The State of New Jersey
Department of Environmental Protection

State Implementation Plan (SIP) Revision for the Attainment and Maintenance of the Ozone National Ambient Air Quality Standard

8-Hour Ozone Attainment Demonstration Proposal

June 15, 2007

Preface

New Jersey is proposing this document as a revision to its State Implementation Plan. This document proposes a plan for how the State will come into attainment with the health based 8-hour ozone National Ambient Air Quality Standards (NAAQS) by its attainment date of June 15, 2010. The proposed plan for attainment contained in this document conforms to the United States Environmental Protection Agency's (USEPA) guidance and rulemaking with respect to 8-hour ozone attainment.

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Acronyms and Abbreviations

ACT	Alternative Control Techniques
AEL	Alternative Emission Limit
AIM	Architectural and Industrial Maintenance
APA	Administrative Procedures Act
APCA	Air Pollution Control Act
ATPZEV	Advanced Tech Partial Zero Emission Vehicle
ATV	All Terrain Vehicle
BACT	Best Available Control Technology
BART	Best Available Retrofit Technology
BMPs	Best Management Practices
BOTW	Beyond on the Way
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CAAAC	Clean Air Act Advisory Committee
CAIR	Clean Air Interstate Rule
CARB	California Air Resources Board
CASAC	Clean Air Scientific Advisory Committee
C.F.R.	Code of Federal Regulations
CM	Control Measures
CMAQ	Congestion Mitigation and Air Quality
CTGs	Control Technique Guidelines
DV	Design Value
DV_{AT}	Design Value Adjusted for Transport
DV_{B}	Observed Design Value
DV_{Balt}	Alternate Modeling Baseline Design Value
DV_{F}	Modeled Design Value
DV_{Falt}	Modeled Alternate Baseline Design Value
DV_{Falt-r}	Modeled Alternate Baseline Design Value and the Maximum Response RRF
DVMT	Daily Vehicle Miles Traveled
DVRPC	Delaware Valley Regional Planning Commission
EGAS	Economic Growth Analysis System
EGU	Electric Generating Unit
EMP	Energy Master Plan
FCC	Fluid Catalytic Cracking
FCCU	Fluid Catalytic Cracking Unit
FIP	Federal Implementation Plan
FMVCP	Federal Motor Vehicle Control Program
FNL	Federal Direct Final Rule
Fed. Reg.	Federal Register
FSEL	Facility-Specific Emission Limit
GHG	Greenhouse Gas
GMF	Glass Manufacturing Furnace
HAP	Hazardous Air Pollutant
HDDE	Heavy Duty Diesel Engine

HDDV	Heavy Duty Diesel Vehicle
HEDD	High Electrical Demand Day
hp	Horsepower
IAQR	Interstate Air Quality Rule
ICE	Internal Combustion Engine
ICI	Industrial/Commercial/Institutional
I/M	Inspection and Maintenance
LAER	Lowest Achievable Emission Rate
lbs	Pounds
LDAR	Leak Detection and Repair
LEV	Low Emission Vehicle
LNB	Low NO_x Burner
MACT	Maximum Available Control Technology
MANE-VU	Mid-Atlantic/Northeast Visibility Union
MARAMA	Mid-Atlantic Regional Air Management Association
MERR	Mobile Equipment Repair and Refinishing
MM5	Mesoscale Meteorological Model
MMBtu	Million British Thermal Units
MSW	Municipal Solid Waste
MW	Megawatt
MWRPO	Midwest Regional Planning Organization
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
MWC	Municipal Waste Combustor
MWRPO	Midwest Regional Planning Organization
MY	Model Year
NAA	Nonattainment Area
NAAQS	National Ambient Air Quality Standards
NEI	National Emissions Inventory
NESCAUM	Northeast States for Coordinated Air Use Management
NH_3	Ammonia
N.J.A.C.	New Jersey Administrative Code
NJDEP	New Jersey Department of Environmental Protection
NJDOT	New Jersey Department of Transportation
NJEMS	New Jersey Environmental Management System
NJLEV	New Jersey Low Emission Vehicle
NJTPA	North Jersey Transportation Planning Authority
NJR	New Jersey Register
N.J.S.A.	New Jersey Statutes Annotated
NLEV	National Low Emission Vehicle Program
NMHC	Non-methane Hydrocarbon
NMOG	Non-methane Organic Gases
NNSR	Nonattainment New Source Review
NO_x	Oxides of Nitrogen
NSPS	New Source Performance Standard
NSR	New Source Review
NTE	Not-To-Exceed

