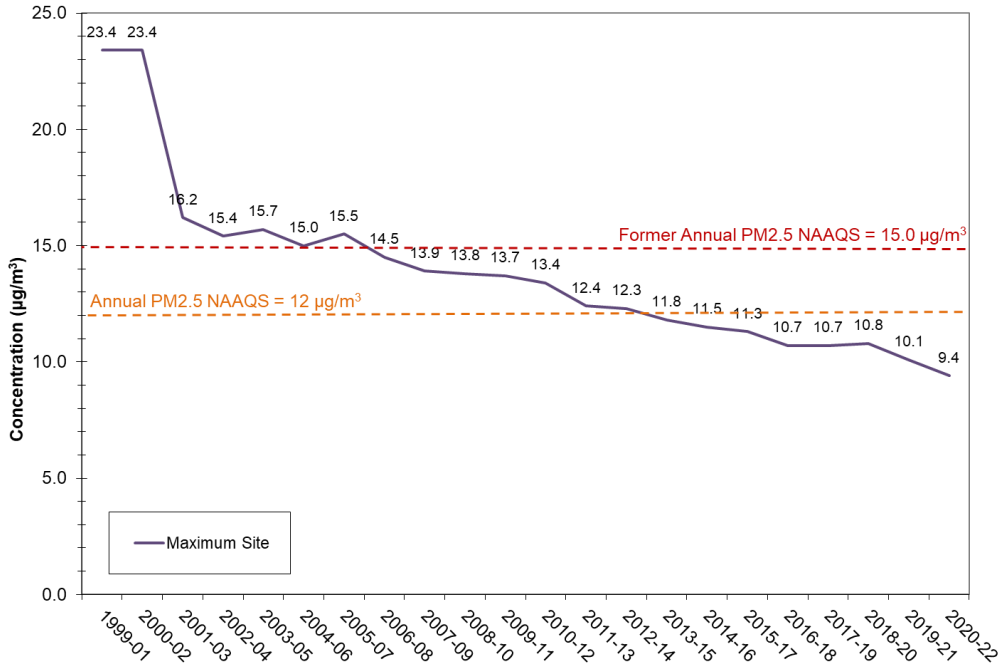


Figure 2-5:
PM2.5 Design Value Trends
Annual Design Values 1999-2022
Southern NJ-PA-DE Maintenance Area



The recent PM2.5 design values for each monitor in the multi-state areas are shown in Figures 2-6 through 2-9. Monitoring data tables showing the recent 24-hour standard design values and associated 98th percentile values are included in Appendix 2. The 2022 monitoring data continue to show compliance with the standards.

Figure 2-6:
2022 24-hour PM2.5 Design Values
Northern NJ-NY-CT Area

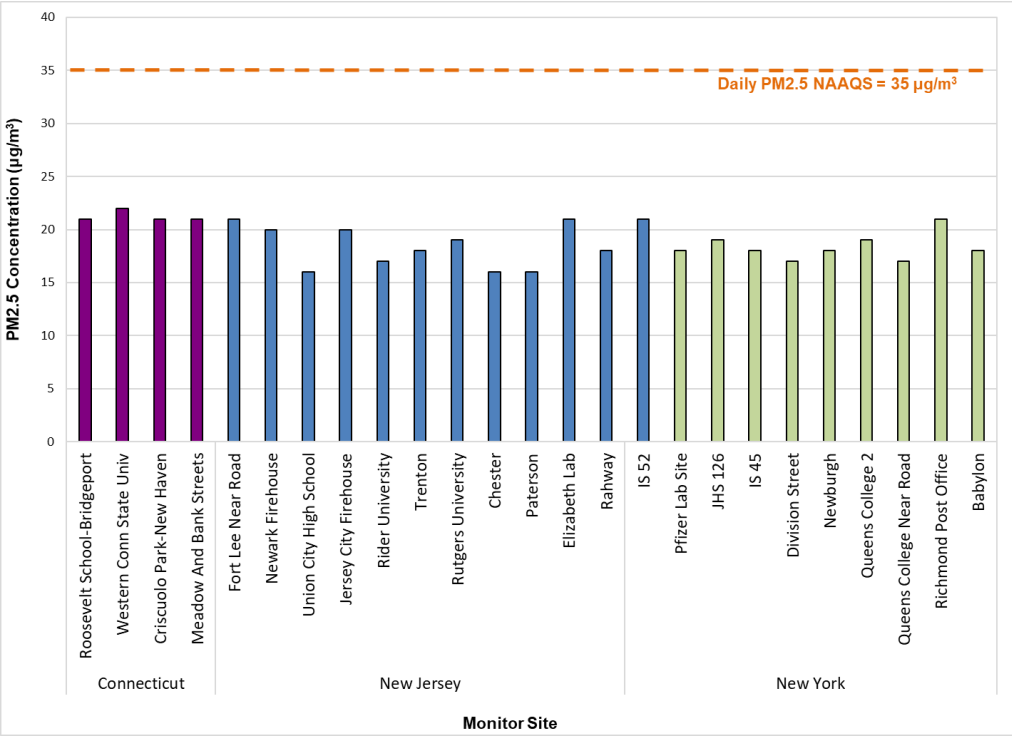


Figure 2-7:
2022 24-hour PM2.5 Design Values
Southern NJ-PA-DE Maintenance Area

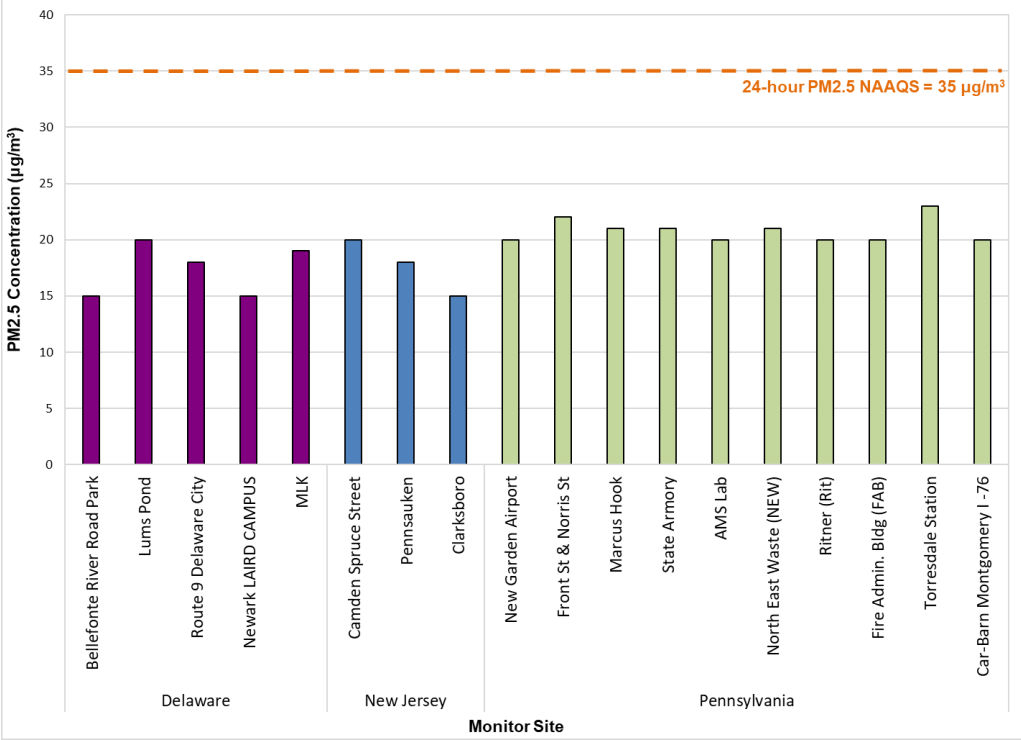
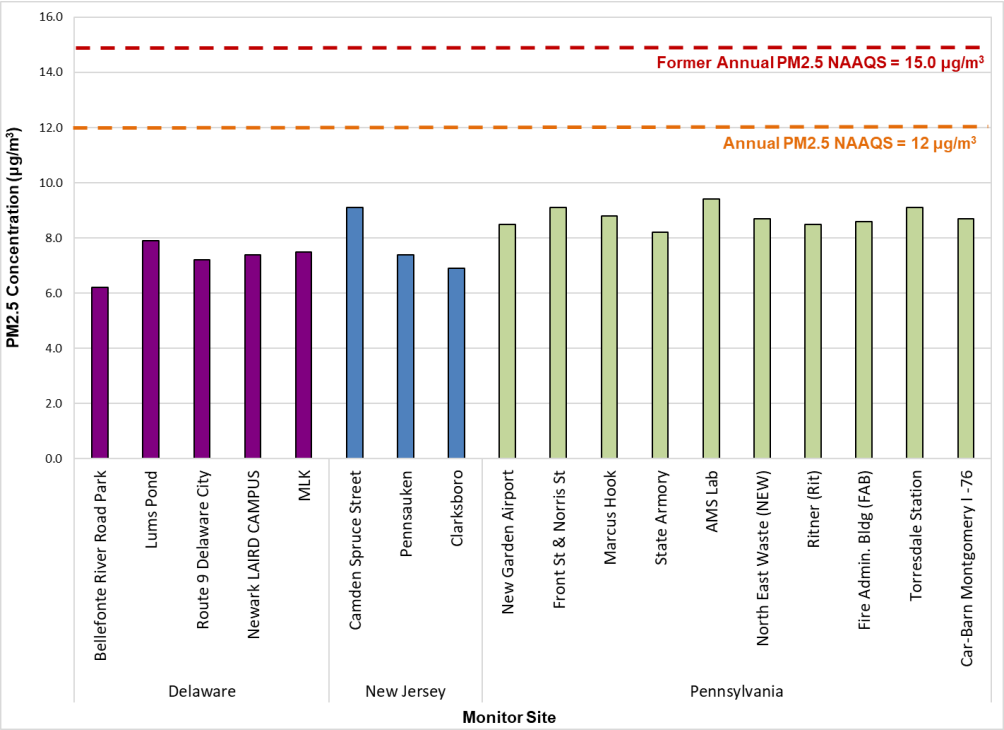


Figure 2-8:
2022 Annual PM2.5 Design Values
Northern NJ-NY-CT Area

Figure 2-9:
2022 Annual PM2.5 Design Values
Southern NJ-PA-DE Maintenance Area



3.0 LIMITED MAINTENANCE PLAN ELIGIBILTY DEMONSTRATION

The USEPA issued guidance in 2001[21] describing the eligibility criteria and planning requirements for LMPs for PM10. On October 27, 2022, USEPA issued similar guidance for PM2.5.[22] There are two main requirements to qualify for an LMP as follows:

1. Areas are eligible for a limited maintenance plan if the most recent five-year (or three year if five years of data is not available) average of 24-hour design values are below the site-specific critical design value (CDV).

2. A limited maintenance plan would have to demonstrate that it would be unreasonable to expect that such an area would experience enough motor vehicle emissions growth for a NAAQS violation to occur.

These demonstrations are discussed below.

3.1 Critical Design Value

The 2022 USEPA guidance document states that,

> "…this PM2.5 LMP Guidance relies on the critical design value (CDV) concept (explained in Appendix A of the PM10 guidance), which is used to reflect the unique variability of air quality concentrations for each monitoring site. To be eligible for a PM2.5 LMP, the air agency should calculate the site-specific CDV for the monitoring site with the highest design value and all other active monitoring sites with complete data in the relevant nonattainment or maintenance area. The air agency should demonstrate that the average design value (ADV) for each site in the area, based on the most recent 5 consecutive PM2.5 design values does not exceed the associated CDV for each site. If each site in the nonattainment area has an ADV that is less than the CDV, it would demonstrate that the area has PM2.5 concentrations that will likely remain below the level of the standard in the future."

The guidance also states that "an alternative interpretation may be acceptable, where these variables could be calculated using three years of design values, collectively representing five years of air quality data." CDVs are described in the PM10 LMP Guidance as "an indicator of the likelihood of future violations of the NAAQS given the current average design value and its variability."

The equation to calculate a CDV is as follows:

$$CDV = NAAQS / (1+t_C * CV)$$

Where:

CDV = Critical Design Value

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[21] USEPA, Memorandum from Lydia Wegman to Regional Air Branch Chiefs, "Limited Maintenance Plan Option for Moderate PM10 Nonattainment Areas," August 9, 2001.
[22] USEPA, "Guidance on the Limited Maintenance Plan Option for Moderate PM2.5 Nonattainment Areas and PM2.5 Maintenance Areas", October 27, 2022.

