

**The State of New Jersey
Department of Environmental Protection**

**Proposed State Implementation Plan (SIP)
Revision for the Attainment and Maintenance of
the One-Hour Ozone National Ambient Air
Quality Standard**

**Update to Meeting the Requirements of the
Alternative Ozone Attainment Demonstration
Policy-Additional Emission Reduction
Commitment and Transportation Conformity
Budgets**

February 4, 2000

Preface

This document is a proposed revision to the State of New Jersey's plan to demonstrate attainment with the 1-Hour Ozone National Ambient Air Quality Standard, in accordance with the Clean Air Act and the Alternative Ozone Attainment Demonstration Policy issued by the USEPA (the USEPA memorandum titled "Ozone Attainment Demonstrations," Mary D. Nichols, Assistant Administrator for Air and Radiation, March 2, 1995). Its purpose is to address USEPA - identified requirements for a commitment to obtain additional emission reductions and the setting of attainment year transportation conformity budgets as described in the proposed USEPA rule 40 C.F.R. Part 52 (64 Fed. Reg. 70380, December 16, 1999).

Acknowledgments

The New Jersey Department of Environmental Protection (NJDEP) acknowledges the efforts and assistance of the agencies, organizations, and individuals whose contributions were instrumental in the preparation of this State Implementation Plan Revision.

In particular, the NJDEP wishes to acknowledge the individuals within the New Jersey Department of Transportation, the Delaware Valley Regional Planning Commission, the North Jersey Transportation Planning Authority, the South Jersey Transportation Planning Organization, the United States Environmental Protection Agency Region II and III, the Connecticut Department of Environmental Protection, the New York State Department of Environmental Conservation, and the Ozone Transport Commission for their assistance and guidance.

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Acronyms and Abbreviations

AIM	Architectural and Industrial Maintenance
CAA	Clean Air Act
Department	New Jersey Department of Environmental Protection
DV	Design Value
DVRPC	Delaware Valley Regional Planning Commission
EGU	Electric Generating Unit
MVEB	Motor Vehicle Emission Budget
NET	National Emission Trends
NAA	Nonattainment Area
NAAQS	National Ambient Air Quality Standard
NJ	New Jersey
NJDEP	New Jersey Department of Environmental Protection
NJTPA	North Jersey Transportation Planning Authority
N.J.A.C.	New Jersey Administrative Code
NLEV	National Low Emission Vehicle
NO _x	Nitrogen Oxides
OTR	Ozone Transport Region
PPB	Parts Per Billion
RACT	Reasonable Available Control Technology
Regional NO _x Cap	The Proposed USEPA Regional NO _x Emission Reduction Program
SCR	Selective Catalytic Reduction
SIP	State Implementation Plan
SJTPO	South Jersey Transportation Planning Organization
TCB	Transportation conformity Budget
USEPA	United States Environmental Protection Agency
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds

Executive Summary

Ozone is a highly reactive gas formed in the lower atmosphere or troposphere from the chemical reaction involving oxides of nitrogen (NO_x) and volatile organic compounds (VOCs) in the presence of sunlight. At elevated levels, it causes a variety of human health effects as well as damage to crops and materials. The United States Environmental Protection Agency (USEPA) is required by the Clean Air Act to set health and welfare standards for air pollutants. These standards are known as the National Ambient Air Quality Standards (NAAQS). The USEPA has established such standards for ozone. Despite substantial federal and state efforts over the past two decades, attainment of the ozone health standard has not been achieved in New Jersey as well as many other areas throughout the country, although significant progress has been made.

Among the provisions of the Clean Air Act is the requirement that areas with ozone concentrations above certain levels demonstrate that their plans will meet the health standard within the time frame required by the Clean Air Act. New Jersey is required to make such a demonstration for the eighteen of its twenty-one counties that have not been designated as in attainment with the NAAQS for ozone. These counties are associated with two multi-state nonattainment areas; ones included in the Philadelphia-Wilmington-Trenton nonattainment area or Air Quality Control Region, and the counties included in the New York-Northern New Jersey-Long Island nonattainment area or Air Quality Control Region.

In a prior such demonstration (the Phase II Ozone SIP Submittal of August 31, 1998), the State provided air quality projections demonstrating that, under certain conditions conducive to high ozone concentrations, attainment was plausible without the need for further emission reductions beyond the mandated Clean Air Act measures and the Regional NO_x reductions as embodied in the USEPA NO_x SIP call[†]. The demonstration also identified and quantified certain uncertainties in the projections. In reviewing New Jersey's and other states' demonstrations, the USEPA performed its own analyses and determined that further emission reductions are necessary for attainment. The USEPA results are provided in Table ES-1 for the multi-state nonattainment areas that encompass most of New Jersey. The emission reductions in Table ES-1 already assume a USEPA - calculated credit for the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program.

[†]63 Fed. Reg. 57356 (October 27, 1998).

Table ES - 1: Additional Emission Reduction Required in Multi-state-state Nonattainment Areas After Credit for the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program
(1)

Area	1990 Emissions - tons per day -		Emission Reductions - % of 1990 emissions -		Emission Reductions - tons per day -	
	VOC	NO _x	VOC	NO _x	VOC	NO _x
New York (NY) - Northern New Jersey (NJ) - Long Island Nonattainment area, NJ, NY, CT, 2007 attainment date	2214	2052	3.8	0.3	85	7
Philadelphia-Wilmington-Trenton Nonattainment area, NJ, PA, DE, MD, 2005 attainment date	1380	1010	4.5	0.3	61.8	3.4

(1) The mix of VOC and NO_x reductions shown may be changed in the future by substituting NO_x for VOC, or vice-versa, on an equivalent ozone reduction basis, consistent with the Clean Air Act and USEPA Guidance^{††}

As described in Part III of this State Implementation Plan (SIP) revision, the USEPA results are reasonably similar to the prior New Jersey results quantifying the uncertainties involved in these air quality projections. Therefore, considering the USEPA and the prior state analyses, the State is proposing to commit to a process designed to secure its fair share of the additional emission reductions identified by the USEPA in Table ES-1. Assuming that the percentage reduction identified by the USEPA is distributed proportionately based on New Jersey's contribution to the emissions in the full nonattainment areas, the New Jersey obligation for emission reduction would be as shown in Table ES-2.

Further, the State supports the need for the USEPA Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program and agrees that the benefits from that program are essential to reduce the emission shortfalls to the levels shown in Table ES-2. Therefore the State is proposing to revise its prior transportation conformity budgets or motor vehicle emission budgets (MVEB's) to reflect the inclusion of the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program. The resulting budgets are summarized in Table ES-3 below. Additionally, the NJDEP is proposing to

^{††}USEPA Memorandum, Clarification of Policy for Nitrogen Oxides (NO_x) Substitution, August 5, 1994.

reserve 50% of the incremental^{†††} benefit of the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program in the years beyond the attainment years for air-quality purposes.

Table ES-2: USEPA - Identified Additional Emission Reductions - Apportioned to New Jersey

	VOCs (tons/day)		NO _x (tons/day)	
	Total for Area	New Jersey Proportion	Total for Area	New Jersey Proportion
New York-Northern New Jersey - Long Island nonattainment area*	85	36.5	7	3.4
Philadelphia-Wilmington-Trenton nonattainment area**	61.8	20.7	3.4	1.3
Total Emission reductions for both severe nonattainment areas in New Jersey		57.2		4.7

* Apportionment to New Jersey based a 951 ton per day VOC and 1012 ton per day NO_x contribution from New Jersey to the nonattainment area in 1990, per the USEPA Technical Support Document for the New York City Ozone Nonattainment Area, December 13, 1999.

** For the Philadelphia nonattainment area, the apportionment to NJ is based on a 33.55% NJ VOC contribution and a 38.42% NJ NO_x contribution to the area's 1990 inventory, from USEPA National Emission Trends (NETs) emissions data. (This data was provided via an e-mail transmission from Robert Kelly of USEPA Region II to Robert Stern and Chris Salmi of the NJDEP on January 6, 2000).

^{†††}The incremental benefit is the difference between the emission benefit of the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program in a year beyond the attainment year and the emissions benefit of the Program in an attainment year.

Table ES-3: Revised Transportation Conformity Budgets Incorporating the Benefits From the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program

Transportation Planning Area	Attainment Year	Transportation Conformity Budgets	
		VOC -in tons per day-	NO _x -in tons per day-
North Jersey Transportation Planning Authority (NJTPA)	2007	77.72	170.89
South Jersey Transportation Planning Organization (SJTPO)	2005	10.19	24.81
Delaware Valley Regional Planning Commission (DVRPC)	2005	32.40	58.86

I. Introduction

This proposed revision to the New Jersey State Implementation Plan (SIP) for the Attainment and Maintenance of the Ozone National Ambient Air Quality Standards (NAAQS) provides: (a) an enforceable commitment by New Jersey to adopt sufficient measures to address its fair share of the level of additional emission reductions recently identified by the USEPA¹, and to revise its Attainment Demonstration accordingly to reflect those measures; (b) a revised transportation conformity budget that includes the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program benefits; (c) an enforceable commitment to revise the New Jersey Ozone Attainment Demonstration to recalculate the transportation conformity budgets to reflect any adopted additional measures (beyond the Tier 2 Motor Vehicle Standard / Low Sulfur Program) pertaining to motor vehicles; (d) an enforceable commitment to revise the New Jersey Ozone Attainment Demonstration to recalculate the transportation conformity budgets, within one year after the MOBILE6 model is released and required for use in the development of SIPs; (e) a list of possible additional control measures from which a suite of measures can be drawn that would be expected to meet New Jersey's fair share of the USEPA - identified emission reduction shortfall; and (f) an enforceable commitment to perform a midcourse review by December, 2003.