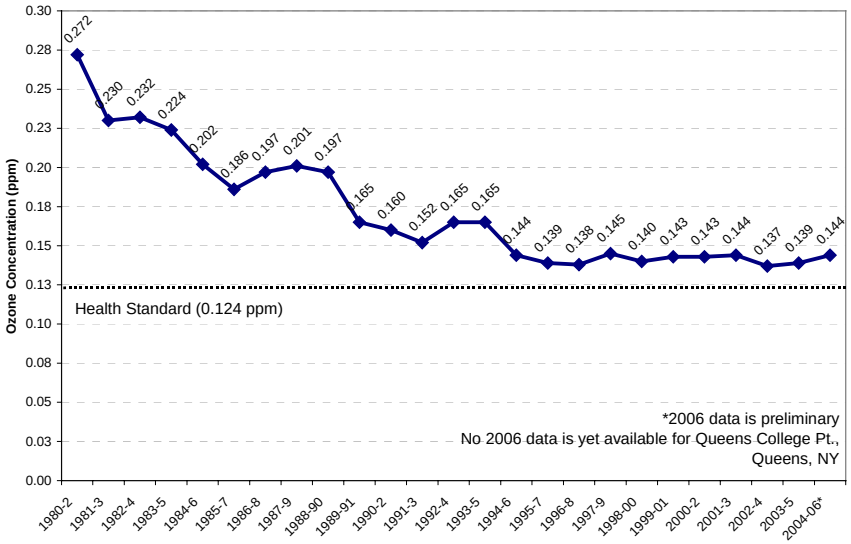
NYSDEC	New York State Department of Environmental Conservation
OBD	On-Board Diagnostics
ORVR	Onboard Refueling Vapor Recovery
OTAG	Ozone Transport Assessment Group
OTB	On the Books
OTC	Ozone Transport Commission
OTR	Ozone Transport Region
OTW	On the Way
PAMS	Photochemical Assessment Monitoring Station
PFC	Portable Fuel Container
$PM_{2.5}$	Fine Particulate Matter (particles with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers)
PM_{10}	Particles with an aerodynamic diameter less than or equal to a nominal 10 micrometers
POTW	Publicly Owned Treatment Works
PPAQ	Post Processor of Air Quality
ppb	Parts per billion
ppm	Parts per million
ppmvd	Parts per million by volume dry basis
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
PZEV	Partial Zero Emission Vehicle
QA/QC	Quality Assurance/Quality Control
RACM	Reasonably Available Control Measure
RACT	Reasonably Available Control Technology
RBLC	RACT/BACT/LAER Clearinghouse
RE	Rule Effectiveness
RFG	Reformulated Gasoline
RFP	Reasonable Further Progress
RGGI	Regional Greenhouse Gas Initiative
RICE	Reciprocating Internal Combustion Engine
ROP	Rate of Progress
RPO	Regional Planning Organization
RRF	Relative Reduction Factor
RRF	Resource Recovery Facility
SCC	Source Classification Code
SCR	Selective Catalytic Reduction
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SJTPO	South Jersey Transportation Planning Organization
SMOKE	Sparse Matrix Operator Kernel Emissions
SNCR	Selective Non-Catalytic Reduction
SO_2	Sulfur Dioxide
SO_x	Oxides of Sulfur
SOTA	State of the Art
SUV	Sport Utility Vehicle
TBD	To Be Determined
TCM	Transportation Control Measure

