The State of New Jersey
Department of Environmental Protection

Final
State Implementation Plan (SIP) Revision for the Attainment and Maintenance of the Carbon Monoxide and One-Hour Ozone National Ambient Air Quality Standards

New Jersey Revised Motor Vehicle Transportation Conformity Budgets Using the MOBILE6 Model

May 3, 2004

Preface

This document establishes updated transportation conformity budgets for New Jersey's Metropolitan Planning Organizations (MPOs) because of changes to emission prediction models. The transportation conformity budgets for carbon monoxide need to be updated because of the change in the United States Environmental Protection Agency's (USEPA) emission factor prediction model from MOBILE5 to MOBILE6. The transportation conformity budgets for the ozone precursors, volatile organic compounds and oxides of nitrogen, need to be updated because of an update to the vehicle registration data used in the emission prediction models. This State Implementation Plan (SIP) revision does not affect any of the planned or implemented control measures for carbon monoxide or the ozone precursors. In addition, this SIP revision does not change the conclusions of the current maintenance plans for carbon monoxide or the attainment plans for ozone. This SIP revision is necessary to enable the MPO's to meet their requirements under the Federal transportation conformity rule.

Acknowledgments

The New Jersey Department of Environmental Protection (NJDEP) acknowledges the efforts and assistance of the many agencies and individuals whose contributions were instrumental in the preparation of this State Implementation Plan Revision. In particular, the NJDEP wishes to acknowledge the many individuals within the New Jersey Department of Transportation (NJDOT), the USEPA Region II, the North Jersey Transportation Planning Authority (NJTPA), the South Jersey Transportation Planning Organization (SJTPO), the Delaware Valley Regional Planning Commission (DVRPC), and the staff within the NJDEP itself for their assistance and guidance.

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Acronyms and Abbreviations

CO	Carbon Monoxide
DVMT	Daily Vehicle Miles Traveled
DVRPC	Delaware Valley Regional Planning Commission
gpm	grams per mile
I/M	Inspection and Maintenance
MPO	Metropolitan Planning Organization
MTBE	Methyl Tertiary-Butyl Ether
MY	Model Year
NAA	Nonattainment Area
NAAQS	National Ambient Air Quality Standard
NJDEP	New Jersey Department of Environmental Protection
NJDOT	New Jersey Department of Transportation
NJMVC	New Jersey Motor Vehicle Commission
NJTPA	North Jersey Transportation Planning Authority
NLEV	National Low Emission Vehicle
NO_x	Oxides of Nitrogen
NSR	New Source Review
OBD	On-Board Diagnostic
ppb	parts per billion
ppm	parts per million
RFG	Reformulated Gasoline
ROP	Rate of Progress
SIP	State Implementation Plan
SJTPO	South Jersey Transportation Planning Organization
SUV	Sport Utility Vehicle
TCM	Transportation Control Measure
TDM	Travel Demand Model
TIP	Transportation Improvement Program
TPD	tons per day
TPY	tons per year
USEPA	United States Environmental Protection Agency
VMT	Vehicle Miles Traveled
VOCs	Volatile Organic Compounds

Executive Summary

The purpose of this State Implementation Plan (SIP) revision is to establish updated transportation conformity budgets that incorporate new data and the use of the United States Environmental Protection Agency's (USEPA) new motor vehicle emissions model that will be required for use in future conformity determinations for New Jersey. Transportation conformity budgets for carbon monoxide (CO), volatile organic compounds (VOCs) and oxides of nitrogen (NO_x) are updated to reflect the most recent version of the USEPA's emission factor prediction model and the latest vehicle registration data. This SIP revision does not affect any of the planned or implemented control measures for CO, VOCs and NO_x. In addition, the updated budgets do not indicate a need for any additional control measures for New Jersey to maintain attainment of the carbon monoxide National Ambient Air Quality Standard (NAAQS) or reach attainment of the one-hour ozone NAAQS.

The updated transportation conformity budgets are provided in Table ES-1. Table ES-2 contains a comparison of the updated transportation conformity budgets with prior budgets. The updated budgets supersede the prior budgets and should be used for future transportation conformity determinations by the Metropolitan Planning Organizations (MPOs) once the USEPA approves them.

The carbon monoxide budgets were updated because of the requirement that New Jersey's MPOs use the USEPA MOBILE6 model for their conformity determinations beginning in 2004. The USEPA updated their emissions factor prediction model from MOBILE5 to MOBILE6 in January, 2002. For the analysis years and other conditions of the carbon monoxide budgets the MOBILE6 model predicts significantly greater carbon monoxide emissions than MOBILE5. However, the carbon monoxide air quality monitors reflect the actual emissions and the monitoring trends and emission trends over time are still downward so the updates to the carbon monoxide budgets do not affect the conclusions of the maintenance plans for each carbon monoxide maintenance area.

The VOC and NO_x budgets for NJTPA were updated because of a significant change in planning assumptions involving vehicle registration information. The use of updated vehicle registration information for the NJTPA region caused VOC emission predictions to decrease significantly and NO_x emission predictions to increase by an amount greater than can reasonably be reduced by the MPO changing transportation projects. An analysis was performed that compares these updated budgets to MOBILE5 based budgets that were representative of the one-hour ozone attainment demonstration. This analysis demonstrates that the updated budgets continue to support predicted achievement of rate of progress and projected attainment of the one-hour ozone NAAQS for the Northern New Jersey/New York City/Long Island nonattainment area by the attainment date of 2007.

Table ES-1
Transportation Conformity Budgets by MPO

Transportation Planning Area	CO Emissions (tons per winter day)			VOC Emissions (tons per ozone day)		NO_x Emissions (tons per ozone day)	
	1997	2007	2014	2005	2007	2005	2007
North Jersey Transportation Planning Authority (NJTPA)	1,550.74 (1)	783.39 (1) Monmouth Co. 231.55 Morris Co. 244.05 Middlesex Co. 244.99 Somerset Co. 135.92 Ocean Co. 126.79	605.63 (1)	148.27 (2)	125.82 (2)	253.05 (2)	198.34 (2)
South Jersey Transportation Planning Organization (SJTPO)	NA	Atlantic Co. 91.68 Salem Co. 31.99	NA	NA	NA	NA	NA
Delaware Valley Regional Planning Commission (DVRPC)	NA	Burlington Co. 170.43 Camden Co. 149.73 Mercer Co. 128.49	NA	NA	NA	NA	NA

NOTES:
(1) For Passaic, Bergen, Essex, Hudson and Union counties.
(2) For all counties within the MPO.