NAAQS (µg/m^3): Level of relevant annual or 24-hour PM2.5

t_C = Critical t-value corresponding to a probability of exceeding the NAAQS in the future and the degree of freedom in the estimate of the coefficient of variation = 1.553 based on an ADV calculation using five consecutive 3-year design values. If only three 3-year design values are used to calculate the ADV, the critical t-value would be 1.886.

CV = Coefficient of Variation = (standard deviation for sample / average design value) = σ/ADV

The CDV calculations for each monitor in the NNJ-NY-CT and the SNJ-PHL-DE maintenance areas for the 24-hour PM2.5 standard are included in Appendix 1. The results of the calculations show that for each monitor in both areas that have a minimum of three years of design value data, the ADV is below the CDV. Therefore, New Jersey passes the CDV test for both areas.

The 2022 guidance states that additionally, to the extent that the air agency is submitting a second 10-year maintenance plan for PM2.5, a record showing that the area design value is lower than the CDV, coupled with air quality data demonstrating the area has already been maintaining the NAAQS for at least 8 years, provides EPA with further confidence that the area will continue to maintain the relevant PM2.5 standard.

As discussed in Chapter 2, measured PM2.5 concentrations in the compliance monitors have demonstrated attainment of the PM2.5 NAAQS for at least 13 years. The latest 2022 monitoring data is approximately 37 percent below the 24-hour 35 µg/m^3 standard in New Jersey's northern area and approximately 34 percent below the standard in New Jersey's southern area. The historical trends demonstrate a significant decreasing trend from 2001 to 2022 of approximately 49 percent in the northern area and 60 percent in the southern area. The trends continue to show a decreasing trend from 2010 to 2022 of approximately 26 percent in the northern area and 30 percent in the southern area. While data in the recent four to five years is relatively flat, some recent design values appear to be biased high as they have incomplete data, however, they are still significantly below the standard.

3.2 Motor Vehicle Emissions Growth Analysis

According to USEPA guidance, a limited maintenance plan must demonstrate that it would be unreasonable to expect that the area would experience enough motor vehicle emissions growth to cause a NAAQS violation. The guidance provides an example of this demonstration as follows:

> "...an LMP may be particularly appropriate for a second maintenance plan, as the area will have demonstrated attainment of the PM2.5 NAAQS for at least 8 years. To meet the requirement in the transportation conformity regulation, i.e., demonstrate that it would be unreasonable to expect that the area would experience enough motor vehicle growth for a NAAQS violation to occur, an LMP submission for an area's second maintenance plan should again address the area's PM2.5 air quality trends and its historical and projected VMT."

As discussed in Chapter 2 and above, measured PM2.5 concentrations in the compliance monitors have demonstrated attainment of the PM2.5 NAAQS for at least 13 years. The latest 2022 monitoring data is approximately 37 percent below the 24-hour 35 µg/m^3 standard in New Jersey's northern area and approximately 34 percent below the standard in New Jersey's southern area. The historical trends demonstrate a significant decreasing trend from 2001 to 2022 of approximately 49 percent in the northern area and 60 percent in the southern area. The trends

continue to show a decreasing trend from 2010 to 2022 of approximately 26 percent in the northern area and 30 percent in the southern area. While data in the recent four to five years is relatively flat, some recent design values appear to be biased high as they have incomplete data, however, they are still significantly below the standard.

Direct PM2.5 and NO_x emissions from onroad sources subject to Transportation Conformity in New Jersey have steadily decreased over the past few decades and these emissions are projected to continue their significant decline into the future. The base inventory (2007) included in New Jersey's redesignation and maintenance plan, and in Table 4-1 of this SIP, estimated onroad direct PM2.5 emissions for the northern maintenance area at 3,677 tons per year while the periodic emissions inventory for 2017 estimated that value at 1,397 tons per year. The 2007 onroad NO_x inventories, shown in Table 4-2, are 93,385 tons and 38,932 tons for those same years, respectively. The changes represent a 30 percent direct PM2.5 decrease, and a 46 percent NO_x decrease in New Jersey's northern PM2.5 area. The Metropolitan Planning Organizations (MPOs) that cover the counties in New Jersey's PM2.5 maintenance areas project both vehicle miles traveled (VMT) and emissions for future years. The final conformity determination[23] in North Jersey Transportation Planning Authority's (NJTPA's) 2050 Plan estimates direct PM2.5 emissions at 1,124 tons in 2022 and 831 tons in 2030, with NO_x emissions at 21,454 tons and 12,334 tons for those same years, respectively. This represents reductions of 26 percent and 43 percent for direct PM2.5 and NO_x, respectively. Over the period between 2022 and 2030, New Jersey's northern PM2.5 maintenance area is projected to see VMT grow by 2.13 percent; about 0.27 percent per year.

The base inventory (2007) included in New Jersey's redesignation and maintenance plan, and in Table 4-7 of this SIP, estimated onroad direct PM2.5 emissions for the southern maintenance area at 1,055 tons per year while the periodic emissions inventory for 2017 estimated that value at 307 tons per year. The 2007 onroad NO_x inventories, shown in Table 4-8, are 26,992 tons and 9,529 tons for those same years, respectively. The changes represent a 36 percent direct PM2.5 decrease, and a 54 percent NO_x decrease in New Jersey's southern PM2.5 area. The final conformity determination in Delaware Valley Regional Planning Commission (DVRPC's) Connection 2050 Long-Range Plan[24] estimates direct PM2.5 emissions at 241 tons in 2025 and 161 tons in 2035, with NO_x emissions at 4,779 tons and 2,523 tons for those same years, respectively. This represents reductions of 33 percent and 47 percent for direct PM2.5 and NO_x, respectively. Over the period between 2025 and 2035, VMT in New Jersey's southern PM maintenance area is projected to grow 1.83 percent; about 0.18 percent per year.

Therefore, it can be seen from the data discussion, that the projected annual average VMT increases are significantly smaller than the projected annual average emissions reductions. In conclusion, based on the air monitoring data and the evaluation of projected VMT and emissions, it would be unreasonable to expect that such an area would experience enough motor vehicle emissions growth for a NAAQS violation to occur.

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[23]Air Quality Conformity Determination Plan 2050: Transportation, People, Opportunity and the FY 2022-2025 Transportation Improvement Program https://www.njtpa.org/NJTPA/media/Documents/Planning/Plans-Guidance/Planning%20for%202050/H-Final-Conformity-Doc-August-10-2021.pdf

[24] Transportation Conformity Demonstration: Connections 2050 Long-Range Plan, FY2021 Pennsylvania TIP, and FY2022 New Jersey TIP https://cms.dvrpc.org/sites/default/files/inline-images/6350_Final_DVRPC_FY2022TIP_Conformity_TR22003.pdf

4.0 LIMITED MAINTENANCE PLAN

The Clean Air Act (CAA) Section 175A requires that, eight years after redesignation of any area as an attainment area, states submit an additional revision of the SIP for maintaining the National Ambient Air Quality Standard for the ten years beyond the initial ten-year maintenance period.

This SIP revision is the second PM2.5 maintenance plan for the 2006 24-hour PM2.5 standard of 35 µg/m^3 in accordance with the requirements of CAA Sections 175A. This maintenance plan is a limited maintenance plan (LMP) for PM2.5 for both of New Jersey's multi-state maintenance areas. This second ten-year maintenance plan will cover the period from November 20, 2023, to November 20, 2033.

In addition to an analysis of monitoring data and motor vehicle emissions growth to demonstrate eligibility, approvable LMPs must contain the following planning elements itemized below and discussion in more detail in this chapter:

1) **Attainment Inventory:** New Jersey is required to submit an inventory to the USEPA that coincides with a year that monitoring data show attainment. Emission projections for the maintenance period are not required.

2) **Maintenance Demonstration:** The following elements provide adequate assurance of maintenance:
    - Continued applicability of Prevention of Significant Deterioration (PSD) requirements; and
    - Control measures already in the SIP.

3) **Monitoring Network and Verification of Continued Attainment:** Maintain a monitoring network to verify attainment through the maintenance period.

4) **Contingency Plan:** New Jersey must document the measures that will be implemented if a violation of the NAAQS occurs during the maintenance period.

5) **Conformity**

4.1 Emission Inventories

The USEPA Limited Maintenance Plan (LMP) guidance[25] requires the submittal of an emissions inventory that corresponds with attainment of the NAAQS. In New Jersey's December 2012 redesignation and maintenance plan[26], New Jersey included an attainment inventory or base inventory (2007), a projection of the base emission inventory to a year at least 10 years following redesignation (2025); and an interim inventory year (2017) selected between the attainment inventory and the maintenance inventory to demonstrate that emissions were not anticipated to rise above the NAAQS during the maintenance period. As discussed in the LMP guidance, if the area qualifies for an LMP there is no need to project emissions over the maintenance period. Therefore, no projection inventory is required or included in this document.

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[25] USEPA, "Guidance on the Limited Maintenance Plan Option for Moderate PM2.5 Nonattainment Areas and PM2.5 Maintenance Areas", October 27, 2022.

[26] State Implementation Plan (SIP) Revision for the Attainment and Maintenance of the Fine Particulate Matter (PM2.5) National Ambient Air Quality Standards, Final Redesignation Request and Maintenance Plan for Annual 15 µg/m^3 and Daily 35 µg/m^3 PM2.5 National Ambient Air Quality Standards, New Jersey Department of Environmental Protection, December 2012.

To satisfy the guidance requirement, the 2017 Periodic Emissions Inventory for PM2.5 and its precursors (NO_x, SO_2, VOC, and NH_3) for each county in the New Jersey portions of both multi-state PM2.5 maintenance areas is summarized in Tables 4-1 through 4-12 and Figures 4-1 through 4-10. The complete inventory and its documentation are included in the November 2021 State Implementation Plan (SIP) Revision for the Attainment and Maintenance of the Ozone National Ambient Air Quality Standards.[27] The 2017 inventory is compared to the 2007 inventory, which was included in the December 2012 redesignation and maintenance plan and the March 2013 addendum.[28]

Table 4-1:
PM2.5 2007 and 2017 Inventories by County and Sector
New Jersey Portion of the Northern NJ-NY-CT Maintenance Area

County	PM2.5 Emissions (tons/year)													
	Point		Area Other		Fugitive Road Dust		Onroad		Nonroad		County Totals		Change	Percent Change
	2007	2017	2007	2017	2007	2017	2007	2017	2007	2017	2007	2017	2007-2017	2007-2017
Bergen	188	99	489	1,025	105	57	706	224	383	311	1,871	1,716	-155	-8%
Essex	230	92	446	631	83	61	389	158	256	208	1,404	1,150	-254	-18%
Hudson	2,142	45	347	415	67	47	229	105	279	176	3,065	788	-2,277	-74%
Mercer	1,079	48	212	471	79	47	339	100	161	84	1,870	751	-1,119	-60%
Middlesex	458	375	710	775	162	93	597	232	327	188	2,254	1,663	-591	-26%
Monmouth	33	33	595	937	238	140	272	113	325	205	1,463	1,429	-34	-2%
Morris	32	7	655	974	80	34	333	140	219	174	1,319	1,328	9	1%
Passaic	6	1	293	482	33	15	207	77	134	108	674	683	10	1%
Somerset	72	7	395	597	80	8	218	119	166	122	930	853	-77	-8%
Union	697	379	291	475	73	57	386	128	247	130	1,694	1,168	-526	-31%
Totals	**4,937**	**1,086**	**4,432**	**6,781**	**1,001**	**559**	**3,677**	**1,397**	**2,497**	**1,706**	**16,545**	**11,529**	**-5,016**	**-30%**

Notes:
1. Wildfires and prescribed forest fires are not included.
2. Transport fractions have been applied to PM2.5 fugitive dust emissions

[27] State Implementation Plan (SIP) Revision for the Attainment and Maintenance of the Ozone National Ambient Air Quality Standards, 2008 75 ppb 8-Hour Ozone Attainment Demonstration, Northern New Jersey-New York-Connecticut Nonattainment Area, 2008 75 ppb and 2015 70 ppb 8-Hour Ozone Reasonably Available Control Technology (RACT) Determinations and Nonattainment New Source Review (NNSR) Program Compliance Certifications, and 2017 Periodic Emissions Inventory, New Jersey Department of Environmental Protection, November 2021.

[28] Addendum #1 New Jersey 2007 Emissions Inventory for Volatile Organic Compounds and Ammonia, New Jersey Department of Environmental Protection, May 3, 2013.