II. Current Ozone Air Quality

The regulatory measure for attainment of the 1-hour ozone standard is called the "1-hour design value." The design value for a particular monitoring site is the fourth highest ozone concentration at the site over consecutive, 3-year periods. The design value for an area is the highest design value for all the monitoring sites in the area. New Jersey's ozone monitoring sites are shown in Figure 1.

The trends in 1-hour design values for monitoring sites in Southern New Jersey, and Central and Northern New Jersey are illustrated in Figures 2 and 3 respectively. The 1-hour ozone standard is 0.12 ppm, which is rounded to 124 ppb for operational monitoring purposes.

On July 18, 1997, the United States Environmental Protection Agency (USEPA) found that the National Ambient Air Quality Standard (NAAQS) for ozone was no longer sufficiently protective of public health. As such, the USEPA established a new ozone health standard 0.08 parts per million (ppm) averaged over an 8-hour period. In accordance with Section 107(d)(1) of the Clean Air Act (CAA) and Section 6103(a) of TEA-21, each Governor would be required to submit to the USEPA, by July of 1999, recommended designation(s) for the 8-hour ozone NAAQS attainment status for areas within his or her state and the boundaries for each non-attainment area. On June 25, 1999 the USEPA requested² air quality monitoring data relative to the 8-hour standard. However, the recent Court of Appeals opinion regarding the 8-hour ozone

¹64 Fed. Reg. 70380, December 16, 1999.

²USEPA Memorandum, Designations for the 8-Hour Ozone NAAQS, June 25, 1999.

NAAQS³ has injected some uncertainty as to area classifications and their ultimate attainment dates and implementing schedules.

The regulatory measure for the USEPA's 8-hour standard is termed the "8-hour design value," and is the 3 year average of the 4th highest 8-hour averaged ozone concentration at a monitoring site for each year. The trends in the 8-hour design value are shown in Figures 4 and 5 for Southern New Jersey, and Central and Northern New Jersey respectively.

Implementation of the 8-hour ozone standard, including designations of nonattainment areas is on hold pending final review of legal challenges. However, it can be seen from Figures 4 and 5 that the current, i.e., 1998 and 1999 8-hour design values at all of the monitoring sites in New Jersey are above the current standard of 0.8 ppm, which for operational monitoring purposes is rounded up to 84 ppb. This data has been entered into the USEPA's Aerometric Information and Retrieval System (AIRS).

³American Trucking Association v. USEPA, 195 F.3d 4 (D.C. Circuit 1999).