Table ES-2
Comparison of the Updated Transportation Conformity Budgets With Prior Budgets

Transportation Planning Area	Prior or Updated	CO Emissions (tons per winter day)			VOC Emissions (tons per ozone day)		NO_x Emissions (tons per ozone day)	
		1997	2007	2014	2005	2007	2005	2007
North Jersey Transportation Planning Authority (NJTPA)	Prior	690.43 (1)	492.41 (1) Monmouth Co. 186.39 Morris Co. 172.92 Middlesex Co. 248.30 Somerset Co. 103.74 Ocean Co. 115.79	490.45 (1)	161.97 (2)	138.77 (2)	250.05 (2)	197.19 (2)
	Updated	1,550.74 (1)	783.39 (1) Monmouth Co. 231.55 Morris Co. 244.05 Middlesex Co. 244.99 Somerset Co. 135.92 Ocean Co. 126.79	605.63 (1)	148.27 (2)	125.82 (2)	253.05 (2)	198.34 (2)
South Jersey Transportation Planning Organization (SJTPO)	Prior	NA	Atlantic Co. 59.13 Salem Co. 31.11	NA	22.12 (2)	NA	36.36 (2)	NA
	Updated	NA	Atlantic Co. 91.68 Salem Co. 31.99	NA	NA	NA	NA	NA
Delaware Valley Regional Planning Commission (DVRPC)	Prior	NA	Burlington Co. 137.58 Camden Co. 163.69 Mercer Co. 108.09	NA	42.99 (2)	NA	63.44 (2)	NA
	Updated	NA	Burlington Co. 170.43 Camden Co. 149.73 Mercer Co. 128.49	NA	NA	NA	NA	NA

NOTES:
(1) For Passaic, Bergen, Essex, Hudson and Union counties.
(2) For all counties within the MPO.

I. Introduction and Purpose

The purpose of this State Implementation Plan (SIP) revision is to revise transportation conformity budgets for New Jersey's Metropolitan Planning Organization (MPOs) because of changes to emission prediction models (MPO regions are shown in Figure 1). Transportation conformity budgets for winter carbon monoxide (CO), as well as the ozone precursors volatile organic compounds (VOCs) and oxides of nitrogen (NO_x), are updated to reflect the most recent version of the United States Environmental Protection Agency's (USEPA) emission factor prediction model and the latest vehicle registration data. This SIP revision does not affect any of the planned or implemented control measures for CO, VOCs and NO_x. In addition, the updated budgets do not indicate any need for any additional control measures for New Jersey to maintain attainment of the carbon monoxide National Ambient Air Quality Standard (NAAQS) or reach attainment of the one-hour ozone NAAQS.

This SIP revision includes the following:

- A summary of carbon monoxide air quality in New Jersey;
- the recent history of New Jersey's carbon monoxide and ozone SIPs;
- updated transportation conformity budgets; and
- the effects of the updated transportation conformity budgets on maintenance plans and attainment demonstrations.

II. Current Carbon Monoxide Air Quality

Currently New Jersey continuously monitors ambient concentrations of carbon monoxide at 15 locations. For carbon monoxide, there are two primary NAAQS: an average 1-hour standard of 35 parts per million (ppm) and a non-overlapping average 8-hour standard of 9 ppm. Carbon monoxide concentrations in New Jersey have not exceeded the 1-hour standard since the late 1970s. Typical 1-hour maximum concentrations in New Jersey in recent years have been less than 12 ppm, well below the 35 ppm level. New Jersey's non-compliance with the 8-hour carbon monoxide NAAQS prior to 1996 was due primarily to on-road mobile sources and had been limited to specific areas during stagnating meteorological conditions. An area is in violation of the 8-hour standard if it experiences two or more exceedences of the 9 ppm standard within any two consecutive calendar years.

Carbon monoxide levels have improved dramatically in New Jersey over the past 30 years as shown in Figure 2. The last time the carbon monoxide 8-hour NAAQS was exceeded in New Jersey was in January of 1995. Figure 2 shows how the second highest 8-hour value recorded throughout the monitoring network during each year (this is the value that determines if the health standard is being met because one exceedance per site is allowed each year) compare with the NAAQS. The carbon monoxide levels have trended downwards so that they are currently about one-half of the standard.