TDM	Travel Demand Model
TOC	Technical Oversight Committee
tpd	Tons per day
tpy	Tons per year
TSD	Technical Support Document
TTN	Technology Transfer Network
TRB	Transportation Research Board
USEPA	United States Environmental Protection Agency
USDOE	United States Department of Energy
USDOT	United States Department of Transportation
VISTAS	Visibility Improvement State and Tribal Association of the Southeast
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compound
ZEV	Zero Emission Vehicle

Executive Summary

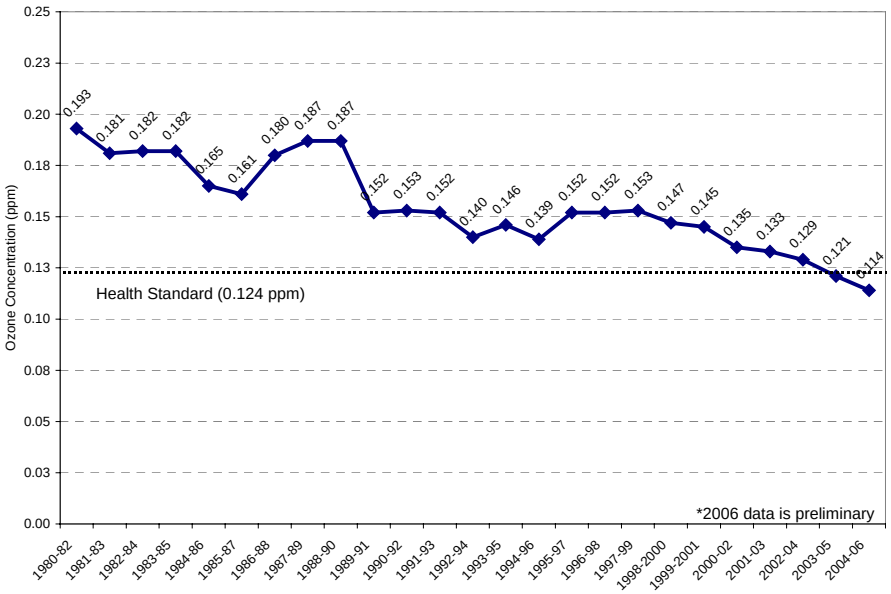
Ozone continues to be New Jersey's most pervasive air quality problem. Although the ozone found in the earth's upper atmosphere (stratosphere) forms a protective layer from the sun's ultraviolet radiation, the ozone formed near the earth's surface (troposphere) is inhaled by or comes into contact with people, animals, crops and other vegetation, and can cause a variety of health and other effects. As shown by Figures ES.1 and ES.2, New Jersey and its multi-state nonattainment areas have made great strides over the years in reducing its ozone levels, as evident by the fact that much of New Jersey is now meeting the revoked 1-hour ozone health standard.

Figure ES.1: Design Values for the 1-Hour Ozone New York Nonattainment Area, 1982-2006



In 1997, the United States Environmental Protection Agency (USEPA) revised the national health standard for ozone, establishing an 8-hour ozone health standard that was more protective of human health and welfare. Figures ES.3 and ES.4 show that the entire State of New Jersey is designated as nonattainment for the 8-hour ozone standard. New Jersey is divided between two 8-hour multi-state nonattainment areas:

Figure ES.2: Design Values for the 1-Hour Ozone Philadelphia Nonattainment Area, 1982-2006



- the northern half of the State is associated with the New York City metropolitan area, NY and portions of Connecticut; and,

- the southern half of the State is associated with the Philadelphia metropolitan area, PA, all of Delaware and a portion of Maryland.