Table 4-2:
NO_x 2007 and 2017 Emissions Inventories by County and Sector
New Jersey Portion of the Northern NJ-NY-CT Maintenance Area

County	NO_x Emissions (tons/year)											
	Point		Area		Onroad		Nonroad		County Totals		Change	Percent Change
	2007	2017	2007	2017	2007	2017	2007	2017	2007	2017	2007-2017	2007-2017
Bergen	851	455	2,515	2,534	16,459	6,281	5,611	3,737	25,436	13,007	-12,429	-49%
Essex	2,361	1,111	2,094	2,002	9,629	4,290	6,281	5,109	20,365	12,512	-7,853	-39%
Hudson	3,873	135	1,522	1,581	5,357	2,464	5,302	5,756	16,054	9,936	-6,118	-38%
Mercer	2,233	178	1,125	1,176	8,503	2,903	1,888	806	13,749	5,063	-8,685	-63%
Middlesex	2,065	1,180	2,182	2,215	15,111	6,657	4,637	2,370	23,995	12,421	-11,574	-48%
Monmouth	195	96	1,651	1,668	8,140	3,635	4,142	3,425	14,128	8,824	-5,304	-38%
Morris	196	68	1,563	1,535	9,288	3,973	2,749	1,729	13,796	7,304	-6,491	-47%
Passaic	95	36	1,137	1,130	5,310	2,223	1,906	1,344	8,447	4,732	-3,716	-44%
Somerset	260	121	939	999	6,083	2,920	2,040	1,198	9,322	5,238	-4,084	-44%
Union	3,699	2,400	1,383	1,328	9,505	3,585	4,902	1,904	19,489	9,217	-10,272	-53%
Totals	**15,827**	**5,779**	**16,111**	**16,167**	**93,385**	**38,932**	**39,457**	**27,377**	**164,780**	**88,255**	**-76,526**	**-46%**

Notes:
1. Wildfires and prescribed forest fires are not included.

Table 4-3:
SO_2 2007 and 2017 Emission Inventories by County and Sector
New Jersey Portion of the Northern NJ-NY-CT Maintenance Area

County	SO_2 Emissions (tons/year)											
	Point		Area		Onroad		Nonroad		County Totals		Change	Percent Change
	2007	2017	2007	2017	2007	2017	2007	2017	2007	2017	2007-2017	2007-2017
Bergen	46	43	731	44	110	73	269	11	1,156	171	-985	-85%
Essex	299	72	739	45	58	48	805	334	1,901	498	-1,403	-74%
Hudson	4,467	35	418	19	30	27	1,388	62	6,303	143	-6,161	-98%
Mercer	14,432	11	331	17	50	34	110	6	14,924	68	-14,855	-100%
Middlesex	367	112	574	28	90	78	376	14	1,407	231	-1,176	-84%
Monmouth	43	15	459	55	62	58	872	20	1,436	147	-1,289	-90%
Morris	55	1	683	58	60	49	124	5	922	113	-809	-88%
Passaic	20	0	333	40	34	27	78	3	465	70	-395	-85%
Somerset	35	2	248	18	36	33	85	3	405	57	-348	-86%
Union	596	102	467	16	55	40	1,652	16	2,771	174	-2,597	-94%
Totals	**20,359**	**392**	**4,983**	**339**	**586**	**467**	**5,761**	**475**	**31,688**	**1,672**	**-30,016**	**-95%**

Notes:
1. Wildfires and prescribed forest fires are not included.

Table 4-4:
VOC 2007 and 2017 Emission Inventories by County and Sector
New Jersey Portion of the Northern NJ-NY-CT Maintenance Area

County	VOC Emissions (tons/year)											
	Point		Area		Onroad		Nonroad		County Totals		Change	Percent Change
	2007	2017	2007	2017	2007	2017	2007	2017	2007	2017	2007-2017	2007-2017
Bergen	430	277	8,536	7,875	7,994	3,085	5,115	2,370	22,075	13,608	-8,467	-38%
Essex	612	286	7,386	5,914	4,905	2,059	2,763	1,624	15,667	9,883	-5,784	-37%
Hudson	889	616	5,379	5,030	2,816	1,295	1,556	948	10,640	7,889	-2,751	-26%
Mercer	150	95	3,653	3,440	3,429	1,351	1,525	718	8,757	5,605	-3,152	-36%
Middlesex	2,706	1,799	8,456	7,398	6,955	2,556	3,249	1,577	21,366	13,330	-8,036	-38%
Monmouth	121	113	6,567	5,638	5,427	2,083	3,425	1,843	15,540	9,677	-5,863	-38%
Morris	165	115	6,679	4,990	5,127	1,706	3,225	1,567	15,197	8,378	-6,820	-45%
Passaic	237	154	4,728	3,980	3,669	1,407	1,851	906	10,485	6,447	-4,038	-39%
Somerset	264	192	3,291	3,273	2,956	1,116	2,033	1,055	8,544	5,636	-2,908	-34%
Union	2,007	1,122	6,027	4,515	4,211	1,605	2,091	977	14,336	8,220	-6,116	-43%
Totals	**7,580**	**4,770**	**60,703**	**52,054**	**47,490**	**18,262**	**26,833**	**13,585**	**142,606**	**88,671**	**-53,935**	**-38%**

Notes:
1. Wildfires and prescribed forest fires are not included.

Table 4-5:
NH_3 2007 and 2017 Emission Inventories by County and Sector
New Jersey Portion of the Northern NJ-NY-CT Maintenance Area

County	NH_3 Emissions (tons/year)											
	Point		Area		Onroad		Nonroad		County Totals		Change	Percent Change
	2007	2017	2007	2017	2007	2017	2007	2017	2007	2017	2007-2017	2007-2017
Bergen	401	286	370	78	348	220	5	6	1,125	591	-534	-48%
Essex	31	68	311	167	211	144	2	4	554	383	-171	-31%
Hudson	33	31	212	46	101	73	2	4	348	154	-194	-56%
Mercer	10	8	174	118	146	105	2	2	331	233	-98	-30%
Middlesex	129	241	374	106	333	229	4	4	839	580	-260	-31%
Monmouth	41	51	638	313	269	178	3	4	952	547	-405	-43%
Morris	3	3	229	134	234	140	3	3	469	280	-188	-40%
Passaic	5	0	175	49	126	81	2	2	307	132	-174	-57%
Somerset	2	1	210	89	135	91	2	2	349	182	-167	-48%
Union	183	107	213	29	198	116	2	3	597	255	-342	-57%
Totals	**837**	**797**	**2,906**	**1,128**	**2,101**	**1,378**	**27**	**34**	**5,871**	**3,337**	**-2,533**	**-43%**

Notes:
1. Wildfires and prescribed forest fires are not included.

Table 4-6:
2007 and 2017 Prescribed Forest Fire and
Forest Wildfire Emissions Inventories by County for all Sectors
New Jersey Portion of the Northern NJ-NY-CT Maintenance Area

County	PM25 (tons/year)		NO_x (tons/year)		SO_2 (tons/year)		VOC (tons/year)		NH_3 (tons/year)	
	2007	2017	2007	2017	2007	2017	2007	2017	2007	2017
Bergen	3	4	0	1	0	0	3	10	0	1
Essex	2	119	0	15	0	9	2	331	0	23
Hudson	0	0	0	0	0	0	0	0	0	0
Mercer	2	13	0	3	0	1	1	34	0	2
Middlesex	29	1	4	0	0	0	26	4	1	0
Monmouth	13	73	4	14	0	7	11	194	1	14
Morris	7	0	1	0	0	0	6	0	0	0
Passaic	5	6	1	1	0	1	4	17	0	1
Somerset	4	17	1	4	0	2	3	43	0	3
Union	0	0	0	0	0	0	0	1	0	0
Totals	**66**	**233**	**12**	**38**	**0**	**21**	**57**	**634**	**3**	**44**

Notes:
1. 2007 wildfires were averaged from 2000 to 2007 as recommended by USEPA.
2. SO_2 was not included in the 2007 wildfires and prescribed fires

Table 4-7:
PM2.5 2007 and 2017 Emission Inventories by County and Sector New Jersey Portion of the Southern NJ-PA-DE Maintenance Area

County	$PM_{2.5}$ Emissions (tons/year)													
	Point		Area Other		Fugitive Road Dust		Onroad		Nonroad		County Totals		Change	Percent Change
	2007	2017	2007	2017	2007	2017	2007	2017	2007	2017	2007	2017	2007-2017	2007-2017
Burlington	174	35	1,118	810	110	77	415	123	225	108	2,042	1,154	-888	-43%
Camden	155	43	346	536	35	21	395	111	190	102	1,120	812	-308	-27%
Gloucester	471	454	708	452	93	62	245	72	146	100	1,663	1,139	-523	-31%
Totals	**799**	**532**	**2,172**	**1,798**	**239**	**160**	**1,055**	**307**	**560**	**310**	**4,825**	**3,106**	**-1,719**	**-36%**

Notes:
1. Wildfires and prescribed forest fires are not included.
2. Transport fractions have been applied to PM2.5 fugitive dust emissions

Table 4-8:
NO_x 2007 and 2017 Emission Inventories by County and Sector New Jersey Portion of the Southern NJ-PA-DE Maintenance Area

County	NO_x Emissions (tons/year)											
	Point		Area		Onroad		Nonroad		County Totals		Change	Percent Change
	2007	2017	2007	2017	2007	2017	2007	2017	2007	2017	2007-2017	2007-2017
Burlington	516	169	1,268	1,180	10,615	3,900	2,420	1,511	14,818	6,759	-8,059	-54%
Camden	756	464	1,340	1,271	9,834	3,220	2,624	1,398	14,554	6,354	-8,200	-56%
Gloucester	3,181	1,593	723	728	6,543	2,409	1,747	1,361	12,194	6,091	-6,103	-50%
Totals	**4,453**	**2,226**	**3,331**	**3,179**	**26,992**	**9,529**	**6,790**	**4,270**	**41,566**	**19,204**	**-22,361**	**-54%**

Notes:
1. Wildfires and prescribed forest fires are not included.

Table 4-9:
SO_2 2007 and 2017 Emission Inventories by County and Sector New Jersey Portion of the Southern NJ-PA-DE Maintenance Area

County	SO_2 Emissions (tons/year)											
	Point		Area		Onroad		Nonroad		County Totals		Change	Percent Change
	2007	2017	2007	2017	2007	2017	2007	2017	2007	2017	2007-2017	2007-2017
Burlington	157	45	443	31	64	46	156	48	820	171	-649	-79%
Camden	76	80	412	21	59	40	634	13	1,181	155	-1,026	-87%
Gloucester	1,801	529	274	17	38	28	852	18	2,965	592	-2,373	-80%
Totals	**2,035**	**655**	**1,129**	**70**	**161**	**115**	**1,642**	**79**	**4,966**	**918**	**-4,047**	**-82%**

Notes:
1. Wildfires and prescribed forest fires are not included.

Table 4-10:
VOC 2007 and 2017 Emission Inventories by County and Sector New Jersey Portion of the Southern NJ-PA-DE Maintenance Area

County	VOC Emissions (tons/year)											
	Point		Area		Onroad		Nonroad		County Totals		Change	Percent Change
	2007	2017	2007	2017	2007	2017	2007	2017	2007	2017	2007-2017	2007-2017
Burlington	474	254	5,659	4,711	4,260	1,779	2,881	1,406	13,275	8,150	-5,124	-39%
Camden	329	257	4,913	4,184	3,968	1,729	1,934	828	11,144	6,997	-4,146	-37%
Gloucester	1,239	965	6,025	4,768	2,651	1,059	1,674	850	11,589	7,642	-3,948	-34%
Totals	**2,042**	**1,476**	**16,597**	**13,663**	**10,880**	**4,567**	**6,490**	**3,083**	**36,008**	**22,789**	**-13,219**	**-37%**

Notes:
1. Wildfires and prescribed forest fires are not included.