Figure 1: New Jersey's Ozone Monitoring Sites

New Jersey's Ozone Monitoring Network

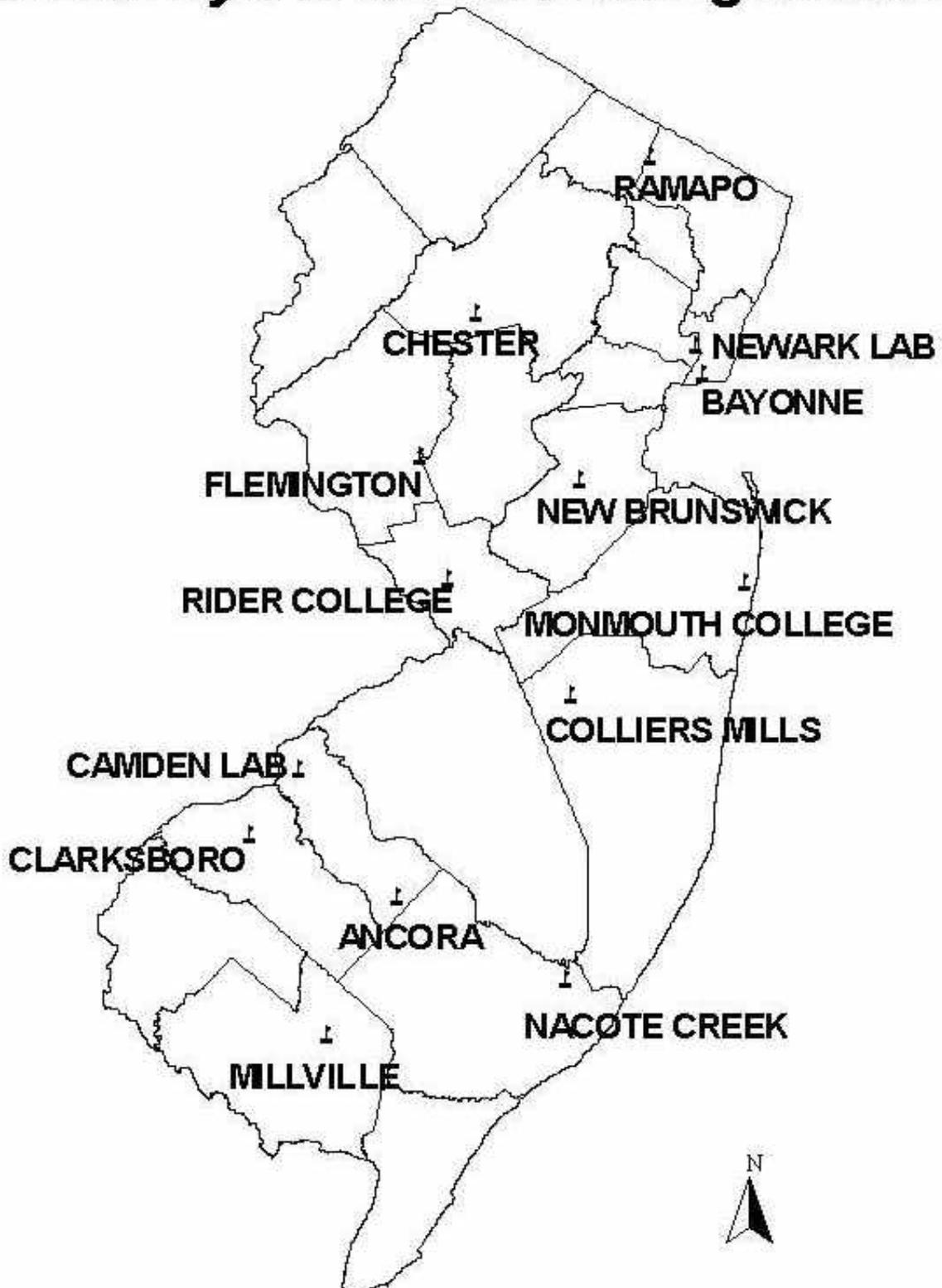


Figure 2: 1-Hour Design Values-Southern New Jersey

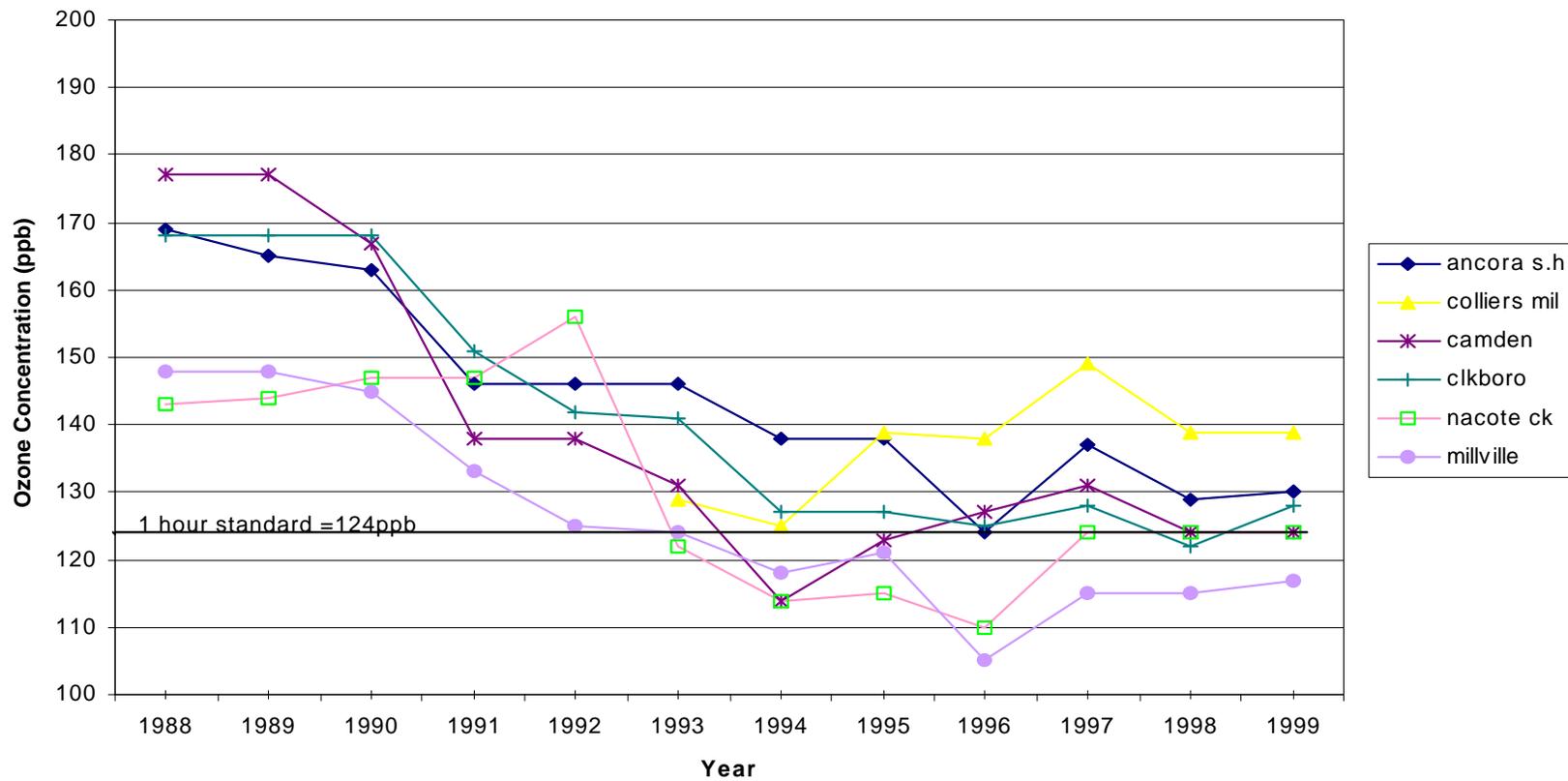


Figure 3: 1-Hour Design Values-Northern & Central New Jersey

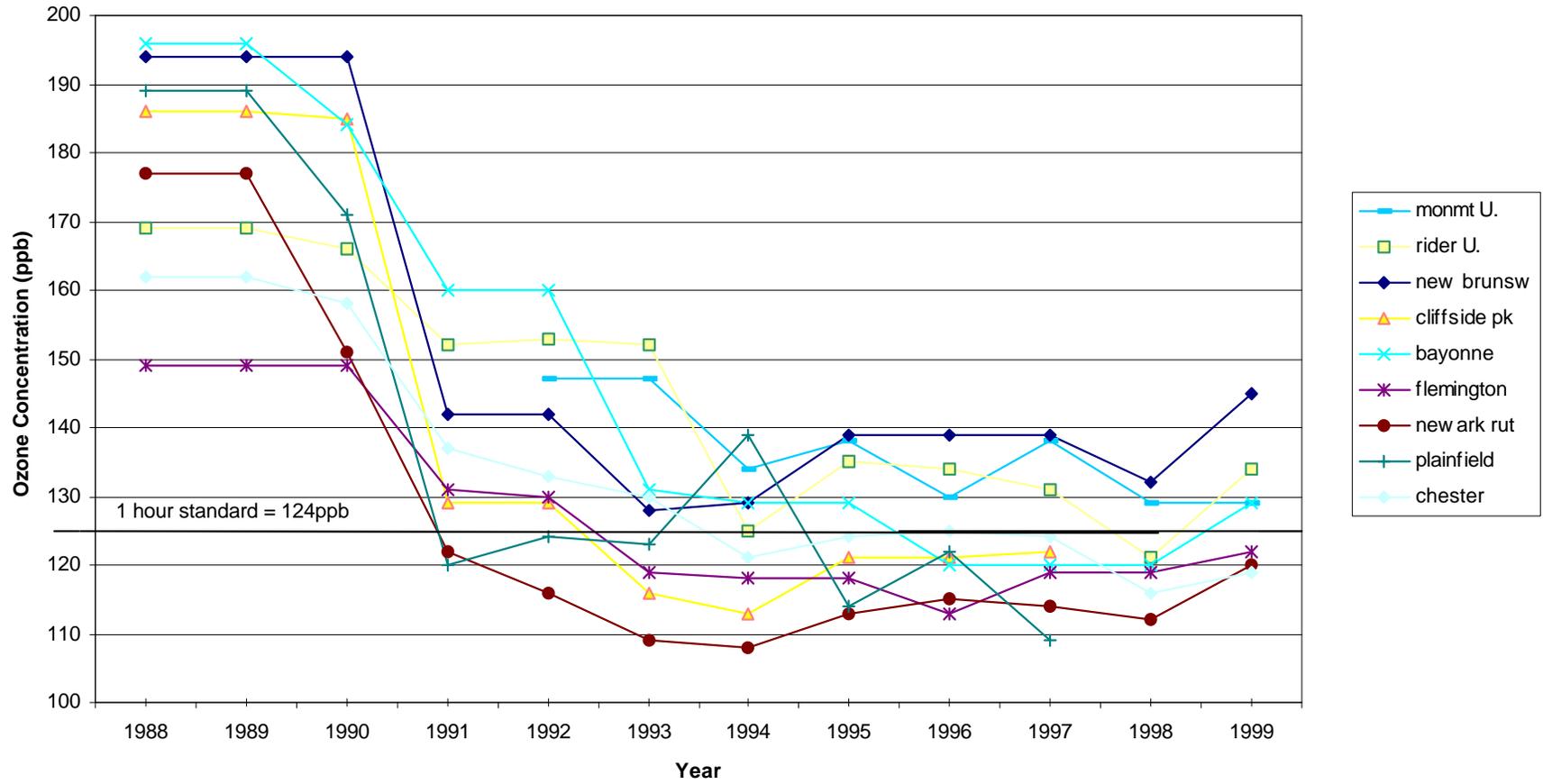


Figure 4: 8-Hour Design Values-Southern New Jersey

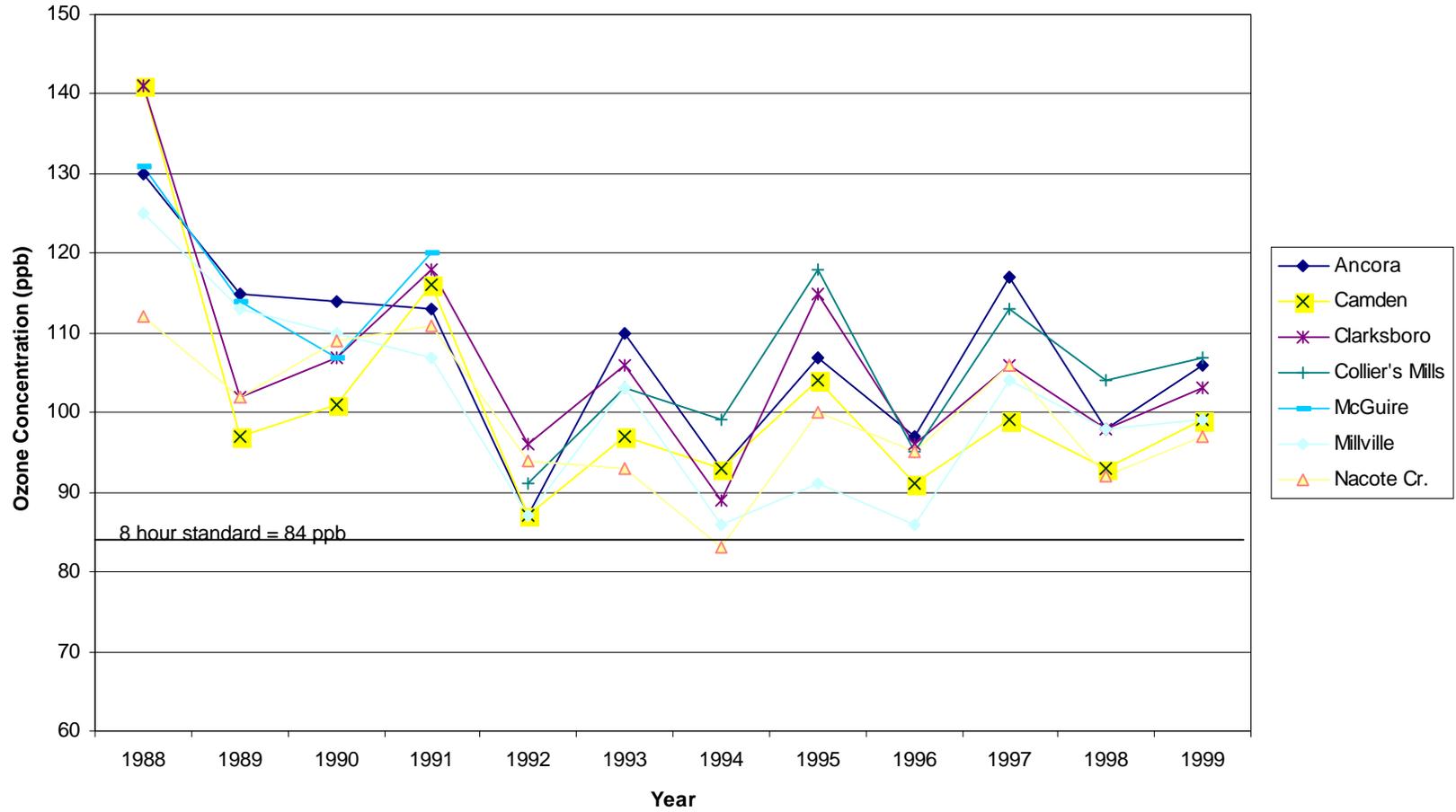
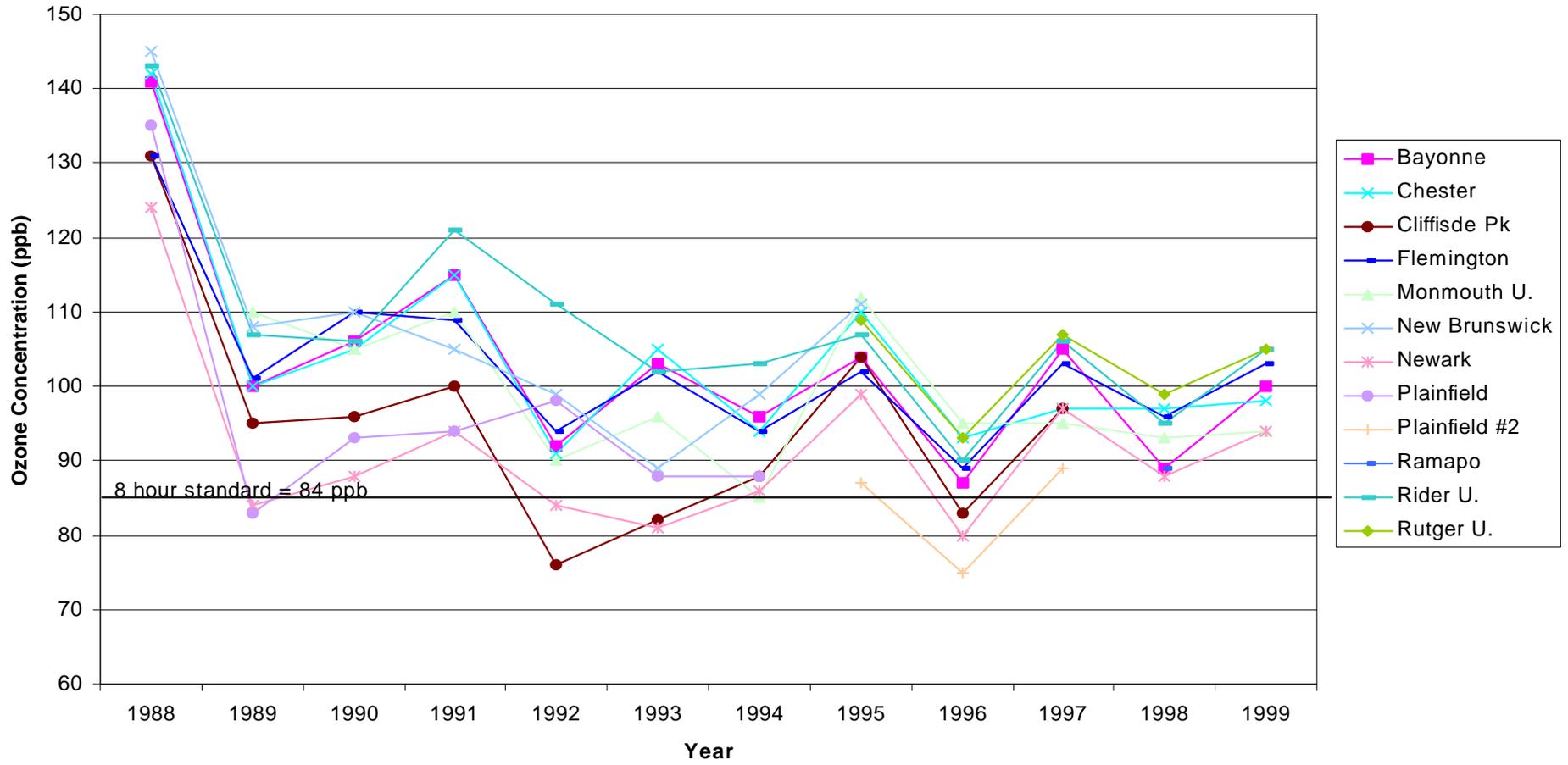