Figure ES.5 shows New Jersey's two 8-hour multi-state nonattainment areas. Both of New Jersey's associated 8-hour nonattainment areas are classified as moderate, giving them an attainment date of June 15, 2010 (and requiring that their attainment demonstrations be submitted to the USEPA by June 15, 2007). The core of this proposed SIP revision is New Jersey's demonstration that its two multi-state 8-hour ozone nonattainment areas will attain the 8-hour ozone National Ambient Air Quality Standard (NAAQS) by June 15, 2010. The remainder of the proposed SIP revision addresses the other mandatory SIP elements for 8-hour ozone (with the exception of a Reasonable Available Control Technology (RACT) analysis, which was proposed on February 2, 2007 and was submitted to the USEPA separately).

Figure ES.3: NNJ/NY/CT Nonattainment Area 8-Hour Ozone Design Values, 1999-2006

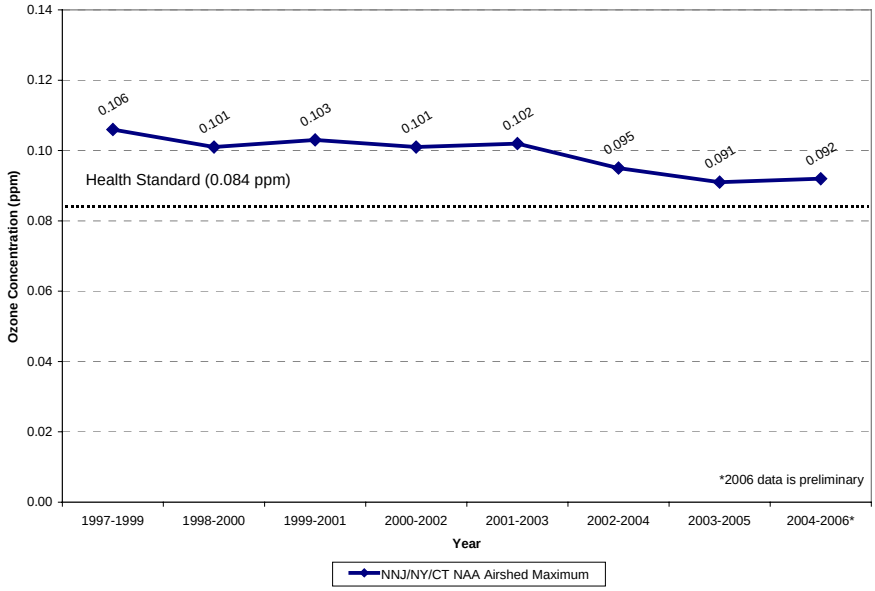
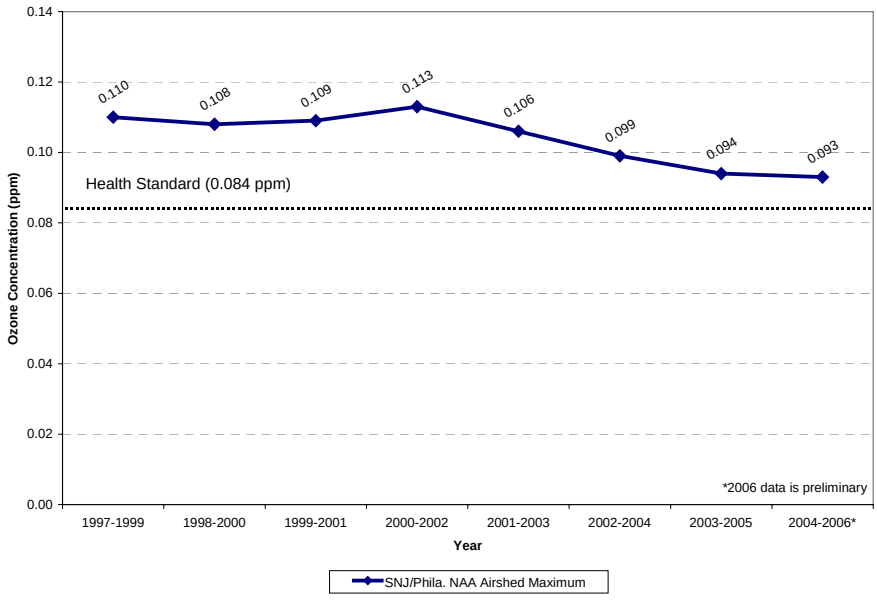
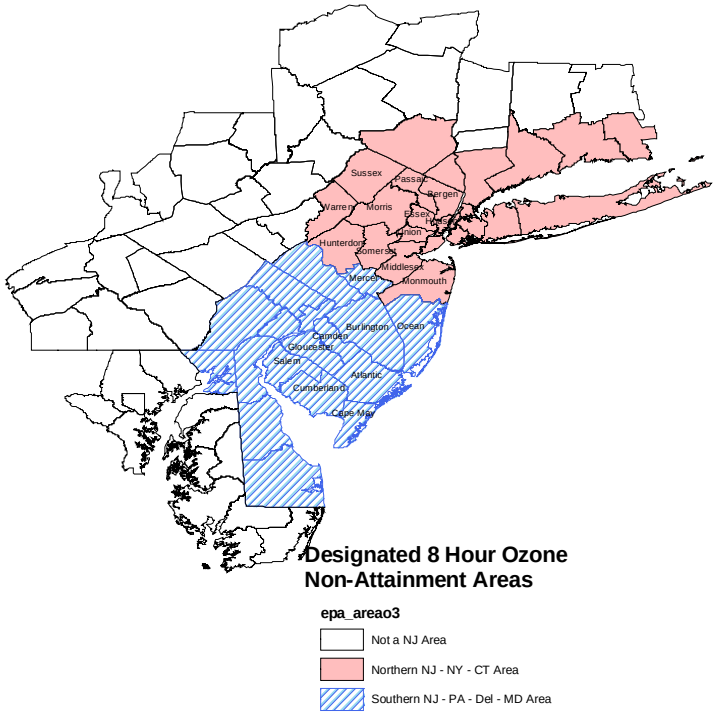