Table 4-11:
NH_3 2007 and 2017 Emission Inventories by County and Sector New Jersey Portion of the Southern NJ-PA-DE Maintenance Area

County	NH_3 Emissions (tons/year)											
	Point		Area		Onroad		Nonroad		County Totals		Change	Percent Change
	2007	2017	2007	2017	2007	2017	2007	2017	2007	2017	2007-2017	2007-2017
Burlington	19	35	409	280	186	142	2	2	616	460	-157	-25%
Camden	7	18	212	47	165	118	6	2	390	186	-204	-52%
Gloucester	27	131	376	171	111	90	4	2	518	393	-125	-24%
Totals	**53**	**184**	**998**	**498**	**462**	**350**	**12**	**6**	**1,525**	**1,039**	**-486**	**-32%**

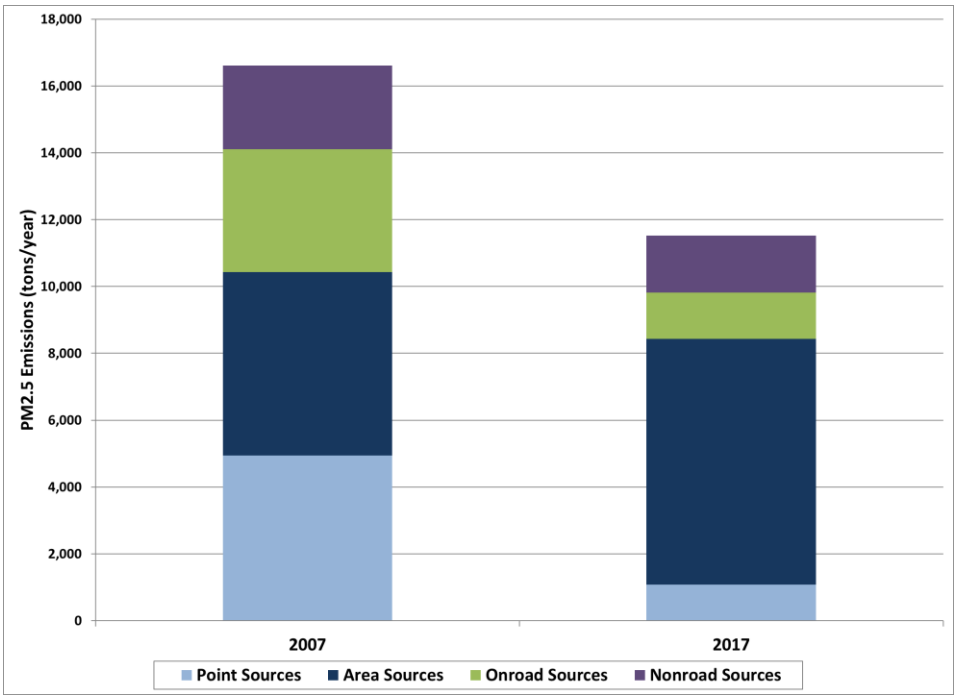
Notes:
1. Wildfires and prescribed forest fires are not included.

Table 4-12:
2007 and 2017 Prescribed Forest Fire and Forest Wildfire Emissions Inventories by County for all Sectors New Jersey Portion of the Southern NJ-PA-DE Maintenance Area

County	PM25 (tons/year)		NO_x (tons/year)		SO_2 (tons/year)		VOC (tons/year)		NH_3 (tons/year)	
	2007	2017	2007	2017	2007	2017	2007	2017	2007	2017
Burlington	584	578	129	103	0	53	500	1,559	29	108
Camden	77	38	17	7	0	4	66	100	4	7
Gloucester	24	74	5	16	0	8	21	196	1	14
Totals	**685**	**690**	**152**	**126**	**0**	**65**	**587**	**1,855**	**35**	**129**

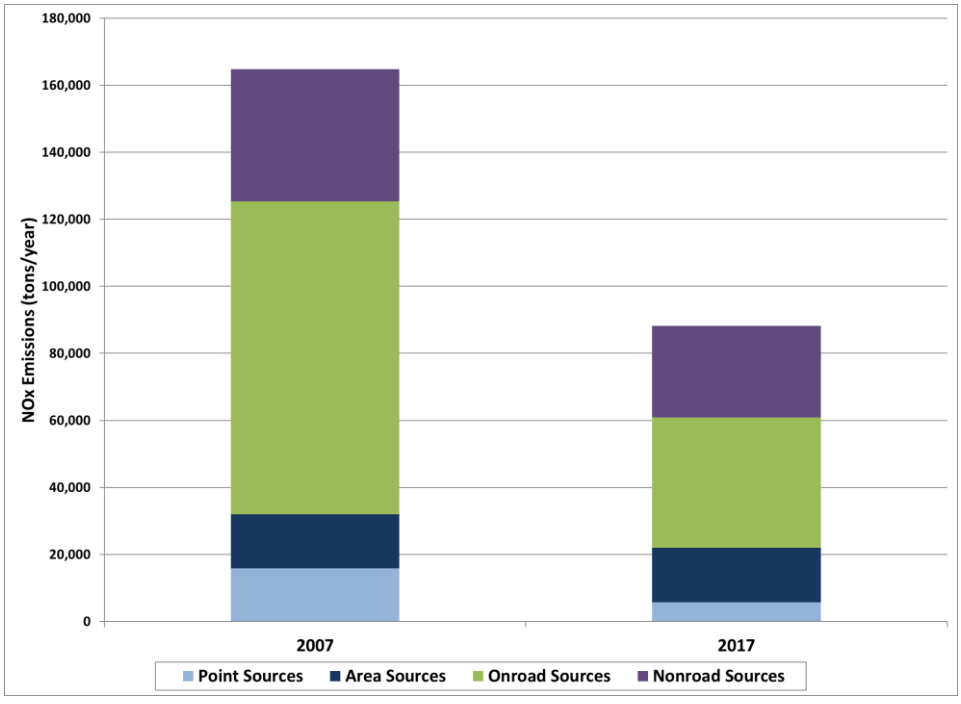
Notes:
1. 2007 wildfires were averaged from 2000 to 2007 as recommended by USEPA.
2. SO_2 was not included in the 2007 wildfires and prescribed fires.

Figure 4-1:
PM2.5 Emissions Inventory Trends
New Jersey Portion of the Northern NJ-NY-CT Maintenance Area



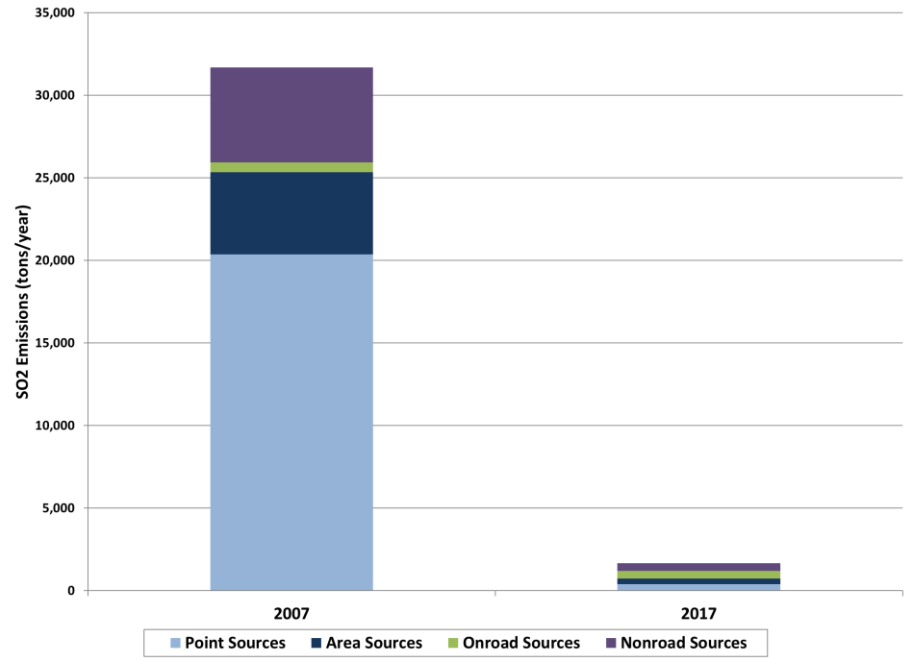
Notes:
1. Wildfires and prescribed forest fires are not included.
2. Transport fractions have been applied to PM2.5 fugitive dust emissions

Figure 4-2*:*
NO_x Emissions Inventory Trends
New Jersey Portion of the Northern NJ-NY-CT Maintenance Area



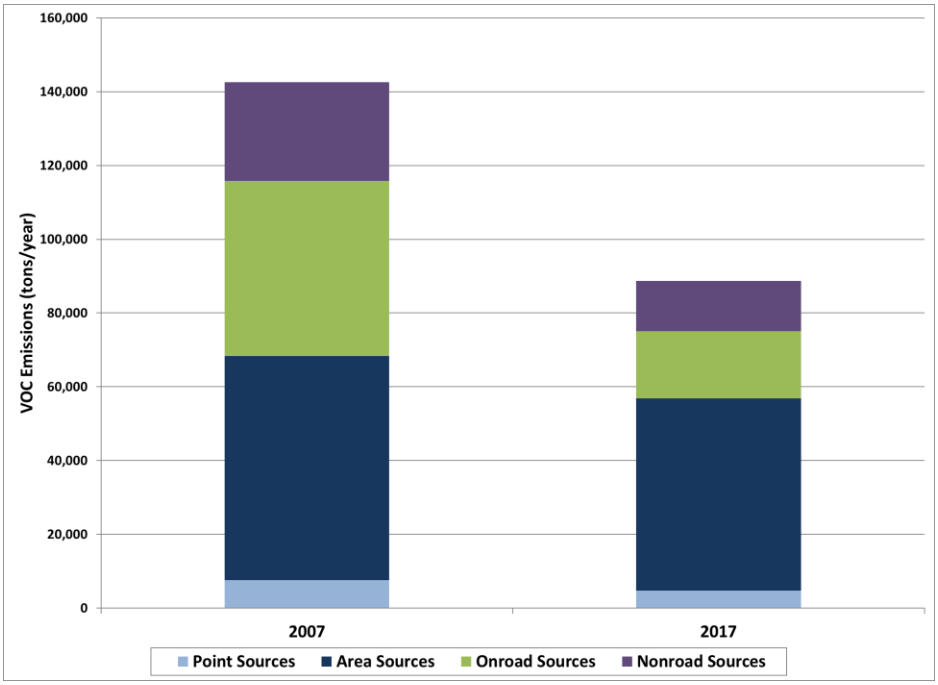
Notes:
1. Wildfires and prescribed forest fires are not included.

Figure 4-3:
SO_2 Emissions Inventory Trends
New Jersey Portion of the Northern NJ-NY-CT Maintenance Area



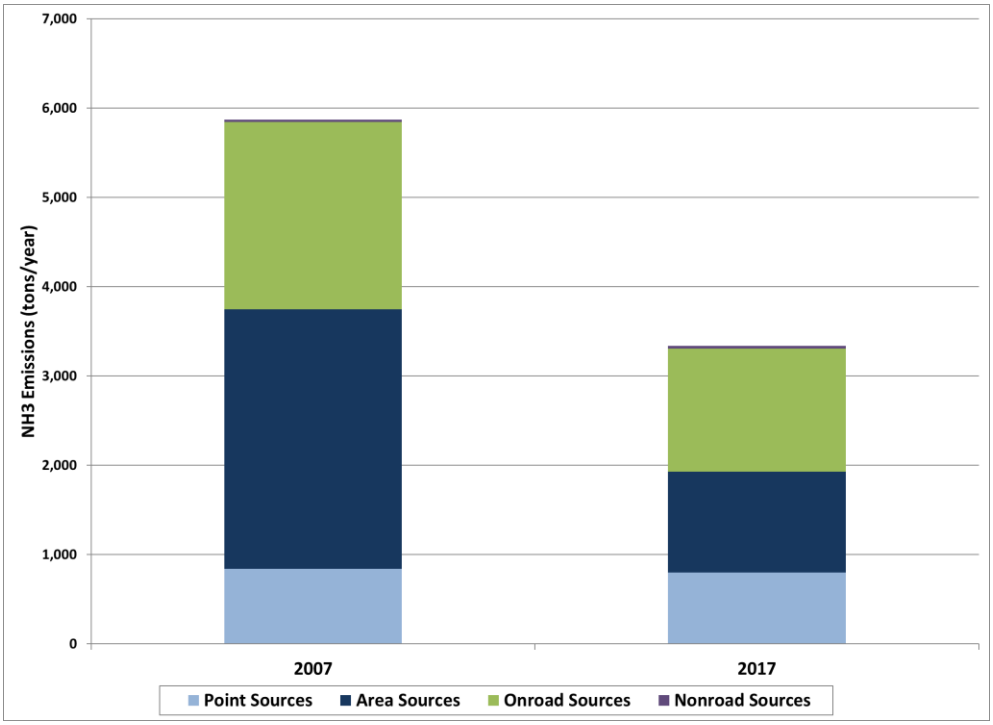
Notes:
1. Wildfires and prescribed forest fires are not included.