Figure 1

Metropolitan Planning Organizations in New Jersey

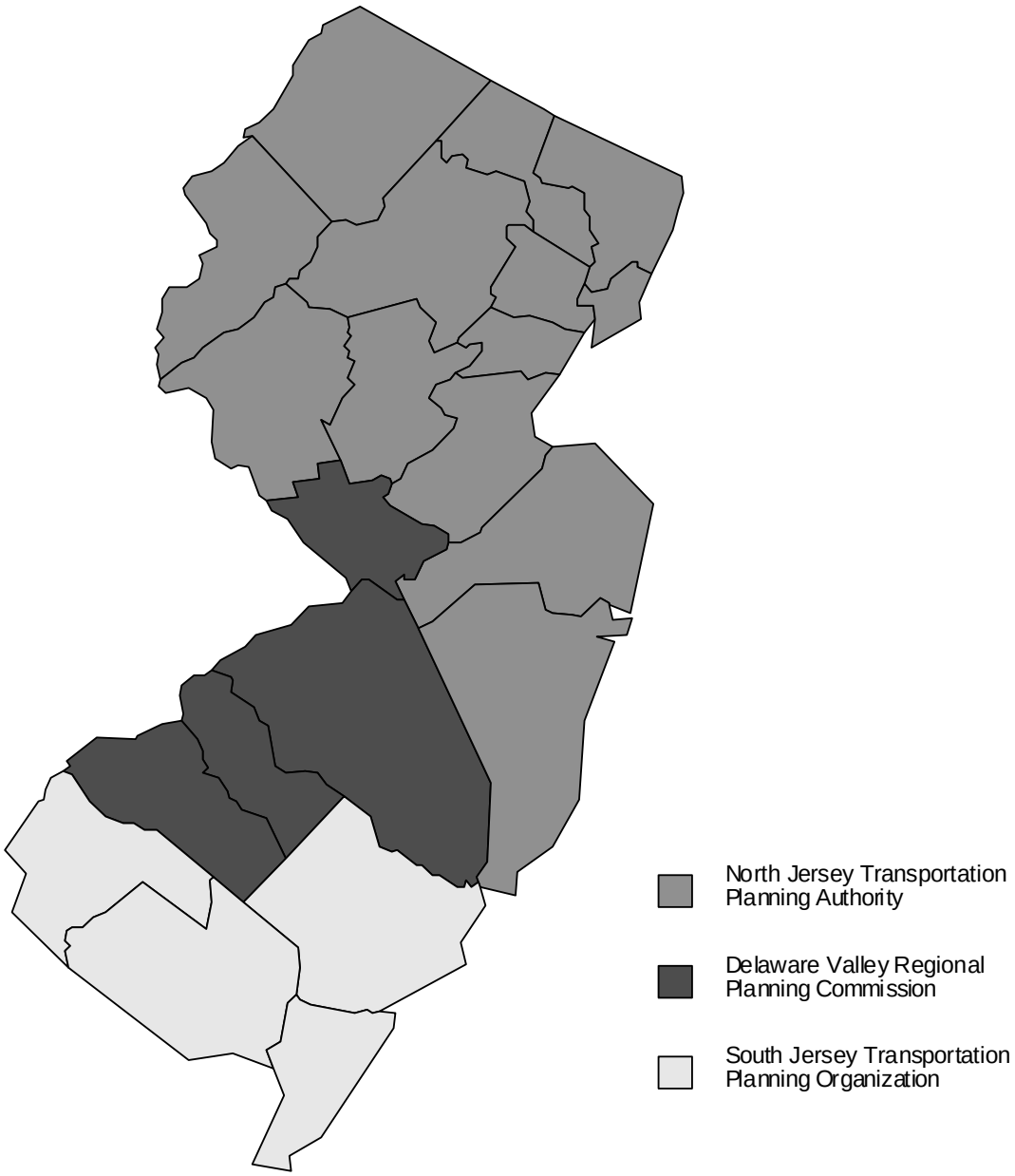
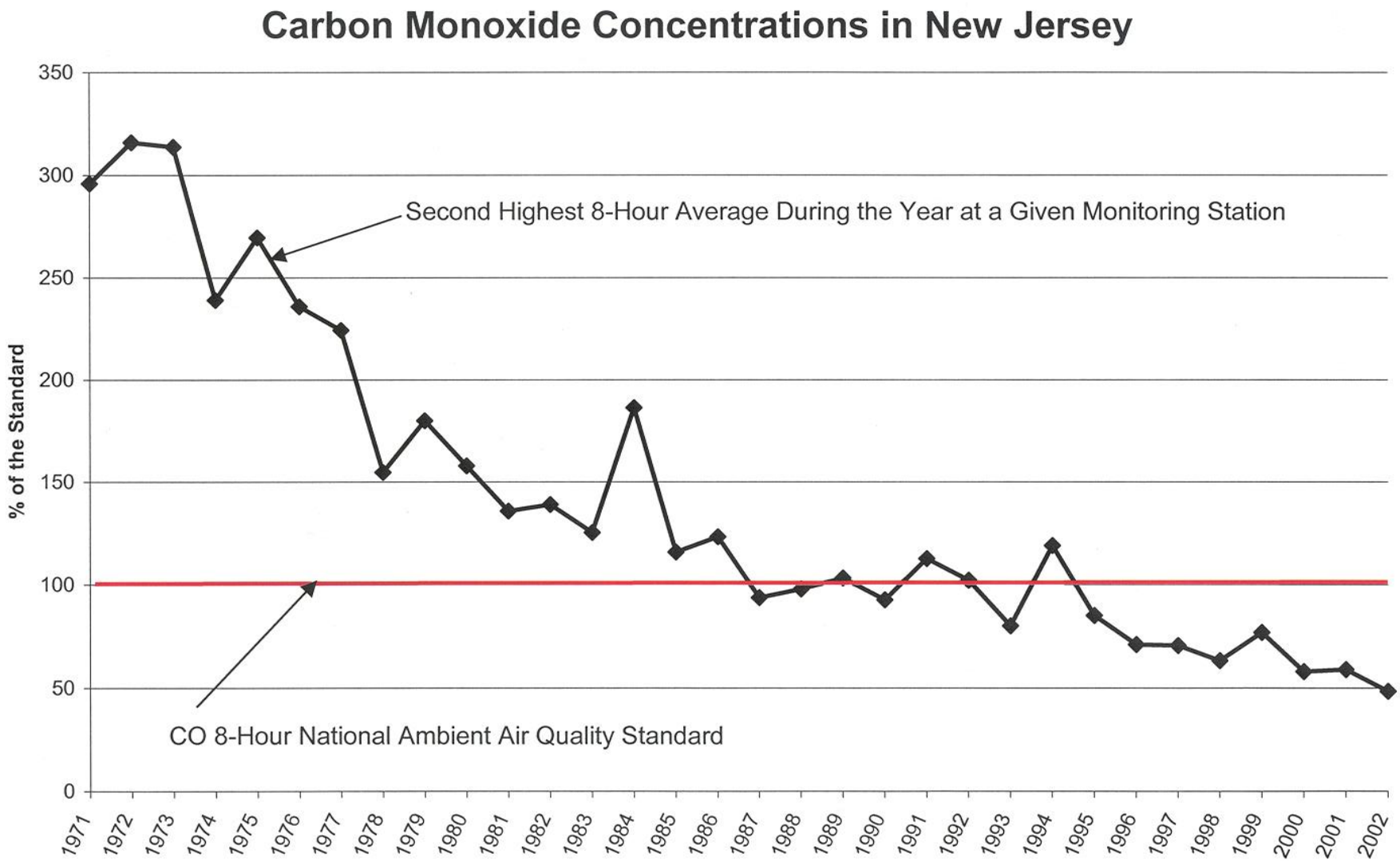


Figure 2


Carbon Monoxide Concentrations in New Jersey
% of the Standard
350
300
250
200
150
100
50
0
Second Highest 8-Hour Average During the Year at a Given Monitoring Station
CO 8-Hour National Ambient Air Quality Standard
1971
1972
1973
1974
1975
1976
1977
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1986
1987
1988
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1998
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2000
2001
2002

III. Recent History of New Jersey's Carbon Monoxide and Ozone SIPs

A. Carbon Monoxide SIP History

This section provides a brief history of the previous updates to New Jersey's carbon monoxide SIP.

1982 Carbon Monoxide SIP

The 1982 Carbon Monoxide SIP identified two State measures and one Federal measure to bring New Jersey's nonattainment areas into compliance with the NAAQS. The State measures identified were the pre-1990 modifications to the State's basic motor vehicle inspection and maintenance (I/M) program (not to be confused with the enhanced I/M program described in the 1990 Clean Air Act), and local transportation control measures (TCMs). The Federal measure was the Federal Motor Vehicle Control Program.

The USEPA approved the pre-1990 modifications to the basic I/M program for inclusion in the SIP.[1] The USEPA also found that New Jersey had implemented all of the TCMs committed to in the 1982 SIP revision.[2] The Federal Motor Vehicle Control Program was implemented nationally and was subsequently supplemented by the Clean Air Act Amendments of 1990, which contained new programs to further reduce emissions from motor vehicles. These programs continue to produce emission reductions as newer motor vehicles constantly replace older vehicles, a phenomenon commonly referred to as vehicle fleet turnover.