Figure ES.4: SNJ/Phila. Nonattainment Area 8-Hour Ozone Design Values, 1999-2006



Specifically, the primary components of the SIP revision proposal include:

Figure ES.5: New Jersey-Associated 8-hour Ozone Nonattainment Areas



Attainment Demonstration:

New Jersey presents a plausible demonstration that its two multi-state nonattainment areas will attain the 8-hour ozone health standard by June 15, 2010. New Jersey's attainment demonstration is primarily based on photochemical air quality simulation modeling that includes the implementation of numerous additional control measures prior to the summer of 2009. The demonstration also incorporates the latest scientific information from the University of Maryland that considers some of the uncertainties and biases when using atmospheric models. The 2009 modeled design values were adjusted to account for the fact that the photochemical modeling system used under predicts transport and ozone changes associated with emission reductions. Adjusting the modeling results for the transport benefit and accounting for some uncertainty in the modeling resulted in a range of future design values that demonstrate attainment of the 8-hour ozone standard. Beyond the "transport adjusted" future design values, New Jersey provides additional analytical evidence to further address any uncertainty in the regional photochemical air quality modeling, and to support its claim of attainment, including benefits from additional control measures not captured in the regional modeling. Table ES.1 presents the results for the two controlling monitors in the multi-state nonattainment areas associated with New Jersey. The results indicated that it is plausible for both areas to reach attainment by June 15, 2010.

New Jersey's attainment demonstration relies upon New Jersey and the rest of the Ozone Transport Commission states honoring their commitments to implement the "beyond on the way" control measures contained in the regional 2009 attainment modeling. Therefore, it is important that the USEPA, in reviewing the attainment demonstrations and all other SIP revisions from upwind states, take into consideration the impact on New Jersey's attainment obligations, and insure that other states are doing all that is necessary to help the multi-state nonattainment areas reach attainment as soon as practicable. This SIP proposal reaffirms New Jersey's plan for addressing its transport obligations under 42 U.S.C. § 7410(a)(2)(D)(i) (CAA 110(a)(2)(D)(i)), as outlined