Figure 4-4:
VOC Emissions Inventory Trends
New Jersey Portion of the Northern NJ-NY-CT Maintenance Area



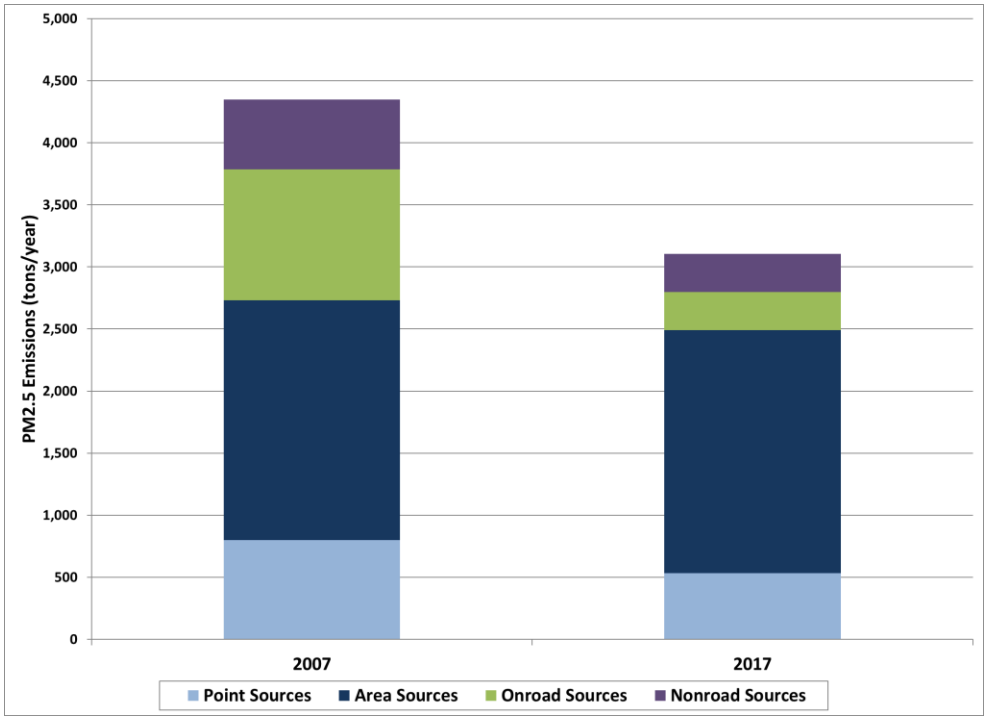
Notes:
1. Wildfires and prescribed forest fires are not included.

Figure 4-5:
NH_3 Emissions Inventory Trends
New Jersey Portion of the Northern NJ-NY-CT Maintenance Area



Notes: 1. Wildfires and prescribed forest fires are not included.

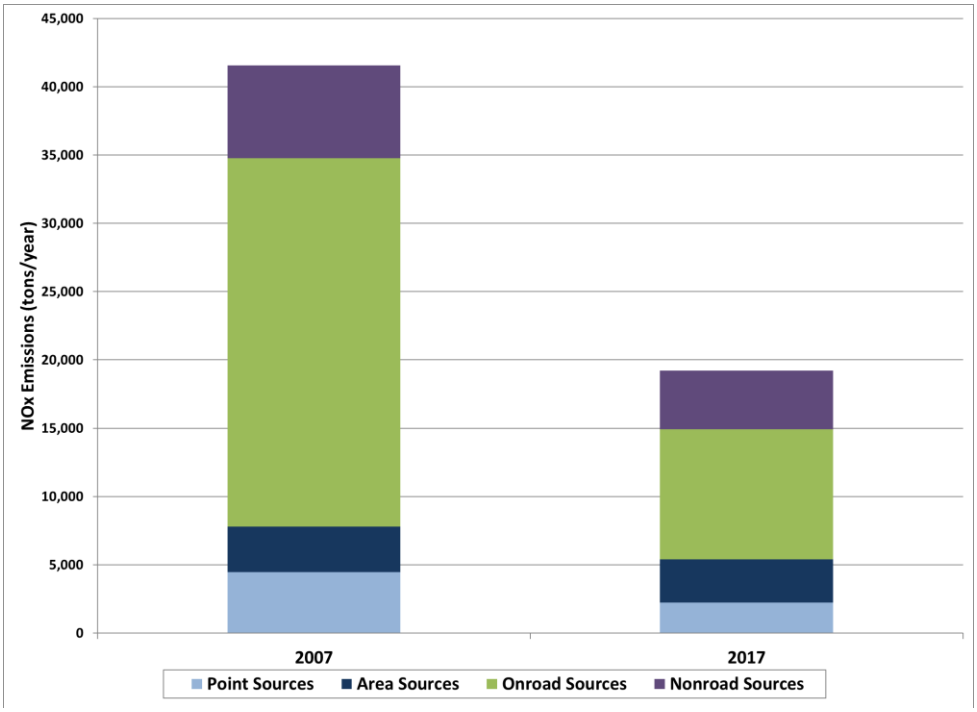
Figure 4-6:
PM2.5 Emissions Inventory Trends
New Jersey Portion of the Southern NJ-PA-DE Maintenance Area



Notes:

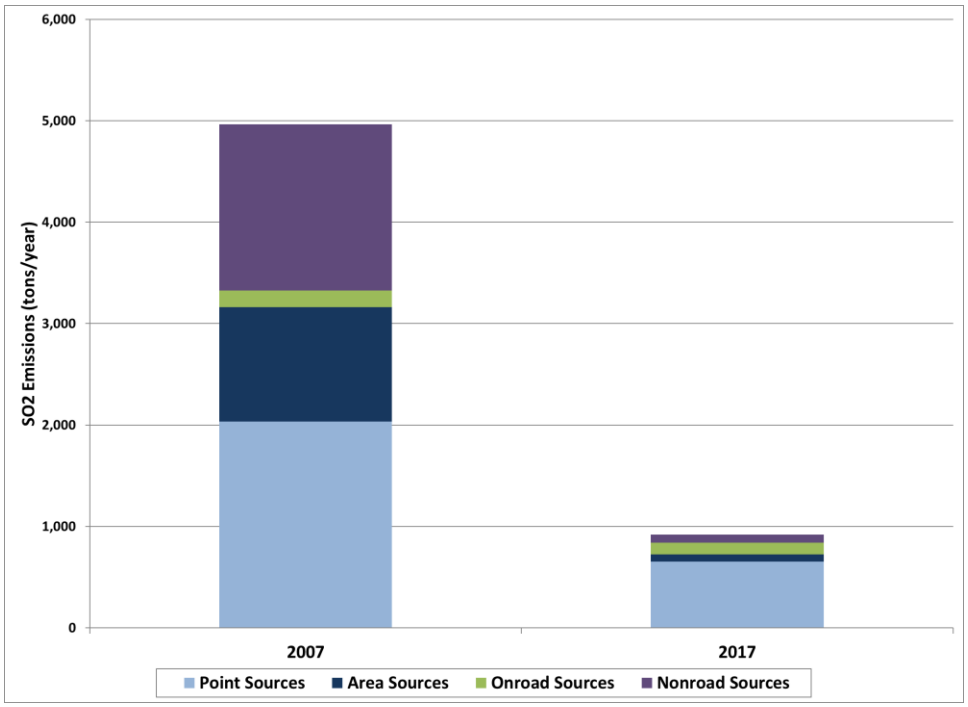
1. Wildfires and prescribed forest fires are not included.
2. Transport fractions have been applied to PM2.5 fugitive dust emissions

Figure 4-7:
NO_x Emissions Inventory Trends
New Jersey Portion of the Southern NJ-PA-DE Maintenance Area



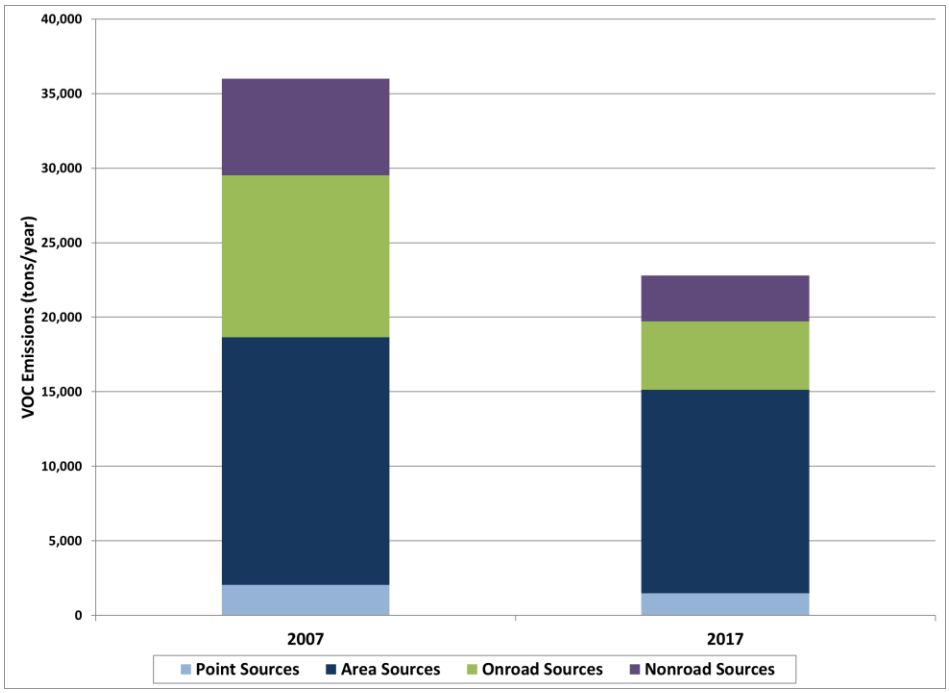
Notes:
1. Wildfires and prescribed forest fires are not included.

Figure 4-8:
SO_2 Emissions Inventory Trends
New Jersey Portion of the Southern NJ-PA-DE Maintenance Area



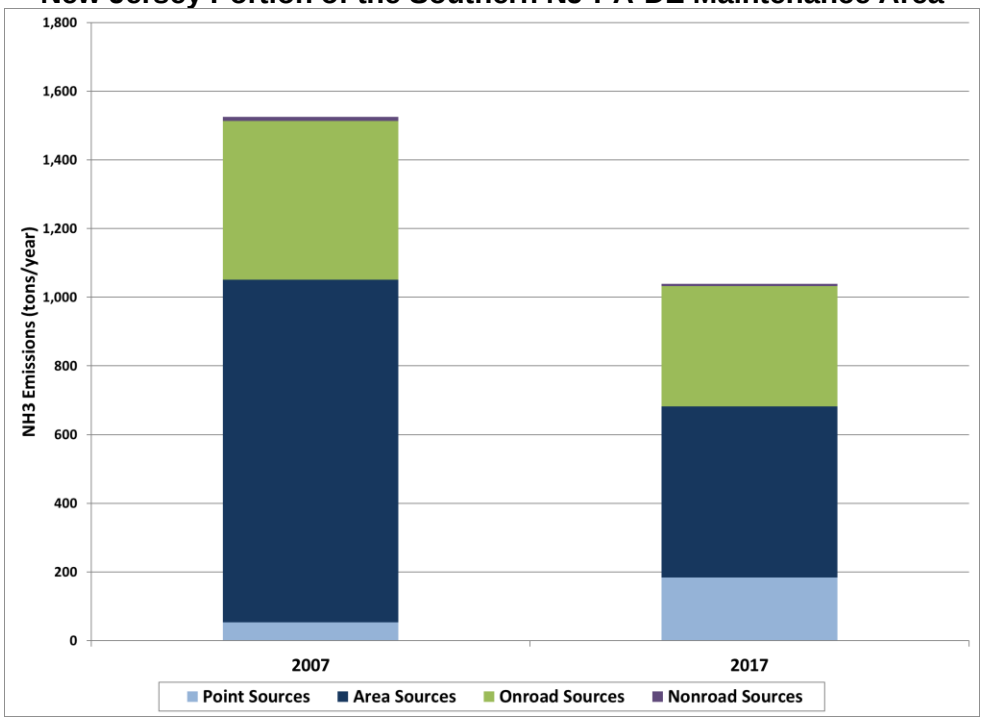
Notes:
1. Wildfires and prescribed forest fires are not included.

Figure 4-9:
VOC Emissions Inventory Trends
New Jersey Portion of the Southern NJ-PA-DE Maintenance Area



Notes:
1. Wildfires and prescribed forest fires are not included.

Figure 4-10:
NH_3 Emissions Inventory Trends
New Jersey Portion of the Southern NJ-PA-DE Maintenance Area



Notes:
1. Wildfires and prescribed forest fires are not included.