Figure 5: 8-Hour Design Values-Northern & Central New Jersey



III. Background

A. Phase II Ozone SIP (Attainment Demonstration).

On August 31, 1998, New Jersey submitted to the USEPA⁴ a SIP revision "Attainment and Maintenance of the Ozone National Ambient Air Quality Standards - Meeting the Requirements of the Alternative Ozone Attainment Demonstration Policy." This document is referred to as the Ozone Attainment Demonstration SIP by the USEPA or alternatively as the Phase II Ozone SIP. This SIP submittal addressed the USEPA requirements related to attainment of the 1-hour NAAQS for ozone as contained in a March 2, 1995 memorandum from Mary Nichols and a December 29, 1997 memorandum from Richard D. Wilson. This submittal included: a demonstration of attainment of the 1-hour NAAQS for Ozone for the Philadelphia-Southern and Central New Jersey, and the New York-Northern New Jersey-Southern Connecticut areas; a list of control measures adopted to date; and commitments to:

- 1) submit post-1999 Rate of Progress (ROP) Plans and to submit adopted regulations by December 31, 2000, needed to achieve post-1999 emission reductions;
- 2) implement the New Jersey portion of the EPA regional NO_x cap (NO_x SIP Call);
- 3) undertake a midcourse review and submit a report to the USEPA by December 31, 2002;
- 4) evaluate additional control measures which are not currently implemented for potential future implementation; and
- 5) propose such reasonable and necessary control measures needed to address any shortfall identified in the mid-course review which are necessary for attainment;

B. Previous New Jersey Results Regarding the Need for Additional Emission Reductions

In its August 31, 1998 Attainment Demonstration, New Jersey utilized photochemical air quality modeling in a "rollback" mode⁵ with other "weight of evidence" analyses to project ozone concentrations in the attainment years for the Philadelphia-Southern and Central New Jersey and Northern New Jersey-New York Metropolitan - Southern Connecticut areas respectively.

With respect to the Philadelphia-Southern and Central New Jersey area, the demonstration showed that attainment was plausible using 1996 one-hour ozone design value levels as the starting point for the analysis. The analyses demonstrated that no new additional emission reductions beyond Clean Air Act mandated measures and the USEPA Regional NO_x emission caps were necessary for attainment. However an uncertainty in the demonstration was

⁴NJ SIP Revision, Meeting the Requirements of the Alternative Ozone Attainment Demonstration Policy-Phase II Ozone Submittal, August 31, 1998.

⁵The "rollback" method utilizes current monitored ozone levels multiplied by the ratio of air quality-modeled ozone concentrations with current and future projected emissions to predict future air quality, i.e., ozone levels.

acknowledged related to a higher 1995-1997 design value at the Colliers Mills monitoring site. Although this higher value was not expected to persist, an analysis of this issue⁶ in the demonstration indicated the possible need for additional emission reductions to provide a 6 parts per billion (ppb) further ozone reduction. Using ozone/emission sensitivity factors from Table I-2 in Appendix I of the New Jersey Phase II Ozone SIP, adjusted to 1990 emission inventory levels, this would require an additional 10% NO_x or 13% VOC emission reduction.

Regarding the Northern New Jersey-New York Metropolitan-Southern Connecticut area, using 1998 one-hour ozone design value data as the starting point for the demonstration, attainment of the 1-hour ozone NAAQS was plausibly demonstrated in the area with the implementation of mandated Clean Air Act measures and the USEPA Regional NO_x caps. The uncertainty in this demonstration was also noted primarily with respect to the starting design value. An analysis in the SIP, using a 5 year average of design values as the starting point for the projection suggested that an additional 11% VOC or 12% NO_x⁷ emission reduction, relative to 1990 levels, could be needed to attain the 1-hour ozone standard.

C. Recent USEPA Analysis

The USEPA has recently concluded its own analysis and attainment projections⁸ for the Philadelphia-Wilmington-Trenton and New York-Northern New Jersey-Long Island nonattainment areas. The New Jersey portions of these nonattainment areas are depicted in Figure 6.

With regard to the Philadelphia-Wilmington-Trenton nonattainment area, the USEPA found that additional emission reductions are needed to more conclusively predict attainment. The additional reductions needed in the Philadelphia-Wilmington-Trenton nonattainment area prior to taking credit for the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program were estimated at 4.8% VOC and 2.5% NO_x, or a sum of percentage VOC and NO_x reductions of 7.3%⁹.

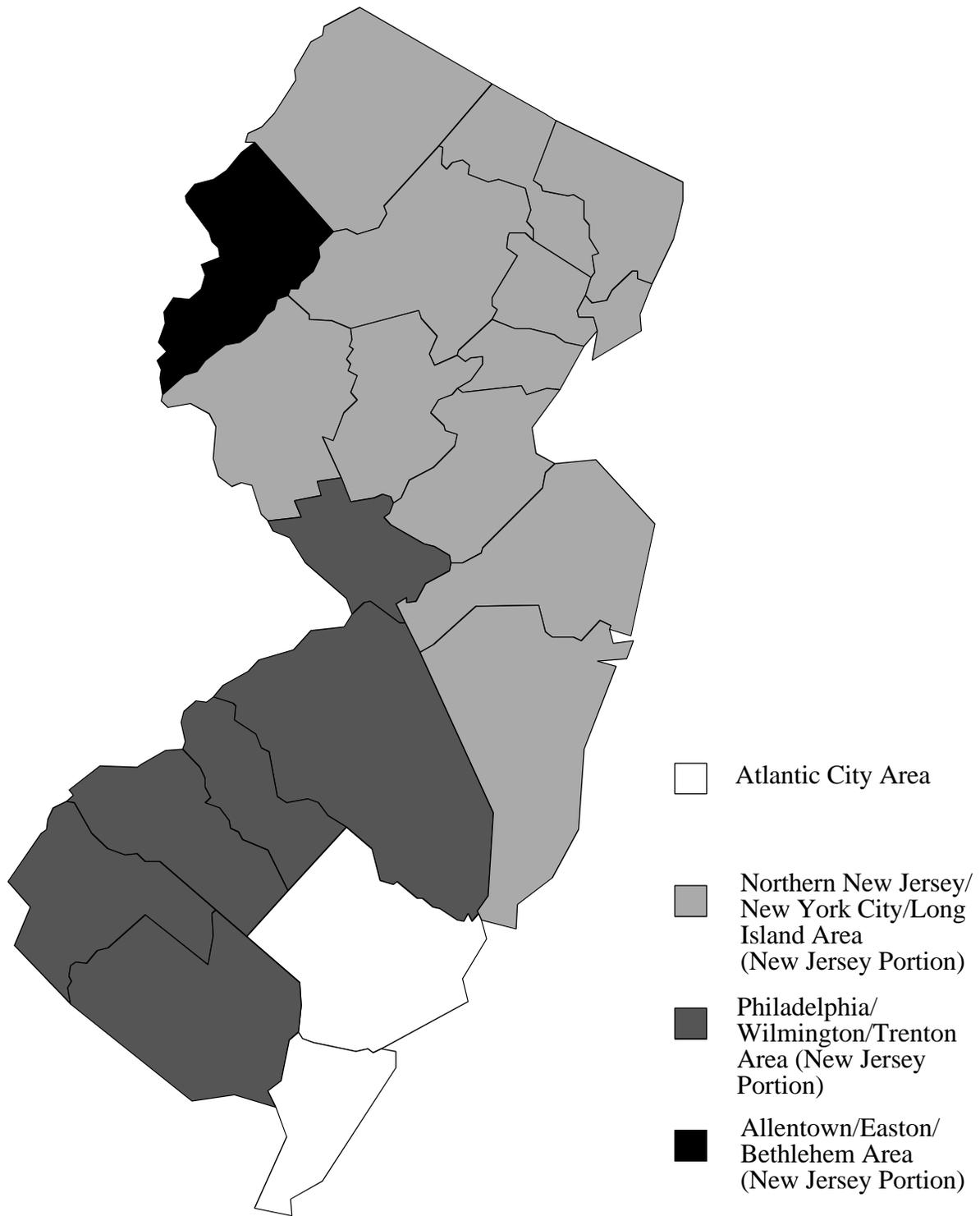
⁶NJDEP, Phase II Ozone SIP, August 31, 1998, page 60.