Table ES.1: Demonstration of Attainment at the Controlling Monitors

Site Name - County, State	Site Number	Starting Point	Attainment Modeling Results						Supporting Analyses					
		2009 Modeled Results (DV_F) (ppb)	2009 Modeled Results Adjusted for Transport (DV_{AT}) (ppb)	**Upper and Lower Bound of 2009 DV_{AT} (ppb)**			2009 Modeled Results Adjusted for Transport and Taking Additional Quantifiable Measures Not Modeled into Account			2009 Modeled Results (DV_F) (ppb)	2009 Modeled Results using Alternate Baseline (DV_{Falt}) (ppb)	**2009 Modeled Results using Alternate Baseline and RRF (DV_{Falt-r}) (ppb)**	2009 Modeled Results using Alternate Baseline and RRF and Taking Additional Quantifiable Measures Not Modeled into Account		
NNJ/NY/CT Nonattainment Area															
Stratford - FAIRFIELD CO, CT	90013007	90	85	**88**	-	**82**	88	-	80	90	87	**83**	83	-	81
SNJ/Phila. Nonattainment Area															
Colliers Mills - OCEAN CO, NJ	340290006	92	85	**88**	-	**81**	88	-	76	92	90	**86**	86	-	81

Note: There are additional non-quantifiable measures that will produce air quality benefits and further reduce these values.

previously in a letter from NJDEP Commissioner Jackson to USEPA Region 2 Regional Administrator Steinberg on December 22, 2005.

New Jersey commits in this proposed SIP to propose and adopt, in accordance with the New Jersey Administrative Procedures Act and the Air Pollution Control Act, all the control measures included in its attainment photochemical modeling. New Jersey further commits to propose and adopt, pursuant to the Administrative Procedures Act and the Air Pollution Control Act, a number of other control measures that were not included in the 2009 attainment modeling, but will result in emission reductions by 2009. New Jersey commits to propose all of these control measures, listed in Table ES.2, by no later than November 2007 and adopt by 2008, in accordance with the New Jersey Administrative Procedures Act (APA) (N.J.S.A. 52:14B-1 et. seq.) and the Air Pollution Control Act (APCA) (N.J.S.A. 26:2C-1 et. seq.).

Table ES.2: State Control Measure Commitments

OTB/OTW Measures
• All measures implemented; no further commitment is necessary
BOTW Measures
• Consumer Products 2009 Amendments
• Portable Fuel Container 2009 Amendments
• Adhesives and Sealants
• Asphalt Paving
• Certain Categories of ICI Boilers
Additional measures to reduce the uncertainty of plausible attainment, and/or provide contingency for attainment*
• Refinery Rules
• New USEPA Control Technique Guidelines (CTGs)
• Case by case VOC and NO_x Emission Limit Determinations
• High Electric Demand Day Program
• Petroleum Storage Tank Rule
• Diesel Idling Rule
• Diesel Inspection and Maintenance Program
• Municipal Waste Combustors Rule
• New Source Review

*** These measures were not included in the regional modeling for 2009.**

The implementation of all of these measures will serve not only to meet New Jersey's obligation that New Jersey's associated nonattainment areas meet their mandatory attainment date, but will insure that New Jersey is not negatively impacting any other area's ability to meet the NAAQS through transported emissions of ozone and its precursors.

New Jersey also commits, as part of this SIP revision, to implement a number of future control measures that will result in emission reductions post-2010. It is important that New Jersey and its neighboring states continue to reduce emissions post-2010, as these longer-term measures provide:

- the regulated community with certainty and more time to identify the necessary funding to install control equipment, modify their products or usage patterns, and/or take other actions to implement pollution prevention strategies; and,
- additional reductions, which would be relied upon should the state not attain by 2010.
- Additional public health protection, especially in view of health scientist and USEPA scientists' recommendation for a more protective ozone NAAQS.