There were several emission calculation methodology changes between each emission inventory, which should be noted when evaluating trends. The 2017 emission inventory used the nonroad model included in MOVES2014b. This version replaced MOVES2014a in August 2018. It incorporated updated nonroad engine growth rates, nonroad Tier 4 engine emission rates, and sulfur levels of nonroad diesel fuels. In addition, national updates were made to the MOVES2014b defaults for allocating national populations of agricultural and construction equipment to state and county levels. These updates resulted in nonroad equipment emission reductions from those calculated by the earlier MOVES2014a version. USEPA methodologies for calculating aircraft and commercial marine vessels have also changed for the 2017 inventory, resulting in an increase of estimated emissions before accounting for reductions from controls.

The 2017 area source emission inventory included several new source categories not included in the 2007 inventory, and therefore showing an increase in these emissions not related to growth of the existing categories. The additional source categories in the 2017 area source inventory include industrial and commercial/Institutional (ICI) wood fuel combustion, residential wood outdoor burning devices (chimeneas), residential grilling, indoor residential wood hydronic heaters, human and animal cremation and fugitive dust kicked up by animal hooves. New Jersey accepted USEPA emission estimations for these categories. In addition, there were several calculation methodology changes that caused an increase in emissions. Some of the new categories and methodology changes resulted in higher emission increases in northern New Jersey than southern New Jersey due to a higher density of people and businesses, especially the commercial cooking estimates. New Jersey's 2007 estimates for commercial cooking were based on population, while USEPA's 2017 estimates, which New Jersey accepted, were based on the type and number of restaurants. This has created higher emissions in northern New Jersey due to a higher density of restaurants. Also, the USEPA methodologies for point source subtraction from industrial and commercial fuel combustion categories have changed, resulting in higher area source emissions. Emission methodologies for residential wood burning have changed several times over the years, resulting in higher emissions in New Jersey's northern area in 2017 compared to 2007. Emission methodologies for paved roads have also changed numerous times over the years, resulting in a decrease in fugitive dust emissions from 2007 to 2017. Area source emissions from wildfire and prescribed fires are not included in the main inventory tables or trend graphs, as these events are inconsistent from year to year.

PM2.5 has decreased in the point source sector due to power plant and refinery state rules and consent decrees and federal transport rules, and in the onroad and nonroad sectors due to federal new engine standards for onroad and nonroad vehicles and equipment and the federal and State low emission vehicle programs. Inventory increases in the area source sector in the northern NAA are due to the addition of several new source categories and methodology changes creating a more accurate and complete inventory and not actual air emission increases as discussed above. Overall PM2.5 was reduced by 30% in the northern NAA and 36% in the southern NAA.

NO_x decreases were achieved in the onroad and nonroad sectors due to federal new engine standards for onroad and nonroad vehicles and equipment and the federal and State low emission vehicle programs, and in the point source sector due primarily to New Jersey power plant and refinery regulations and consent decrees and federal transport rules.

VOC decreases were achieved in the onroad and nonroad sector due to federal new engine standards for onroad and nonroad vehicles and equipment, and the federal and State low emission vehicle programs, Federal new engine standards for onroad and nonroad vehicles and equipment, in the area source sector due to area source rules such as consumer products, portable fuel containers, paints, autobody refinishing, asphalt paving applications, and solvent cleaning operations, and in the point source sector due to controls such as refinery consent decrees and new state rules for bulk petroleum storage.

SO_2 decreases were achieved in all sectors and significantly in the point source sector due to power plant consent decrees, New Jersey's power plant rules and federal transport rules, in the area source sector due to New Jersey's rules for low sulfur fuel in heating oil, and in the onroad and nonroad sectors due to Federal rules that reduced sulfur levels in diesel fuel.

Ammonia decreases were achieved in the onroad and nonroad sectors due to federal new engine standards for onroad and nonroad vehicles and equipment.

4.2 Maintenance Demonstration

The following elements provide adequate assurance of maintenance:

4.2.1 Prevention of Significant Deterioration

New Jersey commits to continued implementation of the Federal Prevention of Significant Deterioration (PSD) permitting program.

4.2.2 Control Measures

The adopted and implemented control measures in the December 2012 Redesignation and Maintenance plan continue to provide additional emission reductions each year with vehicle fleet and equipment turnover. In addition, New Jersey State control measures adopted since the December 2012 Redesignation and Maintenance plan include rules for heavy duty on-board diagnostics inspection and maintenance (I/M), four new Control Technology Guidelines (CTGs) (industrial cleaning solvents, paper, film, and foil coatings, fiberglass boat manufacturing materials, miscellaneous metal, and plastic parts coatings), stationary gas turbines and engines and Phase I and II gasoline vapor recovery. New federal rules include the Cross-State Air Pollution Rule (CSAPR), the CSAPR Update, the Revised CSAPR Update, Tier 3 Vehicle Program/ Fuel Standards, as well as updates to the Natural Gas Turbine New Source Performance Standards (NSPS) the Reciprocating Internal Combustion Engines (RICE) NESHAP, RICE NSPS, Process Heater NSPS. A summary of all the control measures that reduce emissions of PM2.5 and its precursors in New Jersey post 2002 is shown in Table 4-13 below. These control measures are anticipated to provide continued emissions reductions in the future for PM2.5 and its precursors.

Table 4-13:
New Jersey's Post 2002 Control Measures that Reduce Emissions of PM2.5 and its Precursors in New Jersey

Sector	Measure	Effective Start Date/Range of Benefits	Pollutant	New Jersey Administrative Code	USEPA Approval
State					
Point	NO_X Budget	1999, 2003	NO_x, SO_2	NA	10/1/2007
Point	EGU: BL England Administrative Consent Order	2000-2015	NO_x, PM2.5, SO_2	NA	NA
Point	EGU: PSEG-Consent Decree	2002-2010	NO_x, PM2.5, SO_2	NA	7/26/02; amended 11/30/06
Area	Phase I and II Gasoline Vapor Recovery 2003	2003	VOC	7:27-16	7/2/2004
Area	Consumer Products 2005	2005	VOC	7:27-24	1/25/2006

Table 4-13:
New Jersey's Post 2002 Control Measures that Reduce Emissions of PM2.5 and its Precursors in New Jersey

Sector	Measure	Effective Start Date/Range of Benefits	Pollutant	New Jersey Administrative Code	USEPA Approval
Area	Architectural Coatings 2005	2005	VOC	7:27-23	11/30/2005
Point, Area	Mobile Equipment Refinishing (Autobody)	2005	VOC	7:27-16	7/2/2004
Point, Area	Solvent Cleaning	2005	VOC	7:27-16	7/2/2004
Area	Portable Fuel Containers 2005	2005-2015 (1)	VOC	7:27-24	1/25/2006
Point	Mercury Rule	2006-2012	Hg, PM2.5, SO_2, NO_x	7:27-27	NA
Point	Refinery Consent Decree: ConocoPhillips	2006-2014	PM, SO_2, NO_x, VOC	NA	Filed 1/27/05
Point	Refinery Consent Decree: Valero (Paulsboro)	2006-2014	PM, SO_2, NO_x, VOC	NA	Filed 6/16/05
Point	Refinery Consent Decrees: Sunoco	2006-2014	PM, SO_2, NO_x, VOC	NA	Filed 12/2/2003
Point, Area	ICI Boilers, Turbines and Engines 2005	2007-2010	NO_x	7:27-27.19	7/31/2007
Onroad, Nonroad	Diesel Vehicle Retrofit Program	2008-2015	PM2.5	7:27-32, 14	NA
Area	Asphalt Paving (cutback and emulsified)	2009	VOC	7:27-16.19	8/3/2010
Area	Consumer Products 2009	2009	VOC	7:27-24	7/22/2010
Point, Area	Adhesives & Sealants	2009	VOC	7:27-26	7/22/2010
Point, Area	CTG: Printing	2009	VOC	7:27-16.7	8/3/2010
Point, Area	Sewage and Sludge Incinerators	2009	NO_x	7:27-19.28	8/3/2010
Onroad	New Jersey Low Emission Vehicle (LEV) Program	2009 (1)	NO_x, VOC, CO, PM2.5, SO_2	7:27-29	2/13/2008
Point, Area	Municipal Waste Combustors (Incinerators)	2009, 2010	NO_x	7:27-19.13	8/3/2010
Area	Asphalt Production Plants	2009, 2011	NO_x	7:27-19.9	8/3/2010
Point	EGU: High Electric Demand Day (HEDD)	2009, 2015	NO_x	7:27-19.29	8/3/2010
Point, Area	ICI Boilers 2009	2009-2011	NO_x	7:27-19.7	8/3/2010
Area	Portable Fuel Containers 2009	2009-2019 (1)	VOC	7:27-24	7/22/2010
Onroad	IM: Program Revisions 2009	2010	VOC, NO_x, CO	7:27-15	9/16/2011
Onroad	IM: Diesel Smoke Cutpoint	2010, 2011	PM2.5, NO_x	7:27-14	NA
Point	Petroleum Storage	2010-2019	VOC	7:27-16.2	8/3/2010
Onroad	Vehicle Idling Rule Amendments	2011	PM2.5, NO_x	7:27-14.1, 14.3	4/14/2009
Point	Glass Manufacturing	2012	NO_x	7:27-19.10	8/3/2010

Table 4-13:
New Jersey's Post 2002 Control Measures that Reduce Emissions of PM2.5 and its Precursors in New Jersey

Sector	Measure	Effective Start Date/Range of Benefits	Pollutant	New Jersey Administrative Code	USEPA Approval
Point	EGU: Coal-fired Boilers, Oil and Gas Fired Boilers	2013	NO_x, PM2.5, SO_2	7:27-4.2, 10.2, 19.4	8/3/2010
Point, Area	Low Sulfur Fuel Oil	2014, 2016	PM2.5, SO_2, NO_x	7:27-9	1/3/2012
Point	Refinery Consent Decree: Hess	2015	PM, SO_2, NO_x, VOC	NA	Filed 6/19/2012
Point, Area	CTG: Fiberglass Boat Manufacturing Materials (2008 CTG);	2018	VOC	7:27-16.14	10/9/2018
Point, Area	CTG: Industrial Cleaning Solvents (2006 CTG);	2018	VOC	7:27-16.24	10/9/2018
Point, Area	CTG: Misc. Metal and Plastic Parts Coatings (2008 CTG);	2018	VOC	7:27-16.15	10/9/2018
Point, Area	CTG: Paper, Film, and Foil Coatings (2007 CTG);	2018	VOC	7:27-16.7	10/9/2018
Area	Phase I and II Gasoline Vapor Recovery 2017	2018	VOC	7:27-16	6/18/2020
Point	Stationary Gas Turbines and Engines (NO_x ACT)	2020	NO_x	7:27-19.5, 19.8	10/9/2018
Onroad	IM: Heavy Duty OBD	2023 (estimated)	NO_x, VOC, CO, PM2.5, SO_2	7:27-14	5/9/2018
Onroad	Advanced Clean Trucks (ACT)	2025 (1)	GHGs, NO_x, PM2.5	7:27-31	NA
Point, Area	Permitting/Nonattainment New Source Review (NNSR) and Prevention of Significant Deterioration (PSD)	Ongoing	NO_x, VOC, PM2.5, SO_2	7:27-8,18, 22	NA
Onroad, Nonroad	Voluntary Mobile Measures	Ongoing	NO_x, VOC, CO, PM2.5, SO_2	NA	NA
Federal					
Onroad	Tier 1 Vehicle Program	1994 (1)	NO_x, VOC, CO, PM2.5	NA	NA
Onroad	Diesel Compression Ignition Engines	1996 - 2015 (1)	NO_x, VOC, CO, PM2.5, SO_2	NA	NA
Nonroad	Spark Ignition Engines, Equipment, and Vessels at or below 19 kW (Lawn and Garden and Small Watercraft)	1997 - 2016 (1)	NO_x, VOC, CO, PM2.5, SO_2	NA	NA
Onroad	Refueling Onboard Refueling Vapor Recovery	1998 (1)	NO_x, VOC, CO, PM2.5	NA	NA
Nonroad	Locomotive Engines and Marine Compression-Ignition Engines Less Than 30 Liters per Cylinder Tier 0	1998 (1)	NO_x, VOC, CO, PM2.5, SO_2	NA	NA
Onroad	National Low Emission Vehicle Program (NLEV)	1999 (1)	NO_x, VOC, CO, PM2.5, SO_2	NA	NA