⁷New Jersey Phase II Ozone SIP; page 79.

⁸64 Fed. Reg. 70380, December 16, 1999.

⁹USEPA Region II: Technical Support Document for the Trenton, New Jersey portion of the Philadelphia Ozone nonattainment Area, December 14, 1999.

Figure 6: Air Quality Regions in New Jersey



With respect to the New York-Northern New Jersey-Long Island nonattainment area, the USEPA analysis likewise concluded¹⁰ that additional emission reductions are needed to more conclusively predict attainment. These reductions, prior to taking credit for the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program, were estimated at 4.15% VOC and 3.05% NO_x or a sum of percentage VOC and NO_x reductions of 7.2%.

A comparison of the New Jersey and the USEPA analyses, regarding the extent of additional emission reductions required, prior to taking credit for the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program, as discussed later, is provided in Table 1 below.

Table 1: Additional Emission Reductions - Sum of % VOC Plus % NO_x Relative to 1990 Emissions Before the Application of Credit for the Tier 2 Motor Vehicle Standard / Low Sulfur Program

	Philadelphia- Wilmington- Trenton Area	New York- Northern New Jersey- Long Island Area
USEPA	7.3	7.2
NJ	10-13*	11-12**

* Derived from New Jersey Phase II Ozone SIP: page 60 and Appendix I.

** From New Jersey Phase II Ozone SIP: page 79

The results of both analyses are reasonably consistent considering the uncertainties in future year air quality demonstrations, with the New Jersey estimates somewhat higher than the USEPA estimates. These uncertainties stem from year-to-year variations in the "current" design values that are used as the starting point for the projections and uncertainties in the models used to project future air quality levels.

D. Additional USEPA-Identified Emission Requirements after Credit for the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program.

On December 21, 1999, the USEPA Administrator Browner signed regulations implementing a Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program to reduce emissions from motor vehicles. This program provides a significant measure toward achieving

¹⁰USEPA Region II: Technical Support Document, Modeling for the NYC Ozone Non-attainment area; December 13, 1999.

attainment with the ozone health standard. The USEPA has estimated the benefits¹¹ from the proposed Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program. For the Philadelphia-Wilmington-Trenton area, after taking credit for the USEPA Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program, the remaining additional reduction estimated is 4.5 percent in VOCs and 0.3 percent in NO_x relative to the 1990 emission inventory. This is equivalent to remaining emission reductions in the multi-state Philadelphia-Wilmington-Trenton Nonattainment area of 61.8 tons of VOC per summer day and 3.4 tons of NO_x per summer day. For the multi-state New York-Northern New Jersey-Long Island Nonattainment area, after taking credit for the USEPA Tier 2 Motor Vehicle Standard / Low Sulfur Program, the remaining additional reductions estimated to be needed by the USEPA is a 3.8 percent reduction in VOCs and a 0.3 percent reduction in NO_x, relative to the 1990 emission inventory. This is equivalent to remaining additional emissions in the New York-Northern New Jersey-Long Island Nonattainment area of 85 tons of VOC per summer day and 7 tons of NO_x per summer day. These results are summarized in Table 2.

Table 2: Additional Emission Reduction Required in Multi-state Nonattainment Areas After Credit for Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Emission Benefit *

Area	1990 Emission Reductions -tons per day-		Emission Reductions -% of 1990 emissions-		Emission Reductions -tons per day-	
	VOC	NO _x	VOC	NO _x	VOC	NO _x
New York (NY) - Northern New Jersey (NJ) - Long Island (LI) nonattainment area, NJ, NY, CT, 2007 attainment date**	2214	2052	3.8	0.3	85	7
Philadelphia-Wilmington-Trenton nonattainment area, NJ, PA, DE, MD, 2005 attainment date***	1380	1010	4.5	0.3	61.8	3.4

- * The mix of VOC and NO_x reductions shown may be changed in the future by substituting NO_x for VOC, or vice-versa, on an equivalent basis, consistent with USEPA Policy.
- ** USEPA; Technical Support Document, Modeling for the NYC Ozone Nonattainment Area, December 13, 1999.
- *** USEPA; Technical Support Document for the Trenton, New Jersey portion of the Philadelphia Ozone Nonattainment Area, December 14, 1999.

These emission shortfalls identified by the USEPA for the New York-Northern New Jersey-Long Island and the Philadelphia-Wilmington-Trenton nonattainment areas are also

¹¹USEPA Memorandum: 1-Hour Ozone Attainment Demonstrations and Tier 2 Motor Vehicle / Sulfur Rulemaking. November 8, 1999.

provided in Table 3 by tons per day with a breakdown for New Jersey. The New Jersey share of the emission reduction is derived by assuming that the percentage reduction identified by the USEPA is distributed proportionately¹² based on the State's 1990 emission inventories within the nonattainment area.

Table 3: USEPA - Identified Additional Emission Reductions - Apportioned to New Jersey in Proportion to 1990 State Emission Inventory Contributions to the Nonattainment Area

	VOCs (tons/day)		NO _x (tons/day)	
	Total for Area	NJ	Total for Area	NJ
New York-Northern NJ-Long Island nonattainment area*	85	36.5	7	3.4
Philadelphia-Wilmington-Trenton nonattainment area**	61.8	20.7	3.4	1.3
Total Emission reductions for both severe nonattainment areas in NJ		57.2		4.7

* Apportionment to New Jersey based a 951 ton per day VOC and 1012 ton per day NO_x contribution from New Jersey to the nonattainment area in 1990, per the USEPA Draft Technical Support Document for the New York City Metro Area Attainment Demonstration, November 29, 1999.

** For the Philadelphia nonattainment area, the apportionment to NJ is based on a 33.55% NJ VOC contribution and a 38.42% NJ NO_x contribution to the area's 1990 inventory, from USEPA National Emission Trends (NETs) emissions data.

¹²As the effort evolves, the involved states may agree to other apportionments - as long as the overall percentage and tonnage reductions for the nonattainment area are met.

IV. Transportation Conformity Budgets

A. Background and Requirements for Finding a Transportation Conformity Budget Adequate.

The recent USEPA proposed rulemaking¹³ presents the requirements placed on a state in order for the USEPA to find a transportation conformity budget adequate and to approve attainment demonstrations. Regarding transportation conformity, in order for the USEPA to complete its transportation conformity adequacy determination by May 31, 2000, each state was required to submit a transportation conformity budget by no later than April 15, 2000 that is consistent with its attainment demonstration¹⁴. Also, this revised budget would be submitted with a commitment to adopt sufficient measures to address the required level of additional emission reductions identified by the USEPA. In accordance with USEPA Guidance,¹⁵ a state may choose to include preliminary Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program benefits in this submittal. If a state chooses not to include these benefits in its SIP submittal, then Metropolitan Planning Organizations may not use the emission reductions from that program in conformity determinations until the State revises the budgets to account for the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program benefits.

Additionally, in order for the USEPA to find the motor vehicle emissions budget adequate for conformity purposes, the state would need to identify an initial list of possible control measures that could provide for the additional emission reductions as identified as necessary by the USEPA (see Table 2). The USEPA stipulated that these measures may not involve additional limits on highway construction beyond those that could be imposed under the submitted motor vehicle emissions budget. However, a state need not commit to adopt any specific measure(s) on their list at this time. In satisfying the additional emission reductions, a state is not restricted to the list and could choose other measures that may prove feasible. It is also not necessary for a state to evaluate each and every measure on the list.

Further, a state must submit an enforceable commitment to revise its transportation conformity budgets within one year after the EPA's release of MOBILE6.

¹³64 Fed. Reg. 70380, December 16, 1999.

¹⁴On December 10, 1999, New Jersey submitted such a transportation conformity budget, which is updated herein to account for the new Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program.

¹⁵Memorandum, "Guidance on Motor Vehicle Emissions Budgets in One-Hour Attainment Demonstrations," from Merrylin Zaw-Mon, Office of Mobile Sources, to Air Division Directors, Regions I-VI. November 3, 1999. Web site: <http://www.epa.gov/ome/transp/traqconf.ht>

Finally, a state must commit to recalculate and submit a revised motor vehicle emissions budget if any of the additional emission reductions pertain to motor vehicle measures. This must be completed when the measures are submitted as a SIP revision.

B. New Jersey Actions and Commitments to Meet the USEPA Transportation Conformity Requirements.

On December 10, 1999 New Jersey submitted¹⁶ to the USEPA a transportation conformity budget incorporating the control measures that are consistent with its previous Attainment Demonstration (Phase II Ozone SIP). That submittal, however, did not include the above - mentioned commitments to update transportation conformity budgets to account for the MOBILE6 model or any new highway measures, nor the benefit of the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program.