Furthermore, making these additional reductions in air pollution is prudent in providing much needed improved air quality and public health protection as soon as possible and to provide more certainty that the NAAQS will be attained.

Reasonable Further Progress:

As required by 42 U.S.C. §7410(a)(1), this SIP proposal provides a demonstration that New Jersey will more than meet its Reasonable Further Progress (RFP) targets for both 2008 (RFP milestone) and 2009 (attainment) using the same control measures applied in the State's 2009 attainment demonstration. Meeting these milestones will provide incremental progress towards attainment, rather than achieving the majority of emission reductions just before the attainment date.

Reasonably Available Control Measures:

As required by 42 U.S.C. §7502(c)(1), this SIP proposal provides a Reasonably Available Control Measures (RACM) analysis for the ozone precursors of VOC and NO_x. Specifically, the USEPA requires states to implement any technologically and economically feasible measures identified by its RACM analysis that would advance the attainment date by one year. While New Jersey's RACM analysis did identify feasible measures, implementation of those measures would not advance the nonattainment areas' attainment date by one year, to June 15, 2009 (which would require demonstration of attainment by the summer of 2008). Several of the feasible measures identified as part of this analysis (including new requirements for adhesives and sealants, consumer products, aerosol coatings, and truck idling restrictions) are being proposed for implementation by either New Jersey or the federal government to ensure attainment, or better than attainment, for the protection of public health.

Contingency Plans:

Pursuant to 42 U.S.C. §§7502(c)(9) and 7511a(c)(9), New Jersey developed contingency plans that require corrective action in the event that New Jersey misses its 2008 Reasonable Further Progress milestone or fails to attain the NAAQS by the summer of 2009. Each of these plans must provide for an action plan to reduce VOC[1] emissions by 3 percent of the adjusted 2002 base year VOC emissions inventory. New Jersey relies on the "surplus" in emission reductions from New Jersey and Federal control measures implemented between 2002 and 2008, that go beyond the RFP target of 15 percent, to meet its 2008 contingency milestone. For the 2009 attainment contingency milestone, New Jersey relies on those additional measures that were not included in the attainment demonstration modeling, but will result in emission reductions in 2009 and beyond.

[1] The USEPA allows for NOx substitution, so long as 0.3 percent of the 3 percent requirement is met with VOC reductions.

Conformity:

The proposed SIP addresses both transportation and general conformity requirements for the 8-hour ozone NAAQS. With respect to transportation conformity, New Jersey proposes to establish on-road vehicle emission budgets for use by the Metropolitan Planning Organizations. Each of the three Metropolitan Planning Organizations associated with New Jersey[2] must meet these budgets in order to ensure that their plans and programs are in conformance with the SIP. With respect to general conformity, New Jersey proposes to establish emission budgets for use by McGuire Air Force Base and Lakehurst Naval Air Station to ensure that emissions from their operations also conform to the requirements of the SIP.

One-Hour Ozone:

As part of this SIP proposal, New Jersey includes a request that the USEPA make a finding that three (3) of New Jersey's four (4) associated 1-hour nonattainment areas are meeting the 1-hour standard.

Other Components of the proposed SIP:

- Background information and a conceptual discussion on the formation and transport of ozone in the Northeastern United States;
- One-Hour and 8-Hour trends data for New Jersey and its associated multi-state nonattainment areas;
- Detailed descriptions of all the control measures used throughout the proposed SIP;
- A reaffirmation of New Jersey's actions and commitments with respect to transported emissions, as required by CAA 110 (a)(2)(D)(i) (and commonly referred to as the transport SIP requirement);
- A discussion of the likelihood that the USEPA will establish a new, more stringent 8-hour ozone health standard, and New Jersey's current actions to address that future goal; and,
- A summary of all New Jersey's commitments and requests of the USEPA.

[2] The North Jersey Transportation Planning Authority (NJTPA), the South Jersey Transportation Planning Organization (SJTPO) and the Delaware Valley Regional Planning Commission (DVRPC).