1992 Carbon Monoxide SIP Revisions

On November 15, 1992, New Jersey submitted to the USEPA those revisions to its Carbon Monoxide SIP required by the 1990 Clean Air Act. These revisions included:

- submission of a 1990 emission inventory,
- a commitment to perform periodic emission inventories,
- a commitment to demonstrate attainment of the carbon monoxide NAAQS using modeling,
- a commitment to submit annual vehicle miles traveled (VMT) tracking reports,
- a requirement for the sale of oxygenated gasoline,
- adoption of contingency measures for failure to attain the standard,
- adoption of contingency measures for exceedence of the VMT forecast,
- a commitment to adopt an enhanced I/M program,
- adoption of a new source review program, and
- a commitment to perform conformity determinations.

[1] 40 CFR 52.1570 et seq.

[2] Letter dated August 29, 1989, from USEPA Region II to Anthony McMahon, NJDEP.

The State has since complied with all of the commitments made in its 1992 Carbon Monoxide SIP and has implemented the necessary measures. Many of the commitments included in the 1992 Carbon Monoxide SIP have been approved by the USEPA, as outlined in the next few paragraphs.

The USEPA approved New Jersey's emission inventory and contingency measures on December 7, 1995, at Volume 60 of the *Federal Register*, page 62741 (60 FR 62741).

The USEPA adopted a limited approval of New Jersey's oxygenated fuels rule on February 12, 1996, at 61 FR 5299. It should be noted that the 1992 SIP revision contained a wintertime oxygenated fuels rule that outlined a program designed for both the Camden County carbon monoxide nonattainment area and the New Jersey portion of the New York/Northern New Jersey/Long Island (northeastern) carbon monoxide nonattainment area. However, at the time of the USEPA's approval of the State's wintertime oxygenated fuels program, New Jersey was in attainment in the Camden County area and the USEPA's direct final rule redesignating that area to attainment was in effect.[3] Consequently, the USEPA's SIP approval for New Jersey's wintertime oxygenated fuels program applied only to the northeastern carbon monoxide nonattainment area. New Jersey tried several times to end the program due to concern regarding methyl tertiary-butyl ether (MTBE), and subsequently adopted regulations that ended the wintertime oxygenated fuels program in the southern portion of the State.[4] At New Jersey's request, the USEPA approved the removal of New Jersey's oxygenated gasoline program from its SIP on November 22, 1999.

The USEPA proposed both a limited approval and a limited disapproval of the State's carbon monoxide New Source Review (NSR) rule and a disapproval of the State's carbon monoxide attainment demonstration for the northeastern part of the State on November 10, 1994, at 59 FR 56019. The USEPA's proposed disapproval of the State's carbon monoxide attainment demonstration was predicated on the fact that the demonstration relied on the implementation of an enhanced I/M program that had not been fully developed or implemented by the State. On July 25, 1996, at 61 FR 38591, the USEPA adopted its limited approval of the State's NSR regulation, as well as adopting its proposed approvals of New Jersey's vehicle miles traveled forecast and its multi-state coordination commitment. As part of its July 25, 1996, promulgation, the USEPA committed to taking future action on New Jersey's attainment demonstration and enhanced I/M program in separate Federal Registers. The USEPA has granted conditional interim approval of New Jersey's enhanced I/M program and has proposed a full approval.[5,6] The USEPA determined on November 22, 1999, that the entire northeastern nonattainment area had met the NAAQS for carbon monoxide.[7]

[3]61 FR 33678 (June 28, 1996) and 60 FR 62741 (December 7, 1997).

[4]27 N.J.R. 4731 (November 20, 1995) and 28 N.J.R. 851 (February 5, 1996).

[5]62 FR 26401 (May 14, 1997).

[6]66 FR 47130.

[7]64 FR 48970.

1994 Carbon Monoxide SIP Revisions

On November 17, 1994, New Jersey revised its carbon monoxide SIP for the northeastern carbon monoxide nonattainment area to incorporate the results for the most recent planning tools available to the New Jersey Department of Environmental Protection (NJDEP). The updated planning tools included: 1) the USEPA Mobile Source Emission Factor Model, MOBILE5a; 2) the latest version of the line-source dispersion model, CAL3QHC version 2.0, and; 3) the travel demand model for the northern part of the State. These latest planning tools were used for the 1994 carbon monoxide SIP revision, in part, to ensure that the methodologies and assumptions used to calculate emission reductions for SIP purposes were consistent with those used to calculate emission reductions for Transportation Improvement Program (TIP) conformity purposes.

The combined application of these updated tools resulted in an increase in the emission inventory, increased benefits for the control programs, a lower vehicle miles traveled growth rate, and a higher predicted concentration at each intersection examined in the attainment demonstration. The 1994 attainment demonstration also included the effects of the State's wintertime oxygenated fuel and enhanced I/M programs. However, the conclusion remained the same as in the 1992 SIP revision; that is, the carbon monoxide NAAQS would be attained by December 31, 1995.

1995 Carbon Monoxide SIP Revision

In 1995, the State of New Jersey applied to the USEPA for redesignation of both the Camden County carbon monoxide nonattainment area and the nine not-classified carbon monoxide areas to attainment of the carbon monoxide NAAQS. The USEPA approved these redesignation requests in a Federal Register notice published on December 7, 1995, that became effective on February 7, 1996.[8] This approval was re-affirmed by the USEPA in a Federal Register notice published on June 28, 1996 that incorporated the USEPA's responses to comments received during the public comment period.[9]

1996 Request for an Extension of the Attainment Date

It was not possible to demonstrate two years of non-violating air quality data by the December 31, 1995 attainment deadline due to carbon monoxide NAAQS violations in 1994. Therefore, the State had the choice of either allowing the area to be reclassified to the higher classification of serious carbon monoxide nonattainment or applying to the USEPA for an extension of the attainment date as allowed by the Clean Air Act.[10] On April 24, 1996, the State submitted a request to the USEPA for a one year extension of the attainment date to December 31, 1996.[11] New York and Connecticut, the two other states that comprise the New York/Northern New Jersey/Long Island carbon monoxide nonattainment area, subsequently

[8]60 FR 62741.

[9]61 FR 33678.

[10]42 U.S.C. 7512(a)(4).

[11]Letter dated April 24, 1996, from Robert C. Shinn, Commissioner, NJDEP, to Jeanne M. Fox, Regional Administrator, USEPA, Region II.

submitted letters to the USEPA on July 31, 1996, and June 27, 1996, respectively, concurring with New Jersey's request for an attainment date extension. The northeastern carbon monoxide nonattainment area met the Clean Air Act's requirements and the USEPA's criteria for obtaining an extension of an attainment date for a moderate nonattainment area in that it: 1) had complied with all the requirements and commitments pertaining to the area in the applicable implementation plan, and 2) had no more than one exceedence of the carbon monoxide NAAQS at any monitoring site in the year preceding the extension year, that is, 1995.[12, 13] Thus, the USEPA approved New Jersey's and the other states' 1-year attainment date extension requests on November 5, 1996, at 61 FR 56897.