Table 4-13:
New Jersey's Post 2002 Control Measures that Reduce Emissions of PM2.5 and its Precursors in New Jersey

Sector	Measure	Effective Start Date/Range of Benefits	Pollutant	New Jersey Administrative Code	USEPA Approval
Nonroad	Locomotive Engines and Marine Compression-Ignition Engines Less Than 30 Liters per Cylinder Tier 2	2002 (1)	NO_x, VOC, CO, PM2.5, SO_2	NA	NA
Onroad	Tier 2 Vehicle Program/Low Sulfur Fuels	2004 (1)	NO_x, VOC, CO, PM2.5, SO_2	NA	NA
Nonroad	Diesel Marine Engines over 37 kW: Category 1 Tier 2, Category 3 Tier 1	2004 (1)	NO_x, VOC, CO, PM2.5, SO_2	NA	NA
Nonroad	Large Industrial Spark-Ignition Engines over 19 kW (>50 hp) Tier 1	2004 (1)	NO_x, VOC, CO, PM2.5, SO_2	NA	NA
Onroad, Nonroad	Heavy-Duty Vehicle Standards and Diesel Fuel Sulfur Control	2004-2010 (1)	NO_x, VOC, CO, PM2.5, SO_2	NA	NA
Nonroad	Recreational Vehicles (Snowmobiles, Off-road Motorcycles, All-terrain Vehicles)	2006 - 2012 (1)	NO_x, VOC, CO, PM2.5, SO_2	NA	NA
Nonroad	Diesel Marine Engines over 37 kW: Category 2 Tier 2	2007 (1)	NO_x, VOC, CO, PM2.5, SO_2	NA	NA
Nonroad	Large Industrial Spark-Ignition Engines over 19 kW (>50 hp) Tier 2	2007 (1)	NO_x, VOC, CO, PM2.5, SO_2	NA	NA
Nonroad	Locomotive Engines and Marine Compression-Ignition Engines Less Than 30 Liters per Cylinder Tier 3	2008 (1)	NO_x, VOC, CO, PM2.5, SO_2	NA	NA
Nonroad	Diesel Marine Engines over 37 kW: Category 3 Tier 2	2011 (1)	NO_x, VOC, CO, PM2.5, SO_2	NA	NA
Area	Residential Woodstove NSPS	1988 and 2014	NO_x, VOC, CO, PM2.5	NA	NA
Nonroad	Locomotive Engines and Marine Compression-Ignition Engines Less Than 30 Liters per Cylinder Tier 4	2014 (1)	NO_x, VOC, CO, PM2.5, SO_2	NA	NA
Point	EGU: CSAPR, CSAPR Update, Revised CSAPR Update	2015, 2017, 2021	NO_x, VOC, CO, PM2.5, SO_2	NA	NA
Point, Area	Boiler/Process Heater NESHAP	2016	NO_x, VOC, CO, PM2.5, SO_2	NA	NA
Point	EGU: Mercury and Air Toxics Standards (MATS), Coal- and oil-fired	2016	NO_x, VOC, CO, PM2.5, SO_2	NA	NA
Nonroad	Diesel Marine Engines over 37 kW: Category 3 Tier 3	2016 (1)	NO_x, VOC, CO, PM2.5, SO_2	NA	NA
Point, Area	Natural Gas Turbine NSPS	2017	NO_x, VOC, CO, PM2.5, SO_2	NA	NA

Table 4-13:
New Jersey's Post 2002 Control Measures that Reduce Emissions of PM2.5 and its Precursors in New Jersey

Sector	Measure	Effective Start Date/Range of Benefits	Pollutant	New Jersey Administrative Code	USEPA Approval
Point, Area	RICE NESHAP	2017	NO_x, VOC, CO, PM2.5, SO_2	NA	NA
Point, Area	RICE NSPS	2017	NO_x, VOC, CO, PM2.5, SO_2	NA	NA
Point, Area	Process Heater NSPS	2017	NO_x, VOC, CO, PM2.5, SO_2	NA	NA
Onroad	Tier 3 Vehicle Program/ Fuel Standards	2017 (1)	NO_x, VOC, CO, PM2.5, SO_2	NA	NA
Onroad	GHG Emission Standards for Passenger Cars and Light Trucks Through Model Year 2026	2023 (1)	GHGs, NO_x, VOC, CO, PM2.5, SO_2	NA	NA

Legend/Notes:
CSAPR = Cross-State Air Pollution Rule
CTG = Control Technology Guideline
EGU = Electric Generating Unit
FSELs/AELs = Facility-Specific Emission Limits/ Alternative Emission Limits
ICI = Industrial, Commercial and Institutional Boilers
GHG = Greenhouse Gas
IM = Inspection and Maintenance for Motor Vehicles
NA = Not Applicable
NESHAP = National Emission Standards for Hazardous Air Pollutants
NSPS = New Source Performance Standards
MACT = Maximum Achievable Control Technology
OBD = On-board Diagnostics
RICE = Reciprocating Internal Combustion Engines

1. Turnover rule which means measure has cumulative benefits each year until complete fleet or equipment turnover

New Jersey Coal Electric Generating Plants

The final three coal fired Electric Generating Units (EGUs) in New Jersey shutdown in 2022. According to the USEPA's Clean Air Markets Program Data (CAMPD) Carneys Point Unit 2 and Logan Generating Plant Unit 1 last operated on May 31, 2022, and Carneys Point Unit 1 last operated on June 7, 2022. The Carneys Point operating permit for the coal-fired Units 1 and 2 was terminated on September 15, 2022, and the units were confirmed to be in a nonoperational state by NJDEP Enforcement staff. The operating permit for Logan Generating Plant Unit 1 was terminated on December 2, 2022, and the unit was confirmed to be in a nonoperational state by NJDEP Enforcement staff.

Other New Jersey Initiatives

In addition, New Jersey is evaluating, implementing, proposing and adopting several additional measures as part of its climate change goals, which will also reduce emissions from PM and its precursors. These measures include the following:

Clean Energy

New Jersey is a national leader in reducing emissions from the electric power sector. In addition to its adopted air pollution rules, New Jersey has recently implemented several actions that will increase renewable energy, thereby resulting in further reductions in ozone and PM precursor emissions from the New Jersey electric power sector. These measures include:

- Offshore Wind Goals: Governor Murphy signed three Executive Orders[29,30,31] that direct all New Jersey state agencies with responsibilities under the Offshore Wind Economic Development Act to fully implement it. The Orders also established goals to increase New Jersey's offshore wind power to 11,000 megawatts by 2040.

- Rejoining the Regional Greenhouse Gas Initiative (RGGI): RGGI is the first mandatory market-based program in the United States to reduce greenhouse gas emissions from the power sector. New Jersey's participation in RGGI is part of Governor Murphy's goal to achieve 100% clean energy by 2050. On June 17, 2019, New Jersey formally rejoined RGGI when the Department adopted two rules.[32] While GHG reductions are outside the scope of this SIP, it has been shown that GHG reductions will have a co-benefit of NO_x/VOC reductions.

- Clean Energy Act: On May 23, 2018, Governor Murphy signed the New Jersey Clean Energy Act (P.L.2018, c.17). The Act strengthened New Jersey's Renewable Portfolio Standard by requiring 35% renewable power by 2025 and 50% renewable power by 2030. It also requires energy efficiency measures to reduce annual electricity usage by 2% and annual natural gas usage by 0.75% and codifies goals for offshore wind and energy storage.

Electric Vehicles

To reach its air pollution goals, the State must transition from fossil fuel-powered to electric vehicles. It will continue to develop sufficient electric vehicle (EV) infrastructure, conduct education and outreach, and provide incentives through funding and grant programs. On January 17, 2020, Governor Murphy signed landmark legislation that established goals and incentives for the increased use of plug-in electric vehicles in New Jersey. This legislation establishes New Jersey as a leader in attracting electric vehicles to the state thereby making significant contributions to the attainment of existing air pollution and energy goals. The Law includes the following goals/requirements:

- At least 330,000 of the total number of registered light duty vehicles in the State shall be electric vehicles by December 31, 2025, and at least 2 million by end of 2035.
- At least 85 percent of all new light duty vehicles sold or leased in the State shall be plug-in electric vehicles by December 31, 2040.
- By December 31, 2025, at least 400 DC Fast Chargers and 1,000 Level Two Chargers shall be available for public use in the State,
- By December 31, 2025, at least 15 percent of all multi-family residential properties in the State shall be equipped with Electric Vehicle Service Equipment (EVSE) for the routine charging of plug-in electric vehicles by residents, and this rises to 30 percent by December 31, 2030.
- By December 31, 2024, at least 10 percent of the new bus purchases made by the New Jersey Transit Corporation shall be zero emission buses, and the percentage of zero emission bus purchases shall increase to 50 percent by December 31, 2026, and 100 percent by December 31, 2032, and thereafter

The State has awarded $70.37 million since 2019 to support the adoption of, access to, and charging of light-duty zero-emission vehicles (ZEVs), resulting in 12,252 vehicles incentivized for

[29] Executive Order #8, January 31, 2018. https://nj.gov/infobank/eo/056murphy/pdf/EO-8.pdf
[30] Executive Order #92, November 21, 2019. https://nj.gov/infobank/eo/056murphy/pdf/EO-92.pdf
[31] Executive Order #307, September 21, 2022. https://nj.gov/infobank/eo/056murphy/pdf/EO-307.pdf
[32] The Carbon Dioxide Budget Trading Rule and the Global Warming Solutions Fund rule, June 17, 2019.

private/personal use and 135 vehicles incentivized for local government. This funding also incentivized 680 locations with 2,980 charging stations and 5,271 ports. Since 2019, the State has also awarded $162 million in funding to support the purchase of, access to, and charging of medium- and heavy-duty electric vehicles. This funding supported the purchase of 286 trucks/cargo vans, including 95 garbage trucks, 242 buses/shuttle buses, including 32 school buses, and 162 port and airport vehicles/equipment.

In 2011, only 338 electric vehicles were registered in the State. As of June 2022, 80,583 electric vehicles, including battery electric vehicles and plug-in hybrid electric vehicles, are registered in the State, marking a significant increase over the ten-year period. See NJDEP| Drive Green NJ | Electric Vehicle Basics[33] website for more information.

To meet the State's goals to transition the transportation sector, the Department will also:

- Work with Treasury to develop both a standing State contract to enable the installation of electric vehicle chargers at State properties and a state fleet transition plan to ensure the maximum number of state vehicle purchases are electric, taking advantage of the State's purchasing power to influence electric vehicle adoption and markets.

- In accordance with the Electric Vehicle Law, N.J.S.A. 48:25-1, develop goals for vehicle electrification and infrastructure development that address medium-duty and heavy-duty on-road diesel vehicles.

- Continue collaboration with the Northeast States for Coordinated Air Use Management (NESCAUM), a non-profit association of 8 northeastern states, to implement a multi-state zero-emission medium- and heavy-duty vehicle action plan.

- Continue outreach campaigns to enhance public awareness and education that include the following:
    - Publicize available transportation electrification resources through its "Drive Green" website[34]
    - Pursue partnerships with car dealerships and the PlugStar dealer training, which since launch, has resulted in 39 dealers trained and 21,400 visits to the website
    - Participate in the regional "Drive Change. Drive Electric" consumer awareness campaign, which has seen 23,646 visitors to the State's website, 13,231 clicks on paid social media, and 20,343 clicks on paid search on the State's website
    - Destination Electric campaign, which has recently added three New Jersey communities
    - Development of a State-specific consumer awareness campaign as required by the EV Law
    - Promote EV "Ride and Drive" events. There have been 10 held so far, with 10,400 estimated attendees and 655 test drives.

- Continue to implement NJDEP Administrative Order 2021-05, establishing the Department's policy to only purchase the most fuel-efficient vehicles possible, including purchasing combustion engine vehicles only where strictly necessary, and requiring the deployment of necessary EV charging infrastructure as well as the development of plans to deploy charging infrastructure on State-owned lands and at workplace facilities.

- Continue developing strategies and financial incentives to ensure all communities have

[33] https://dep.nj.gov/drivegreen/electric-vehicle-basics/
[34] https://www.drivegreen.nj.gov

access to clean transportation through electric ride sharing and ride hailing[35].

- In coordination with agency partners (BPU/EDA/DOT), continue focused investment of available resources (e.g., National Electric Vehicle Infrastructure Formula Program, Infrastructure Investment and Jobs Act) to build charging infrastructure and incentivize electric vehicle adoption and transition.