To meet the requirements described in Section IV A. above, the transportation conformity budget provided in Section IV.C. includes the benefits of the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program. Control measures are discussed in Part V of this SIP revision. The necessary commitments are included in Part VI of this SIP revision.

C. Transportation Conformity Budgets

In New Jersey, there are three transportation planning organizations called Metropolitan Planning Organizations (MPOs). The geographic area for each MPO is shown in Figure 7. It should be noted that the transportation conformity budgets established herein apply to the full MPO areas of Figure 7, which may not coincide fully with the nonattainment areas depicted in Figure 6. Since New Jersey has two remaining but different attainment dates, due to different area classifications which in turn are based on the severity of the ozone concentrations recorded, the relevant attainment years are different for each transportation planning area. The attainment years are 2007 for the North Jersey Transportation Planning Authority (NJTPA) area and 2005 for the Delaware Valley Regional Planning Commission (DVRPC) area and the South Jersey Transportation Planning Organization (SJTPO) area. The control measures assumed in the creation of the transportation conformity budgets for 2005 and 2007 are listed in Table 4.

¹⁶NJDEP, New Jersey SIP Revision for the Attainment and Maintenance of the Ozone and Carbon Monoxide NAAQS - Meeting the Requirements of the Regional NO_x Cap Program and Transportation Conformity Budgets, December 10, 1999.

Figure 7: NJ Metropolitan Planning Organizations

New Jersey Metropolitan Planning Organizations

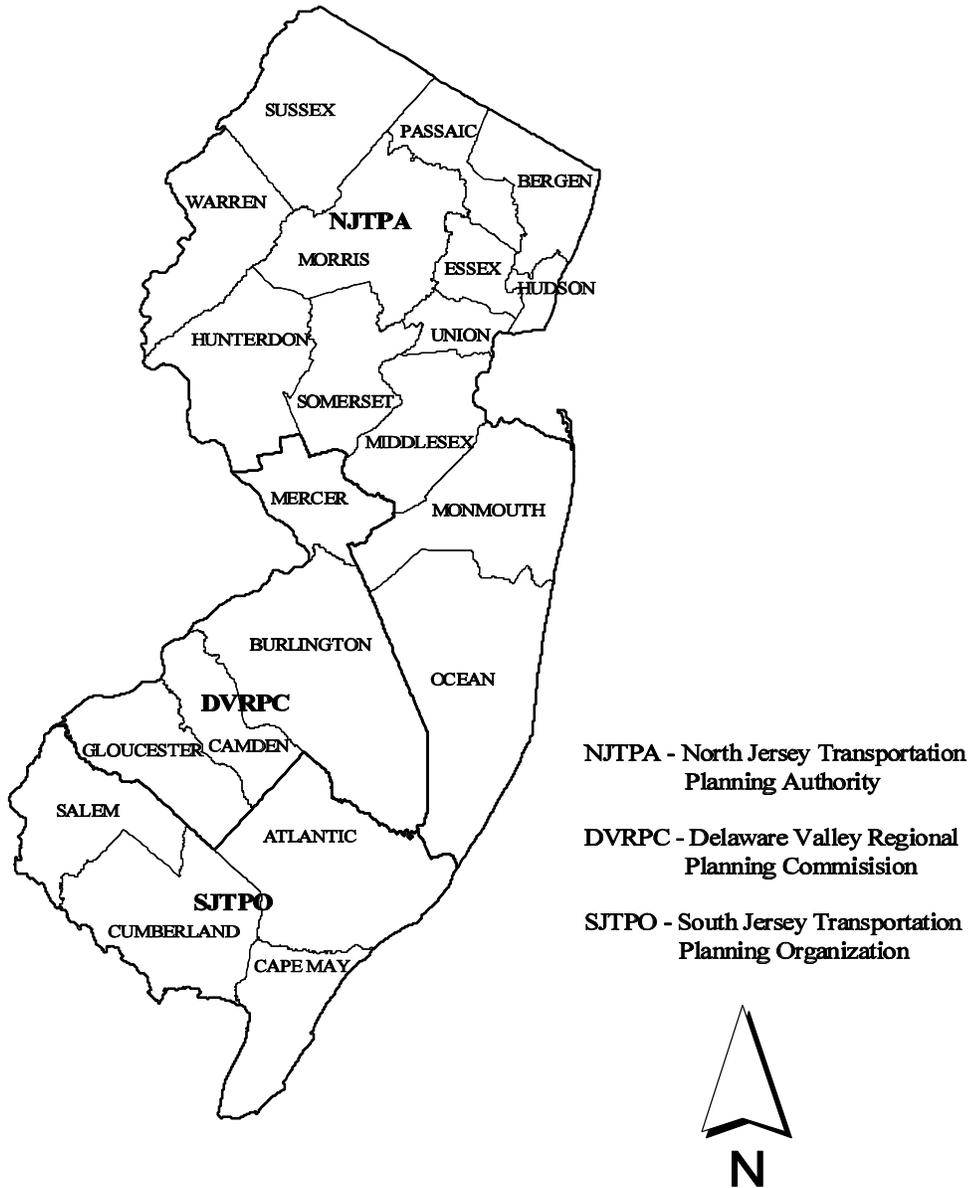


Table 4: Control Measures Included in Transportation Conformity Budgets

Tier 1 Vehicle Standards
National Low Emission Vehicle Standards
Reformulated Gasoline
Enhanced Vehicle Inspection and Maintenance (I/M)
Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Standards

The first four measures above in Table 4 are consistent with the Department's previous Ozone Attainment Demonstration submittal. The USEPA Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program was added to meet the USEPA requirement¹⁷ for additional emission reductions. The inclusion of this program in the transportation conformity budgets is consistent with USEPA guidance¹⁸.

The Department used the MOBILE5a-h model and an "off-model" adjustment to establish the budgets. The off-model adjustment addressed the benefits from the USEPA Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program, which are not included in the MOBILE5a-h model. The emission benefits for the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program were derived using data supplied by the USEPA.¹⁹ The resulting estimates of motor vehicle emissions for the 2005 and 2007 attainment years are provided in Table 5. The transportation conformity budgets for each MPO are represented by the VOC and NO_x emissions in Table 5 that include the benefits of the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program in the respective attainment years.

In its calculation of the emission benefits from the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program, the State used grams per mile benefit factors from Tables 8 and 9 of the USEPA memorandum, and projected vehicle miles traveled (VMT) estimates provided by the MPOs. This approach provides the MPO's and the State with a consistent basis to calculate attainment year and out-year mobile vehicle emissions.

¹⁷64 Fed. Reg. 70380, December 16, 1999.

¹⁸Memorandum, "Guidance on Motor Vehicle Emissions Budgets in One-Hour Attainment Demonstrations," from Merrylin Zaw-Mon, Office of Mobile Sources, to Air Division directors, Regions I-VI. November 3, 1999. Web site: <http://www.epa.gov/ome/transp/traqconf.ht>.

¹⁹Memorandum from Lydia Wegman and Merrylin Zaw-Mon to the Air Division Directors, Regions I-VI, "1-Hour Ozone Attainment Demonstrations and Tier 2/Sulfur Rulemaking." November 8, 1999, Web site: <http://www.epa.gov/ttn/scram>.

Table 5: Transportation Conformity Budgets With the Tier 2 Motor Vehicle Standard / Low Motor Sulfur Gasoline Program and Motor Vehicle Emission Estimates without the program

Transportation Planning Area	Attainment Year	VOC Budget -in tons per day-	NO_x Budget -in tons per day-	Control Mode
North Jersey Transportation Planning Authority (NJTPA)	2007	82.38	196.95	w/o Tier2/Low Sulfur
		77.72*	170.89*	with Tier2/Low Sulfur
		4.66	26.06	Benefit
South Jersey Transportation Planning Organization (SJTPO)	2005	10.69	27.41	w/o Tier2/Low Sulfur
		10.19*	24.81*	with Tier2/Low Sulfur
		0.50	2.60	Benefit
Delaware Valley Regional Planning Commission (DVRPC)	2005	33.41	64.09	w/o Tier2/Low Sulfur
		32.40*	58.86*	with Tier2/Low Sulfur
		1.01	5.23	Benefit