1998 Carbon Monoxide SIP Revision

On July 21, 1997, the NJDEP proposed regulatory amendments to repeal its wintertime oxygenated fuel requirements for Northern New Jersey in the New Jersey Register (29 N.J.R. 3222(a)). In addition to this proposed rulemaking, the NJDEP also prepared a proposed Carbon Monoxide SIP revision that, in part: 1) demonstrated that the New Jersey portion of the New York/Northern New Jersey/Long Island carbon monoxide nonattainment area had attained the carbon monoxide NAAQS; 2) requested that, based on this attainment demonstration and a comprehensive plan to maintain the standard for at least the next ten years, the New Jersey portion of the multi-state nonattainment area be redesignated to attainment; and 3) removed the State's wintertime oxygenated fuel program from New Jersey's carbon monoxide SIP.

A hearing to take public comment on both the rulemaking proposal and the SIP revision was held on August 11, 1997, and written comments were accepted until close of business, August 20, 1997. Based upon comments received during the comment period and subsequent conversations with the USEPA and the other states in the multi-state nonattainment area, the State decided, on August 7, 1998, to submit only portions of the proposed carbon monoxide SIP revision to the USEPA. The State subsequently submitted the entire proposal except for: 1) the Maintenance Plan (which demonstrated that New Jersey would continue to maintain the carbon monoxide NAAQS until the year 2009 and discussed the contingency measure(s) that would be implemented should New Jersey again violate the NAAQS); and 2) the request that the USEPA redesignate the northeastern nonattainment area to attainment (the "redesignation request"). In that submittal, the State also committed to revise its transportation conformity budget once the USEPA took action on the SIP revision.

On August 17, 1998, the NJDEP adopted its regulatory proposal calling for the removal of the wintertime oxygenated fuel program in Northern New Jersey.[14] On November 22, 1999, the USEPA determined that the New York/Northern New Jersey/Long Island carbon monoxide area

[12]USEPA memorandum dated October 23, 1995, entitled *Criteria for Granting Attainment Date Extensions, Making Attainment Determinations, and Determinations of Failure to Attain the NAAQS for Moderate Carbon Monoxide Nonattainment Areas*, from Sally L. Shaver, Director, Air Quality Strategies and Standards Division, to Regional Air Office Directors.

[13]42 U.S.C. 7512(a).

[14]30 N.J.R. 3025.

had attained the carbon monoxide NAAQS.[15] The USEPA also approved the State's request to remove New Jersey's oxygenated gasoline program from its SIP.[16]

2002 Redesignation Request and Maintenance Plan for the New Jersey Portion of the New York/Northern New Jersey/Long Island Carbon Monoxide Nonattainment Area

In 2002 New Jersey submitted a request to the USEPA to redesignate the northern carbon monoxide nonattainment area to attainment.[17] This SIP revision contained: (1) updated air quality monitoring data that demonstrated that measured carbon monoxide levels continued to remain below standards; (2) a Maintenance Plan that included control measures, transportation conformity budgets, and a Contingency Plan; and (3) other information that supported the Request for Redesignation. The air quality monitoring data showed attainment with the health-based carbon monoxide NAAQS since 1996, while the carbon monoxide inventory projections for the years 2007 and 2014 that were included in the Maintenance Plan showed reductions in emissions relative to the emissions estimated for 1996.

The USEPA approved New Jersey's redesignation request and maintenance plan on August 23, 2002 at 67 FR 54574. Included in the approval were transportation conformity budgets for 1997, 2007, and 2014. These budgets are being updated as described in Section IV.

B. Ozone SIP History

This section provides a brief history of the previous revisions to New Jersey's ozone SIP.

Attainment Demonstration SIP History

On August 31, 1998, New Jersey submitted to the USEPA a SIP revision containing a demonstration of attainment of the one-hour ozone NAAQS for the Northern New Jersey/New York City/Long Island and Philadelphia/Wilmington/Trenton nonattainment areas.[18] This original attainment demonstration submittal is hereafter referred to as the State's Phase II Ozone SIP. The Phase II Ozone SIP submittal provided for an attainment demonstration as required by 42 U.S.C. §7511a(c)(2)(A), §182(c)(2)(A) of the Clean Air Act and addressed the USEPA's subsequent requirements regarding attainment demonstration for the one-hour NAAQS for ozone.[19,20]

[15] 64 FR 48970.

[16] 64 FR 63690.

[17] NJDEP, SIP Revision for the Attainment and Maintenance of the Carbon Monoxide NAAQS, Redesignation Request and Maintenance Plan for the New Jersey Potion of the New York-Northern New Jersey-Long Island Carbon Monoxide Nonattainment Area, January 15, 2002.

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

[19] Memorandum dated March 2, 1995 from Mary D. Nichols, Assistant Administrator for Air and Radiation, USEPA to the USEPA Regional Administrators, Region I-X. This Policy is commonly referred as "The March 2nd Policy."

New Jersey used a "weight of evidence" to determine the emission reductions needed to attain the ozone standard. A weight of evidence analysis combines results from advanced photochemical grid models and the most recent air quality data to improve the estimate of emission reductions needed to attain. The method used by New Jersey predicts future ozone concentrations from a baseline of actual historic air quality data and the ozone improvement predicted by the photochemical grid model. The improvement is the model-predicted base year concentration divided by the model-predicted future attainment year concentration. This method[21] takes advantage of the fact that air quality models may be more accurate at calculating relative improvement in air quality as opposed to predicting an absolute concentration at a particular geographic site.

In addition to including a demonstration of attainment of the one-hour NAAQS for ozone for the Northern New Jersey/New York City/Long Island and Philadelphia/Wilmington/Trenton nonattainment areas, and a list of the control measures adopted by the State to date, the Phase II Ozone SIP committed the State to:

1) submit, by December 31, 2000, post-1999 Rate of Progress (ROP) Plans and any adopted regulations needed to achieve the post-1999 emission reductions;
2) implement the New Jersey portion of the USEPA 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.

In reviewing the attainment demonstrations submitted by New Jersey, as well as other states' submittals (such as New York, Pennsylvania and Maryland), the USEPA performed its own analyses (also using the weight of evidence method but with a different base year and different modeling results) and determined that further emission reductions were necessary to insure attainment by the applicable dates. For New Jersey, the USEPA's analyses results were reasonably similar to the uncertainty analysis results New Jersey presented in its Phase II Ozone SIP to quantify the uncertainties incorporated its air quality projections. Therefore, considering both the USEPA and the prior state analyses, the State revised its attainment demonstration to include a commitment to a process designed to secure New Jersey's fair share of the additional emission reductions identified by the USEPA.