- Work with the Division of Community Affairs and legislative partners to update building codes to ensure adoption of the most progressive standards including those requiring new buildings to be "EV ready" which will lower barriers and costs of adoption for new EV users.

NJ PACT

In addition to the above legislation, Governor Murphy signed Executive Order Number 100 (EO 100) on January 27, 2020, that initiated a targeted regulatory reform effort that will modernize New Jersey environmental laws. EO 100 is referred to as Protecting Against Climate Threats (NJ PACT). NJ PACT will usher in systemic change, modernizing air quality and environmental land use regulations, that will enable governments, businesses, and residents to effectively respond to current climate threats and reduce future climate damages.

As a national leader in environmental protection, the NJDEP will create a regulatory roadmap to reduce emissions, build resilience, and adapt to a changing climate. This includes the enactment of new air pollution regulations that achieve critically needed reductions in carbon dioxide and short-lived climate pollutants (e.g., methane and black carbon) including technology-forcing measures that pave the way for a clean-energy economy.

Based on this EO, New Jersey adopted a rule on November 1, 2021, that requires increasing sales fractions of medium and heavy-duty trucks be zero emission vehicles (ZEVs). The requirements of this rule are identical to the California Advanced Clean Trucks rule and will be effective starting with model year 2025. New Jersey also adopted rules on December 2, 2022, which set new Electric Generating Unit (EGU) emission limits starting June 1, 2024, and ban #4 and #6 fuel oil, with a compliance date in 2025 with a two year sell through period. On December 29, 2022, New Jersey adopted rules that require diesel mobile cargo handling equipment at ports and intermodal rail yards to meet performance standards that reflect best available control technology, with a compliance date in 2025. On December 29, 2022, New Jersey adopted rules that include a medium duty diesel inspection and maintenance program and heavy-duty new engine standards for NO_x.

Other Transportation and Clean Air Initiatives

On April 17, 2020, the NJDEP, Board of Public Utilities (BPU) and Economic Development Authority (EDA) jointly released a strategic funding plan for investing the auction proceeds from the State's participation in RGGI. New Jersey plans to invest an estimated $80 million each year in programs that reduce both greenhouse gas emissions and criteria pollutants. The majority (75%) of this investment will be used for clean and equitable transportation projects to accelerate transportation electrification in the State, focusing on reducing emissions from transportation sources in communities disproportionately impacted by the effects of pollution.[36] The results of the spending are provided on the New Jersey RGGI Climate Investment Dashboard.[37]

[35] www.drivegreen.nj.gov/emobility
[36] https://nj.gov/rggi/docs/rggi-strategic-funding-plan.pdf
[37] https://njdep.maps.arcgis.com/home/item.html?id=71e62ee3de2d4a6585bf4766881406c6

In addition, New Jersey is taking action in two areas that are important for future reductions in both GHGs and PM2.5 precursor pollutants; the implementation of fuel cell technology and the promotion of ZEVs for medium/heavy duty vehicles.

On June 19, 2020, Governor Murphy signed legislation that establishes a New Jersey Fuel Cell Task Force that will recommend a plan to increase the use of fuel cells in the State. The task force will issue a yearly report that will include any recommendations for legislative or regulatory action that are necessary to effectuate the plan.[38]

On July 14, 2020, it was announced that New Jersey was one of 15 states and the District of Columbia to sign a memorandum of understanding (MOU).[39] The MOU commits the signers to work collaboratively to advance and accelerate the market for electric medium- and heavy-duty vehicles. The goal is to ensure that 100 percent of all new medium- and heavy-duty vehicle sales be zero emission vehicles by 2050 with an interim target of 30 percent zero emission vehicle sales by 2030. A multi-state action plan was released July 2022 to identify barriers and propose solutions to support widespread electrification of medium- and heavy-duty vehicles.[40]

4.3 Monitoring Network and Verification of Continued Attainment

New Jersey will track the air quality for continued attainment of the PM2.5 NAAQS, as required by the maintenance plan, by evaluating future monitoring data. New Jersey will review ambient PM2.5 monitoring data as it becomes available to evaluate any risk of impending NAAQS violations as discussed further in the Contingency Plan.

To verify that New Jersey's multi-state PM2.5 maintenance areas remain in attainment, New Jersey will continue to operate an appropriate air monitoring network in New Jersey. The air monitoring results will detect any changes in the ambient air quality, as well as assist the State in determining whether or not it is necessary to implement any contingency measures.

The State will work with the USEPA each year through the air monitoring network review process, as required by 40 CFR Part 58 to determine: 1) the adequacy of the PM2.5 monitoring network; 2) if additional monitoring is needed; and 3) if/when sites can be discontinued or relocated. Due to the possibility of an unexpected occurrence affecting one or more of the required monitors, the State will work closely with the USEPA to either replace it or move the monitor(s) to a new location, if necessary. Any changes to the monitoring network will be made through the air monitoring network review process. This review process undergoes a public notice period, usually in the May-June time period each year, and then is subject to approval by the USEPA. Air monitoring data will continue to be quality assured according to the requirements in the USEPA regulations.[41]

4.4 Contingency Plan

The Clean Air Act requires Maintenance Plans to include contingency provisions.[42] The purpose of the contingency provisions is to assure that any violations of the NAAQS will be corrected promptly. The NJDEP will use the following triggers (determination of when to start an action) and perform the following actions in accordance with the described schedule, as its contingency plan:

1. If monitored PM2.5 concentrations in any year exceed the level of the NAAQS for the 2006 24-

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[38] Senate No. 762, State of New Jersey, 219th Legislature.
[39] https://ww2.arb.ca.gov/sites/default/files/2020-07/Multistate-Truck-ZEV-Governors-MOU-20200714.pdf
[40] https://www.dec.ny.gov/docs/air_pdf/mhdzevmou041122.pdf
[41] 40 CFR 58.
[42] 42 U.S.C. 7505a(d).

hour PM2.5 standard of 35 µg/m^3, NJDEP will evaluate all appropriate data to determine the cause of the elevated levels. Such data assessment will include appropriate air quality data, meteorological data, activity data for relevant sources, information on any unusual events (e.g., forest fires, natural disasters), transport from out of state sources, violation of an existing rule or permit, and any other related data to try to determine the cause of the violation. This assessment will be performed when the 98th percentile of the 24-hour average concentrations exceed 35 µg/m^3 at any New Jersey air monitoring site. NJDEP will perform this evaluation within six months of the data certification. New Jersey will work with the other states in its shared multi-state maintenance areas as necessary.

2. If the 24-hour PM2.5 design value (3-year average of the 98th percentile of the 24-hour average concentrations) at any one monitor exceeds 35 µg/m^3, NJDEP will evaluate all appropriate data to determine the cause using the same analyses discussed in Item number 1 above. NJDEP will perform this evaluation within six months of the determination of a violation.

3. Based on any findings, New Jersey will make a judgment on whether the violation was caused by an exceptional event or a violation of an existing rule or permit. Any violation of an existing rule or permit will be addressed with appropriate enforcement action. If it is determined that the violation was caused by an exceptional event, the State will implement USEPA's exceptional event procedures. The State will rely on one or more of the following contingency measures and implementation schedule for any other violation:

- **Onroad Vehicle Fleet Turnover:** Emission reductions will be achieved from onroad motor vehicle fleet turnover from the existing State and federal rules for motor vehicles. The turnover of the onroad fleet of cars and trucks will result in additional NO_x, PM2.5 and VOC emission reductions each year because the new vehicles have significantly lower emission standards than the vehicles they are replacing.

- **Nonroad Vehicle and Equipment Fleet Turnover:** Emission reductions will be achieved from nonroad vehicles and equipment fleet turnover from existing Federal rules. The turnover will result in additional NO_x, PM2.5 and VOC emission reductions each year because the new vehicles and equipment have lower emission standards than the vehicles and equipment they are replacing.

- **Heavy Duty Diesel Inspection and Maintenance Program:** Emission reductions will be achieved from New Jersey's new heavy duty diesel inspection and maintenance program. The NJDEP adopted amendments to N.J.A.C. 7:27-14, 15, and N.J.A.C. 7:27B-4, B-5 on September 9, 2016, which added on-board diagnostic (OBD) inspection and maintenance requirements for heavy duty vehicles. OBD equipment monitors the status of vehicle emission controls and engine performance, alerting the driver via a dashboard indicator if there is a vehicle malfunction. The rules require heavy duty vehicles with OBD systems installed, model years 2014 and newer, to pass an OBD inspection every year for commercial vehicles and every two years for passenger vehicles. The program has not yet been implemented. It is estimated to be implemented in 2023.

4. In addition, as discussed in Section 4.2.2 New Jersey is evaluating, implementing, proposing, and adopting several additional measures as part of its climate change goals, which also will reduce emissions from PM2.5 and its precursors. This includes programs for clean energy such as offshore wind, RGGI, and the New Jersey Clean Energy Act. This also includes programs and funding for electric vehicles and other transportation initiatives. In addition, the NJ PACT initiative includes several mobile and stationary rules the NJDEP is evaluating, proposing, and adopting.

5. If necessary, New Jersey will evaluate the feasibility and applicability of additional measures,

how they relate to the cause and location of the violation, and if these additional measures would correct the violation.

NJDEP will perform this evaluation within six months of the determination of a violation. If it is determined that a new rule is required or appropriate to correct a violation of the NAAQS, NJDEP will propose a new rule within 18 months of the determination of a violation. NJDEP will take final action on the proposed rule within 30 months of the determination of a violation. Should the area return to attainment prior to the implementation of the contingency measure(s), those measures may not be implemented. NJDEP reserves the right to implement other contingency measures if new control programs should be developed and deemed more appropriate.

4.5 Conformity

Transportation Conformity:

The 2022 USEPA guidance document establishes policy regarding transportation conformity for the PM2.5 Limited Maintenance Plan (LMP) option.[43] The USEPA policy provides some flexibility in the transportation conformity process pursuant to previous USEPA rulemakings and current regulations at 40 CFR 93.109(e). Specifically, upon the PM2.5 LMP being approved or found adequate, whichever comes first, an area that has a transportation plan or transportation improvement program (TIP) conformity determination would not include a regional emissions analysis for that PM2.5 NAAQS. In accordance with the USEPA guidance, New Jersey requests an adequacy determination of the SIP so that upon the PM2.5 LMP being found adequate New Jersey's transportation plan or transportation improvement program (TIP) conformity determinations would no longer be required to include a regional emissions analysis for the PM2.5 NAAQS.

Emission budgets in LMP areas are considered to be not constraining for the length of the maintenance period because it is unreasonable to expect that such an area would experience so much growth in that period that a violation of the PM2.5 standard would result. New Jersey's LMP covers the second 10-year maintenance period for both the NNJ-NY-CT and SNJ-PA-DE multi-state areas. The NJDEP will use the interagency consultation process to discuss the development and implementation of the LMP with the New Jersey Department of Transportation and affected Metropolitan Planning Organizations.

Project-level conformity determinations must continue to be completed according to all applicable requirements for federally supported highway and transit projects, including the hot-spot requirements for projects in CO, PM10 and PM2.5 nonattainment and maintenance areas.

General Conformity:

USEPA's general conformity regulations do not distinguish between maintenance areas with an approved "full maintenance plan" and those with an approved LMP. Thus, maintenance areas with an approved LMP are subject to the same general conformity requirements under 40 CFR part 93, subpart B, as those covered by a "full maintenance plan." No statements included in USEPA guidance should be construed to require anything less than full compliance with the general conformity program requirements.[44]

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[43] USEPA, "Guidance on the Limited Maintenance Plan Option for Moderate PM2.5 Nonattainment Areas and PM2.5 Maintenance Areas", October 27, 2022.
[44] ibid.

5.0 CONCLUSION

Air quality monitoring data show measured PM2.5 levels are well below the NAAQS, with a historical trend of improving PM2.5 air quality. New Jersey attained the standards due to permanent and enforceable measures that the State and federal government adopted and/or implemented. Continued attainment is projected through 2033 based on inventory trends, current monitoring data, monitoring data historical trends and permanent and enforceable control measures that the State and federal government have adopted and implemented. The year 2033 represents the end of the second maintenance period.

New Jersey will continue to track and evaluate PM2.5 air concentrations and take appropriate steps to maintain the NAAQS. To verify that the New Jersey portions of its shared multi-state PM2.5 areas remain in attainment, New Jersey will continue to operate an appropriate air monitoring network. New Jersey will work with the other states in the shared multi-state areas, as necessary. The LMP includes a contingency plan that will be promptly implemented to assess and correct a violation of the NAAQS should one occur.