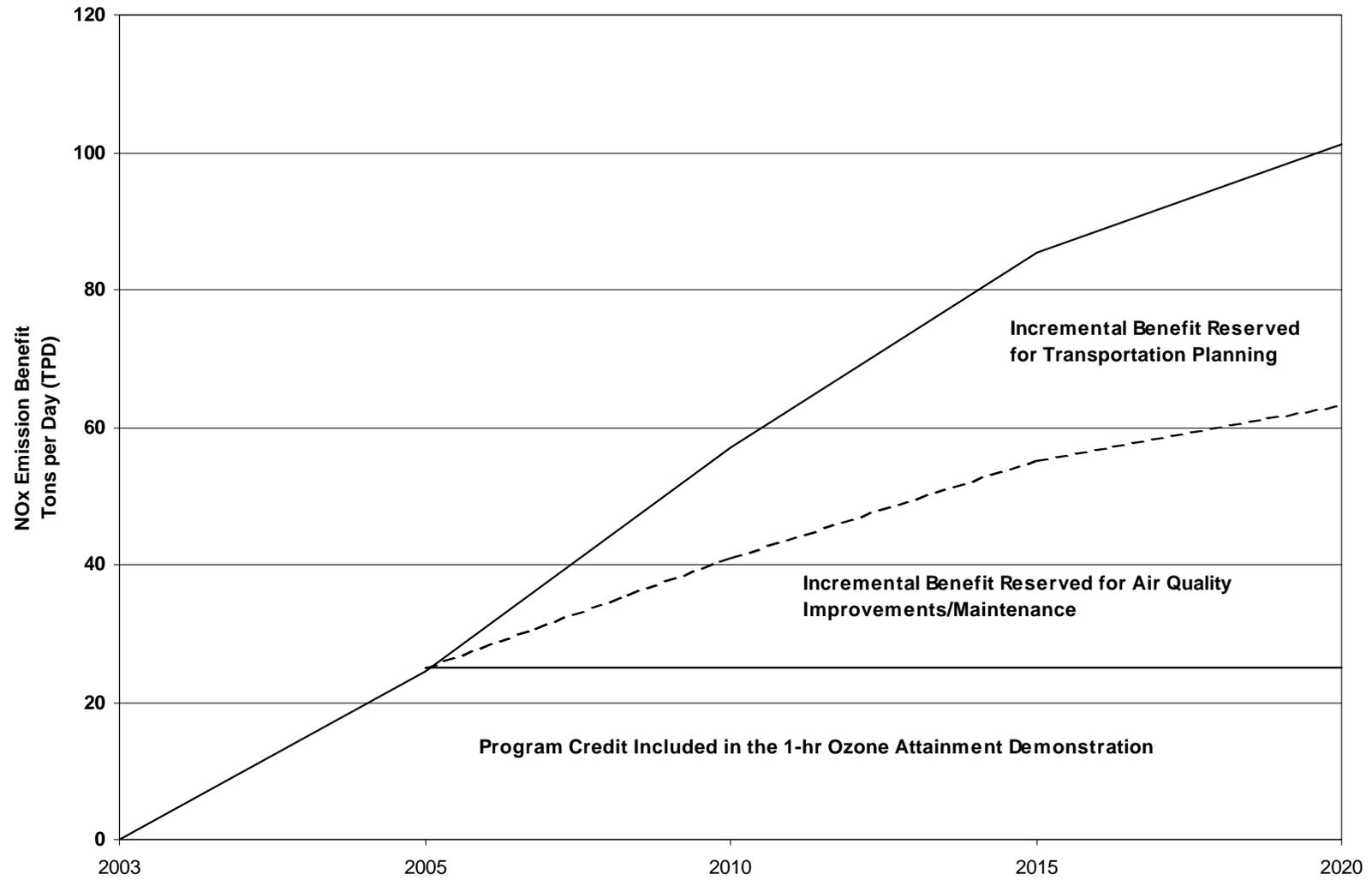
* represents the transportation conformity budget.

It should be noted that the continuing introduction of vehicles into use that will be subject to the new Tier 2 Motor Vehicle standards beyond the attainment years will result in a increasing emission benefit relative to the benefits depicted in Table 5. For purposes of the following discussion this is termed the incremental benefit²⁰ of Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program. This growth in emission benefit is illustrated in Figure 8. The trend of emission benefit in that Figure was derived by applying the per mile Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program emission benefits²¹ to a hypothetical VMT growth scenario of 1.1% per year, starting with a statewide VMT equal to the sum of the respective MPO predictions for the 2005 / 2007 time frames. The 1.1% per year approximates the yearly rate of VMT growth in New Jersey from 1994 to 1998. The growth in emissions benefit from the Program is evident from the Figure. The incremental benefit, for this example, is obtained by subtracting the benefit in a given year beyond 2005 from the benefit in 2005. Also, indicated in the Figure are the portions of the Program benefit reserved for transportation planning and air quality purposes, assuming an even division (50%) of the incremental benefit. The lower portion of Figure 8 represents the benefit of the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program in the earlier attainment years (in this example, 2005) that is used for attainment demonstration purposes.

²⁰The incremental benefit is the difference between the emission benefit of the Tier 2 Vehicle Standard/Low Sulfur Gasoline Program in a year beyond the attainment year and the emissions benefit of the Program in an attainment year.

²¹Memorandum from Lydia Wegman and Merrylin Zaw-Mon to the Air Division Directors, Regions I-VI, "1-Hour Ozone Attainment Demonstrations and Tier 2/Sulfur Rulemaking." November 8, 1999, Web site: <http://www.epa.gov/ttn/scram>.

Figure 8: Illustration of NO_x Emission Benefit From Tier 2 Motor Vehicle Standard & Low Sulfur Gasoline Programs



Through the inter-agency consultation process, current planning data on these incremental benefits was gathered. The NJDEP compared the incremental benefits to the amount by which projected out-year emissions (with the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program). For VOC's, emissions this review indicates that the degree to which future projected emissions will be below budgets is unclear. However for NO_x, it appears that projected emissions with the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program will be consistently below budgets. Further, the NJDEP has concluded that less than 50% of the incremental NO_x emission benefit from the Program should be ample in the years beyond the attainment years for transportation planning purposes.

Therefore, the State is proposing to allocate 50% of the incremental NO_x emission benefit of the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program for transportation planning purposes and to allocate 50% of the incremental NO_x emission benefit for air quality-related purposes. This reserve for air quality purposes will allow for:

- (a) future assurance of attaining and maintaining the 1-hour ozone health standard
- (b) possible use as a contingency measure, and
- (c) future assistance with complying with the 8-hour ozone health standard, and
- (d) to create the option for the State to utilize some of the Program emission benefit²² to offset refinery emission increases from the implementation of gasoline desulfurization projects related to the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program.

V. Control Measures

For the New York-Northern New Jersey-Long Island and Philadelphia-Wilmington-Trenton nonattainment areas, the USEPA has proposed to determine that additional emission reductions beyond those already identified in the previous New Jersey Ozone Attainment Demonstration SIP submission are necessary for attainment.

As an initial matter, for areas such as those above that need additional measures, the USEPA is requiring each state to submit a commitment to adopt additional control measures to meet the level of reductions that the USEPA has identified as necessary for attainment. This commitment is provided in Part V herein.

Additionally, the USEPA is requiring each state to identify an initial list of potential control measures. From that list and / or from other measures that may arise that are not currently on the initial list, a set of measures would be selected, that when implemented, would be expected to provide the additional emission reductions to meet the level of reductions that the

²²Such a decision to utilize Program benefits for refinery offsets will await USEPA Guidance, planned for issuance early in 2000; per Section IV(C)3.c of the USEPA final rule: Control of Air Pollution from Motor Vehicles: Tier 2 Motor Vehicle Emissions Standards and Gasoline Sulfur Control Requirements, signed December 21, 1999.

USEPA has identified as necessary for attainment. States need not commit to adopt any specific measures on their initial list at this time, but if they do not do so, they must affirm that some combination of measures on their list has the potential to meet or exceed the USEPA - identified additional reductions.

New Jersey has been and will continue to be active in working with other states, including those in the Ozone Transport Commission (OTC) to identify potential measures to fill emission shortfalls. At a recent joint meeting on November 17, 1999 of the OTC's Stationary/Area Source and Mobile Source Committees a list of possible additional measures was presented. This list is reproduced in full as Table 6 with the exception of land use controls, which was removed because it is inconsistent with the USEPA's transportation conformity budget approval requirements²³. Additional potential measures may also be identified in the future. Many of the items listed will, in all likelihood, not be utilized for this exercise. Also, some of the measures on the discussion list may not be appropriate for New Jersey.

Table 6: Control Source Categories or Measures Listed in the Agenda for the November 17, 1999 Joint Meeting of the OTC's Stationary/Area Source and Mobile Source Committees

Mobile Sources

Non-Road Engines/Equipment

- Marine engines (e.g., 2/4 - stroke recreational and commercial vessels, diesel controls)
- Adoption of California non-road large engine standards
- Locomotive engine standards
- Airports - cleaner aircraft (differential landing fees based on NO_x)
 - airport emission budgets/"bubble"
 - cleaner ground support equipment

On-Road Engines/Equipment

- OTR/regional motor vehicle program
- On-board Selective Catalytic Reduction (SCR) for on-road diesels
- Clean bus pilot programs
- Enforcement of idling restrictions
- Extension of diesel testing to include NO_x emissions
- Incentives for newer, cleaner models in the OTR
- Support of the EPA Heavy Duty Diesel Settlement Agreement

Prohibition on resale of trucks with defeat devices

Agreement extensions to rebuilds of pre-1994 trucks with defeat devices

Table 6 (continued)

²³64 Fed. Reg. 70380 (December 16, 1999).

Fuels

- Gasoline (e.g., low sulfur/sulfur budget, MTBE phase-down, CA RFG II/III, OTR/regional fuel)
- Diesel (e.g., on-road and non-road: increased cetane, low sulfur, additives/reformulation to reduce NO_x, OTR/regional fuel)

Stationary/Area Sources

- Diesel Generators (e.g., SCR for stationary diesel engines)
- Clean distributed power generation
- Emission portfolio standards for electric generation
- System benefit charges
- Industrial boilers
- Institutional, Commercial, and Industrial Boiler Control (e.g., residual oil - Selective Catalytic Reduction)
- Internal Combustion (IC) engine controls (e.g., urea-based SCR retrofit)
- Encouragement of turnover to cleaner gas turbines
- Energy efficiency/air quality beneficial programs
- Energy efficient building codes resulting in quantifiable emission reductions
- State incentives for energy efficient appliances, equipment, and lighting resulting in quantifiable emission reductions
- Ultra-low NO_x burners
- Cement kilns/plants
- Waste combustion
- Automobile refinishing
- Architectural and Industrial Maintenance (AIMs) coatings
- Aerosol paints
- Consumer Products
- Solvent Cleaning
- Improved gasoline dispensing containers
- Industrial adhesives
- Gas stations - pressure venting controls
- Metal coils/can coatings
- Metal furniture and appliances/parts coatings
- Low NO_x water/space heaters - Commercial/Institutional boilers and residual oil
- Natural gas pipelines - blowdown controls
- Medium sized non-EGU facility controls (e.g., RACT redefinition)
- Portable/Emergency generators

Table 6 (continued)

GENERAL

- Teleshopping/Telelogistics - Improved transit information

The NJDEP has, also assembled available data on certain control measures. It has analyzed certain correlations between greenhouse gas (GHG) emissions and ozone precursors, i.e., NO_x and VOC emissions. Such correlations imply that GHG-related measures may have ancillary NO_x and / or VOC emission benefits. Therefore certain measures in the State's Climate Change Action Plan²⁴ and New Jersey's energy efficiency and renewable energy programs will be reviewed as to their potential ancillary NO_x and/or VOC emission benefits, and for their conformance with established criteria for acceptable SIP measures. Further, based on the available information, at this time, New Jersey is considering inquiry into possible controls of gasoline dispensing containers, industrial adhesives, landfill controls beyond those assessed in the States revision of its 15 Percent Rate of Progress Plan,²⁵ and natural gas pipeline compressor station controls.