On April 26, 2000, New Jersey submitted a SIP revision containing an update to meeting the requirements of the alternative ozone attainment demonstration policy.[22] Specifically, this SIP

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[20] Memorandum dated December 29, 1997 from Richard D. Wilson, Acting Assistant Administrator for the USEPA Office of Air and Radiation to the Regional Administrators, USEPA, Regions I-X entitled "Guidance for Implementing the 1-Hour Ozone and Pre-Existing PM_{10} NAAQS".

[21] Guidance for Improving Weight of Evidence Through Identification of Additional Emission Reductions Not Modeled, USEPA, November, 1999.

[22] The State of New Jersey Department of Environmental Protection, State Implementation Plan (SIP) Revision for the Attainment and Maintenance of the One-Hour Ozone National Ambient Air Quality Standard, Update to

revision provided (a) an enforceable commitment by New Jersey to adopt sufficient measures to address its fair share of the level of additional emission reductions identified by the USEPA,[23] and to revise its Attainment Demonstration accordingly to reflect those measures; (b) a revised transportation conformity budget that included 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, that was subsequently changed to December, 2004.

ROP SIP History

The State submitted its original 1996 15 percent ROP plans to the USEPA on November 15, 1993.[24] Subsequently, on December 31, 1996, New Jersey submitted to the USEPA, as part of its Phase I Ozone SIP submittal, a revision which updated its 1993 15 percent ROP plans and included its 1999 24 percent ROP plans to the USEPA.[25] The USEPA granted conditional interim approval to New Jersey's Phase I Ozone SIP submittal on June 30, 1997.[26] The USEPA's approval of New Jersey's Phase I Ozone SIP was conditional based on the modeling contained in the 15 percent and 24 Percent Rate of Progress Plans.[27] On December 12, 1997, the USEPA disapproved the 15 percent ROP plans' portion of New Jersey's Phase I Ozone SIP due

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Meeting the Requirements of the Alternative Ozone Attainment Demonstration Policy-Additional Emission Reduction Commitment and Transportation Conformity Budgets, April 26, 2000.

[23] 64 Fed. Reg. 70380, (December 16, 1999).

[24] The State of New Jersey Department of Environmental Protection and Energy, State Implementation Plan (SIP) Revision for the Attainment and Maintenance of the Ozone National Ambient Air Quality Standards, Meeting the Federal Clean Air Act Requirements, November 15, 1993.

[25] 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 Standards, Meeting the Requirements of the Alternative Ozone Attainment Demonstration Policy, Phase I Ozone SIP submittal, December 31, 1996.

[26] 62 Fed. Reg. 35100, (June 30, 1997).

[27] In a letter dated May 29, 1997, New Jersey committed to perform the remodeling necessary to estimate the emissions reductions that would result from the enhanced I/M program, as implemented, within 12 months from the effective date of the USEPA's approval action (that is, by July 30, 1998).

to the realization that the benefits claimed in these plans for the State's enhanced I/M program would not be obtained.[28]

On February 5, 1999, the State submitted revised 15% ROP (and 24% ROP) plans that no longer relied on the benefits anticipated from the enhanced I/M program. These revised plans were approved by the USEPA on April 23, 1999.[29] On December 13, 1999, the State began implementation of its enhanced I/M program.

On March 31, 2001 New Jersey submitted a SIP revision (ROP SIP) containing the actual 1996 inventory and ROP plans for 2002, 2005 and 2007. The ROP SIP contained the remaining ROP plans for each milestone year up to and including the attainment years for each applicable nonattainment area. Using control measures consistent with those in the State's demonstration of attainment of the one-hour ozone standard, it was shown that the ROP targets are achieved. In addition, the State agreed to find further emission reductions, identified by the USEPA, and is currently working with other Ozone Transport Region states in this regard. Once these measures are adopted, projected controlled emission levels would decrease further. The ROP SIP also contained revised transportation conformity budgets.

The purpose of the ROP submittals was to demonstrate steady incremental progress (3 percent of the 1990 VOC baseline emission level averaged over each consecutive three-year period beginning in 1991) leading towards the ultimate goal of attainment. The purpose of the attainment demonstration, however, was to assess the overall emission reductions necessary to actually achieve attainment, which could be greater than or less than the ROP incremental reductions. If the attainment demonstration shows that a state needs less than 3 percent over each consecutive three-year period to reach attainment, it can petition the USEPA to reduce the ROP requirement for their particular state.[30] In New Jersey's case, however, attaining the standard requires emission reductions that exceed ROP requirements. By way of illustration, the control measures in the attainment demonstration were incorporated in the ROP SIP, and the resulting controlled emission levels indicate that the inventories for the Northern New Jersey/New York City/Long Island and Philadelphia/Wilmington/ Trenton nonattainment areas are well below the targets derived from the 3 percent reduction over each consecutive three-year period. For example, for the Northern New Jersey/New York City/Long Island nonattainment area for 2007 the sum of the New Jersey VOC and NO_x percentage emission reduction was 83.5 percent as compared to a 48 percent ROP test requirement. Therefore, for New Jersey, the emission reductions needed to attain the ozone standard significantly exceed the three percent per year ROP requirements.

[28] Letter dated December 12, 1997 to New Jersey Governor Christine Todd Whitman from Regional Administrator Muszynski, and a similar but more detailed letter dated December 12. 1997 to Commissioner Robert C. Shinn, Jr., NJDEP and Commissioner John J. Haley, Jr., New Jersey Department of Transportation, from Deputy Regional Administrator William J. Muszynski, P.E., USEPA, Region II. This action was later formalized by the USEPA at 63 Fed. Reg. 45399 (August 26, 1998).

[29] 64 Fed. Reg. 19913 (April 23, 1999).

[30] 42 U.S.C. §7511a(c)(2)(B)(ii).

2003 New Jersey Revised Motor Vehicle Emission Inventories and Transportation Conformity Budgets Using the MOBILE6 Model

In 2003 New Jersey submitted a SIP revision[31] to fulfill its commitment to revise 2005 and 2007 on-road motor vehicle emission budgets for the Philadelphia/Wilmington/Trenton nonattainment area and Northern New Jersey/New York City/Long Island nonattainment area using the new MOBILE6 model. In addition this SIP revision showed that the new levels of on-road motor vehicle emissions calculated using MOBILE6 continue to support predicted achievement of rate of progress requirements and projected attainment of the one-hour ozone NAAQS by the attainment dates for each nonattainment area. The MOBILE6 generated inventories were also used to establish transportation conformity emission budgets for the appropriate Metropolitan Planning Organizations (MPOs) in New Jersey.

The USEPA approved the revised emission inventories and transportation conformity budgets using MOBILE6 on May 5, 2003 at 68 FR 23662.

IV. Updated Transportation Conformity Budgets

The Clean Air Act requires that any Federal action taken on transportation plans, programs, and projects be in conformance with a State's implementation plan. Specifically, Section 176(c)(2) of the Clean Air Act states "no department, agency, or instrumentality of the Federal Government shall engage in, support in any way, or provide financial assistance for, or approve, any activity which does not conform to an approved or promulgated state implementation plan. No metropolitan planning organization designated under section 134 of Title 23, shall give its approval to any project, program, or plan which does not conform to an approved or promulgated state implementation plan." These requirements are interpreted by the USEPA to apply to attainment as well as nonattainment areas.[32]

"Conformity to an implementation plan" means conforming to the implementation plan's purpose of eliminating or reducing the severity and number of violations of the health based NAAQS and achieving expeditious attainment of such standards. In order for a proposed transportation activity to conform to the SIP, the Clean Air Act specifies that such activity will not:

1) cause or contribute to any new violation of any standard in any area,
2) increase the frequency or severity of any existing violation of any standard in any area, or
3) delay timely attainment of any standard or any required interim emission reductions or any other milestones in any area.[33]

[31] NJDEP, SIP Revision for the Attainment and Maintenance of the Ozone NAAQS, New Jersey Revised Motor Vehicle Emission Inventories and Transportation Conformity Budgets Using the MOBILE6 Model, April 4, 2003.
[32] USEPA memorandum dated September 4, 1992, entitled *Procedures for Processing Requests to Redesignate Areas to Attainment*, from John Calcagni, Director, Air Quality Management Division, to Regional Air Directors, page 6.
[33] 42 U.S.C. 7506(c)(1).

The Federal Transportation Conformity Rule (62 FR 43801, August 15, 1997) provides the process by which the air quality impact of transportation plans, transportation improvement programs (TIPs), and projects will be analyzed. The agency[34] preparing plans (5-20 years), TIPs (3-5 years), or approving a transportation project must analyze the emissions expected from such a proposal in accordance with the Transportation Conformity Rule.

For the purposes of transportation conformity, the emission budget is that portion of the total allowable emissions in the SIP emissions inventory that is allocated to on-road vehicles. The projected emissions from a plan, TIP, or project, estimated in accordance with the Transportation Conformity Rule, may not exceed the motor vehicle emissions budget contained in the appropriate SIP. Emissions in years for which no motor vehicle emissions budgets are specifically established must be less than or equal to the motor vehicle emissions budget established for the most recent prior year.

The updated transportation conformity budgets are provided in Table 1. Table 2 contains a comparison of the updated transportation conformity budgets with prior budgets. The updated budgets supersede the prior budgets and should be used for future transportation conformity determinations by the MPOs once the USEPA approves them.

The carbon monoxide budgets for the five counties in the New York/Northern New Jersey/Long Island carbon monoxide maintenance area and ten other counties representing other carbon monoxide maintenance areas needed to be updated because of the requirement that New Jersey's MPOs use the USEPA MOBILE6 model for their conformity determinations beginning in 2004. The USEPA updated their emissions factor prediction model from MOBILE5 to MOBILE6 in January, 2002.

For the analysis years and other conditions of the carbon monoxide budgets the MOBILE6 model predicts significantly greater carbon monoxide emissions than MOBILE5. The change to MOBILE6 also provides the capability to more accurately represent New Jersey's on-board diagnostic (OBD) vehicle inspection and maintenance program. The updated budgets were established using the latest planning assumptions and the prior temperatures. The computer files used to generate the updated carbon monoxide budgets are contained in Appendix I.

Certain VOC and NO_x budgets needed to be updated because of a significant change in planning assumptions involving vehicle registration information. United States Department of Transportation and USEPA guidance strongly recommends five-year updates to planning assumptions.[35] New Jersey-specific information on vehicle age distributions, percentage of vehicles miles traveled for various vehicle classes and diesel vehicle fractions have recently been updated using 2003 data from the New Jersey Motor Vehicle Commission. The prior MOBILE6 VOC and NO_x budgets were established using information from 1999. The use of updated vehicle registration information for the NJTPA region caused VOC emission predictions to

[34]For NJ such plans are prepared by three MPO's (North Jersey Transportation Planning Authority, the South Jersey Transportation Planning Organization and the Delaware Valley Regional Planning Commission).

[35] Use of Latest Planning Assumptions in Conformity Determinations, U.S. Department of Transportation and USEPA memorandum, January 18, 2001.

Table 1
Transportation Conformity Budgets by MPO

Transportation Planning Area	CO Emissions (tons per winter day)			VOC Emissions (tons per ozone day)		NO_x Emissions (tons per ozone day)	
	1997	2007	2014	2005	2007	2005	2007
North Jersey Transportation Planning Authority (NJTPA)	1,550.74 (1)	783.39 (1) Monmouth Co. 231.55 Morris Co. 244.05 Middlesex Co. 244.99 Somerset Co. 135.92 Ocean Co. 126.79	605.63 (1)	148.27 (2)	125.82 (2)	253.05 (2)	198.34 (2)
South Jersey Transportation Planning Organization (SJTPO)	NA	Atlantic Co. 91.68 Salem Co. 31.99	NA	NA	NA	NA	NA
Delaware Valley Regional Planning Commission (DVRPC)	NA	Burlington Co. 170.43 Camden Co. 149.73 Mercer Co. 128.49	NA	NA	NA	NA	NA

NOTES:
(1) For Passaic, Bergen, Essex, Hudson and Union counties.
(2) For all counties within the MPO.

Table 2
Comparison of the Updated Transportation Conformity Budgets with Prior Budgets

Transportation Planning Area	Prior or Updated	CO Emissions (tons per winter day)			VOC Emissions (tons per ozone day)		NO_x Emissions (tons per ozone day)	
		1997	2007	2014	2005	2007	2005	2007
North Jersey Transportation Planning Authority (NJTPA)	Prior	690.43 (1)	492.41 (1) Monmouth Co. 186.39 Morris Co. 172.92 Middlesex Co. 248.30 Somerset Co. 103.74 Ocean Co. 115.79	490.45 (1)	161.97 (2)	138.77 (2)	250.05 (2)	197.19 (2)
	Updated	1,550.74 (1)	783.39 (1) Monmouth Co. 231.55 Morris Co. 244.05 Middlesex Co. 244.99 Somerset Co. 135.92 Ocean Co. 126.79	605.63 (1)	148.27 (2)	125.82 (2)	253.05 (2)	198.34 (2)
South Jersey Transportation Planning Organization (SJTPO)	Prior	NA	Atlantic Co. 59.13 Salem Co. 31.11	NA	22.12 (2)	NA	36.36 (2)	NA
	Updated	NA	Atlantic Co. 91.68 Salem Co. 31.99	NA	NA	NA	NA	NA
Delaware Valley Regional Planning Commission (DVRPC)	Prior	NA	Burlington Co. 137.58 Camden Co. 163.69 Mercer Co. 108.09	NA	42.99 (2)	NA	63.44 (2)	NA
	Updated	NA	Burlington Co. 170.43 Camden Co. 149.73 Mercer Co. 128.49	NA	NA	NA	NA	NA

NOTES:
(1) For Passaic, Bergen, Essex, Hudson and Union counties.
(2) For all counties within the MPO.

decrease significantly and NO_x emission predictions to increase by an amount greater than can reasonably be reduced by the MPO changing transportation projects. Even if severe changes were made to New Jersey's currently planned transportation projects over a period of three years, changes of less than one ton per day would be expected. However, the changes in the budgets are less than the amounts that would cause New Jersey emissions to no longer support predicted achievement of projected attainment of the one-hour ozone NAAQS by the attainment date. The updated budgets were established using latest planning assumptions and the prior temperatures. The computer files used to generate the updated VOC and NO_x budgets are contained in Appendix II.