At a recent OTC meeting in Washington D.C. on January 27, 2000, attention was focused on a number of emission source areas and measures. These are presented below in Table 7.

Table 7: Potential Source Control Categories and Measures Discussed at the January 27, 2000 OTC Meeting

- ancillary benefits from energy efficiency and renewable energy programs, including systems benefit charges, i.e., fees on customer electricity bills designed to fund such programs
 - electric generation performance standards
 - cleaner motor-vehicle fuels, including diesel fuel
 - consumer products
 - distributed diesel electric generators
 - industrial and commercial products and practices, including architectural and industrial maintenance coatings auto refinishing practices and solvent cleaning practices
 - non-road vehicles and equipment, including marine vessels, and engines
 - aircraft and airport equipment, and
 - State programs, e.g., incentives and procurements to promote energy efficiency, renewable energy, and clean electric power generation
- The consideration of source categories to control and measures is at a preliminary stage.

²⁴New Jersey Climate Change Action Plan, May 8, 1999.

²⁵Revision to the NJ 15 Percent Rate of Progress Plan, February 8, 1999.

While the State will consider the above areas, it may add or delete potential categories or measures as information is gathered. Thus any of the items listed above in Tables 6 and 7 or discussed in the above text may or may not be one of the source categories or measures included in the SIP submission due to the USEPA by October, 2001.

To summarize, New Jersey is confident that a suite of appropriate measures from Table 6 and 7 and/or others to be identified, can meet the emission shortfall. However, it is premature for New Jersey to determine which specific set of measures it will target as those that would be expected to meet the USEPA - identified shortfalls or, in fact, the full set of measures that will be analyzed in depth.

VI. Commitments

The following presents the New Jersey commitments directed toward achieving the additional USEPA - identified emission reductions.

A. Combined USEPA Requirements for Finding a Transportation Conformity Budget Adequate and for Attainment Demonstration Approval.

In its recent Federal Register notice²⁶, the USEPA presented state requirements for both finding a transportation budget adequate and for approving attainment demonstrations. The requirements for both approvals are combined and listed below. Thus the USEPA has proposed to approve New Jersey's Ozone Attainment Demonstration SIP and Transportation Conformity Budgets provided that New Jersey submits:

1. its adopted NO_x SIP Call program as a SIP revision;
2. an enforceable commitment to adopt sufficient regional and/or intrastate measures to address the required level of additional emission reductions recently identified by the USEPA and to revise its Attainment Demonstration accordingly to reflect those measures prior to October, 2001;
3. a revised transportation conformity budget which reflects the additional emission reductions identified by the USEPA from the Tier 2 Motor Vehicle Standard / Low Sulfur program, by December 31, 2000;
4. an enforceable commitment to revise the New Jersey Attainment Demonstration, to include a recalculation of the transportation conformity budgets to reflect the additional emission reductions from any adopted mobile vehicle-related measures;
5. an enforceable commitment to revise the Attainment Demonstration - related transportation conformity budgets, within one year after the MOBILE6 model is released for SIP usage.
6. a list of possible additional control measures from which a suite of measures can be drawn that would be expected to meet the USEPA - identified emission reduction needs, and
7. an enforceable commitment to conduct and complete a mid-course review no later than December 31, 2003.

The State's actions and commitments to meet these requirements are provided in the

²⁶64 Fed. Reg. 70380, December 16, 1999.

following Section.

B. New Jersey Actions and Commitments

The current and planned New Jersey actions to meet the conditions in the prior section are described below. The item numbers correspond to the numbers in the previous section.

1. NO_x SIP Call

For covered sources, New Jersey's existing NO_x Budget Program results in a NO_x cap that is lower than that used by the USEPA in calculating the NO_x Budget for its SIP Call on August 27, 1999²⁷. Therefore New Jersey plans to use its NO_x Cap program to meet the requirements of the USEPA NO_x SIP call. This SIP revision was submitted to the USEPA on December 10, 1999. Also New Jersey proposed rule changes to its NO_x Budget Program on August 2, 1999²⁸ to conform to certain USEPA procedural requirements regarding the federal trading program. These changes are anticipated to be adopted early in 2000, but, they do not affect the overall New Jersey NO_x Cap/emission limitation number for covered sources that was used in the December 10, 1999 SIP submittal.

2. Commitment to Address the Emission Reduction Shortfall

New Jersey commits to address its fair share of the emission reduction shortfall. This effort will include working with other jurisdictions including those in the Ozone Transport Region (OTR) to adopt and submit, by October 31, 2001, additional necessary regional control measures in conjunction with those other jurisdictions, to offset the recent USEPA - identified emissions reduction requirements in Tables 2 and 3.

The State is further committed to adopt and submit, by October 31, 2001, intrastate measures for emission reductions in the event that regional rules or other regional agreements²⁹ do not provide for sufficient measures to provide New Jersey's fair share of the level of the recent USEPA - identified emission reductions.

The State agrees to revise its prior attainment demonstration SIP by October 31, 2001 to include the suite of OTR, other adopted regional, and/or intrastate measures that will be used to meet the recent USEPA - identified shortfalls, and to quantify the expected emission reduction from each such measure.

3. Transportation Conformity Budget - Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program

²⁷New Jersey Proposed SIP Revision for the Attainment and Maintenance of the Ozone and Carbon Monoxide National Ambient Air Quality Standards. August 27, 1999.

²⁸New Jersey Register 31 N.J.R. 2100(a); August 2, 1999.

²⁹For the purposes of this SIP revision, a regional agreement means a formalized agreement between at least two states in a nonattainment area, to implement the same or substantially equivalent control measure.

New Jersey has proposed to revise its transportation conformity budgets herein (Part IV) to reflect the benefits of the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program, well before the December 31, 2000 deadline.

4. Transportation Conformity Budget - New Mobile Measures

New Jersey commits to revise its Transportation conformity Budgets to include the effect of any new motor vehicle - related emission reduction measures that are utilized to meet New Jersey's fair share of the USEPA - identified emission reduction needs in Table 2.

5. Transportation Conformity Budget - MOBILE6

New Jersey commits to revise its transportation conformity budgets within one year of the date that the USEPA releases the motor vehicle emissions model MOBILE6 for SIP usage.

6. Additional Control Measures

Lists of possible control measures are provided in Part V of this SIP revision.

7. Mid-course Review

New Jersey commits to perform and complete a mid course review by no later than December 31, 2003.

Several of the above commitments replace commitments in the State's prior Phase II Ozone SIP submittal. The commitment here to a midcourse review in 2003 (Item 7) replaces the one for 2002 on pages 133 and 137 of the State's Ozone Attainment Demonstration SIP. The commitment here (Item 2) to address the USEPA - identified emission shortfall replaces the commitment on page 119 of the Ozone Attainment Demonstration SIP to assess certain control measures. The State's commitment in the Ozone Attainment Demonstration SIP (page 132) to a Rate of Progress Plan by the end of the year 2000 remains.

Regarding the midcourse review change, it should be noted that the original commitment to such a review in 2002 did have one advantage regarding the Philadelphia-Wilmington-Trenton area, in that it provided more time to observe monitored ozone reductions from added measures - if deemed needed- prior to the attainment year of 2005. This time factor can be important because the 1-hour design value - the regulatory criterion - is a three-year measure, specifically the fourth highest ozone measurement at a given monitoring site over a 3-year period. However USEPA Guidance for such mid-course reviews, although not yet finalized, may call for additional photochemical modeling analyses as part of the review, which as a practical matter the State believes cannot be completed by 2002. Therefore the State believes that it may not be able to conclude the formal midcourse review until 2003. In light of these conflicting circumstances the State will carefully track ozone concentrations in the area prior to 2003, while continuing to work toward and anticipate a significant ozone reduction from Regional NO_x reduction measures through the NO_x SIP call and/or Section 126 petitions, and consider the need for any further appropriate action.

VII. Conclusions

This SIP revision commits the State to achieve its fair share of the level of additional emission reductions identified by the USEPA as necessary to more conclusively predict attainment of the 1-hour ozone health standard. It also provides a revised transportation conformity budget incorporating the anticipated benefits from the USEPA Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program in 2005 and 2007. Additionally, regarding transportation conformity budgets, the NJDEP is proposing to reserve 50% of the incremental³⁰ benefit of the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program in the years beyond the attainment years for air-quality purposes. Further, it contains a series of commitments designed to move the State progressively towards attainment with the one-hour averaged ozone health standard and to update the State's transportation conformity budgets accordingly.

³⁰The incremental benefit is the difference between the emission benefit of the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program in a year beyond the attainment year and the emission benefit of the Program in an attainment year.