V. Effects of Updated Transportation Conformity Budgets on Maintenance Plans and Attainment Demonstrations

A. Effect of Updated Transportation Conformity Budgets on the Carbon Monoxide Maintenance Plans

The purpose of this section is to compare the updated MOBILE6 carbon monoxide budgets with the prior budgets to determine whether maintenance plans for carbon monoxide could potentially be affected. As presented in Section II, actual measured carbon monoxide concentrations have been steadily decreasing over the last thirty years due to improvements in motor vehicle emission technology. The last time the carbon monoxide NAAQS was exceeded in New Jersey was in January of 1995. The monitored carbon monoxide levels have trended downward so that they are currently about one-half of the NAAQS level. The continuing effect of fleet turnover to lower emitting vehicles should help to sustain the trend of lower carbon monoxide levels in future years.

Prior and updated carbon monoxide budgets for the New Jersey portion of the New York/Northern New Jersey/Long Island carbon monoxide maintenance area are provided in Table 3. The relationships relevant to whether maintenance could be affected are the relative reductions between the base year (1997) and the projection years (2007 and 2014). These percent reductions, and not the absolute value of any specific budget, indicate the potential effectiveness of the transportation conformity budgets to contribute to the maintenance of the attainment of the carbon monoxide NAAQS. Table 3 indicates that the relative reductions from

Table 3
Carbon Monoxide Conformity Budget Analysis

	New Jersey Portion of the New York/Northern New Jersey/Long Island Carbon Monoxide Area - Carbon Monoxide Emissions		
	1997	**2007**	**2014**
Prior Budgets (Tons per day)	690.43	492.41	490.45
Updated Budgets (Tons per day)	1,550.74	783.39	605.63
Prior Budgets - % Reduction From 1997	NA	28.7	29.0
Updated Budgets - % Reduction From 1997	NA	49.5	60.9

1997 for the updated budgets are greater than the corresponding percent reductions from 1997 for the prior budgets. For example, the relative reduction from 1997 to 2007 using prior budgets is (690.43 - 492.41) / 690.43 x 100% = 28.7% and the relative reduction with the updated budgets is (1550.74 - 783.39) / 1550.74 x 100% = 49.5%. The results of this analysis are consistent with the steady decrease in the observed levels of carbon monoxide in New Jersey as discussed in Section II and shown in Figure 2. This demonstrates that the updates to the carbon monoxide budgets do not affect the conclusions of the carbon monoxide maintenance plan for the New York/Northern New Jersey/Long Island area.

The analysis presented in this section was performed for the New York/Northern New Jersey/Long Island carbon monoxide maintenance area that has budgets extending to 2014, which is the last year of the maintenance plan. The other areas within New Jersey that are considered to be carbon monoxide maintenance areas have budgets that extend only to 2007. The effects of the use of the new MOBILE model on the budgets for these areas were analogous to the effects on the budgets for the New York/Northern New Jersey/Long Island area. Therefore, the same conclusion can be reached; i.e., that the updates to the carbon monoxide budgets do not affect the conclusions of the maintenance plans for these areas.

B. Effect of Updated Transportation Conformity Budgets on the Ozone Attainment Demonstrations

The purpose of this section is to compare the updated VOC and NO_x budgets that are based on the new vehicle registration data with the prior budgets to determine if attainment will still be predicted by the established attainment dates. In order to perform this comparison, the State's attainment demonstrations and the USEPA's subsequent re-analyses of the attainment demonstrations were examined in order to extract mobile on-road inventories which best represent conditions in both the base year and the attainment years. Inventories for both of these years are needed because the weight of evidence method was used to demonstrate attainment. A detailed description of the weight of evidence method is available in the 2003 MOBILE6 SIP revision.[36] The determination of whether or not attainment is still demonstrated depends on the relative reduction of the ozone precursors between the base year and the attainment year. If these relative reductions with the updated inventories (consistent with the updated budgets) are equal to or greater than the relative reductions with the previous inventories (representative of the attainment demonstrations) then attainment continues to be demonstrated.

Inventories from the recent ROP SIP were used to determine the required percent reduction in ozone precursors in order to achieve attainment by the attainment date of 2007. The on-road mobile source inventories from the ROP SIP are the most recently prepared SIP-quality inventories that include essentially all of the control measures anticipated for the areas to achieve attainment. In addition, the ROP SIP inventories were prepared for the 1996 base year, as well as, the attainment years for each nonattainment area.

The results of the comparisons between the previous inventories from the ROP SIP and the updated inventories are summarized in Table 4. Table 4 presents the relative reductions (expressed as percent reductions) in on-road mobile source ozone precursor inventories between

[36] Opcit, note 31

the base year and the attainment year. The differences in percent reductions are shown between the ROP SIP inventories and the updated inventories. The updated inventories for 1996 were established in the MOBILE6 SIP.[37]

Table 4

Comparison of the On-Road Previous Inventories from the ROP SIP to the Updated On-Road Inventories (Tons Per Ozone Day Unless Designated Otherwise)

	New Jersey Portion of the Northern New Jersey/New York City/Long Island Area - 2007 Attainment Year -	
	VOC	**NO_x**
Previous - ROP SIP-1996	206.52	302.92
Previous - ROP SIP-Attainment Year	89.82	165.11
Previous - ROP SIP-Reductions	116.70	137.81
Previous - ROP SIP-% Reductions	56.51%	45.49%
Updated - 1996	320.22	356.46
Updated - Attainment Year (Updated)	121.42	187.89
Updated - Reductions	198.80	168.57
Updated - % Reductions	62.08%	47.29%
Difference in % Reductions (Updated – Previous)	5.57%	1.80%
Increase (+) or Decrease (-)[1] in tons per day	+ 17.84	+ 6.42

NOTES: 1. The "increase" or "decrease" was calculated by multiplying the differences in % reductions by the 1996 updated inventories. These "increases" and "decreases" are calculated only for the purpose of demonstrating if the updated inventories continue to meet the objectives of the attainment demonstration and potential "increases" cannot be reallocated without a more rigorous reassessment of the attainment demonstration.

As a result of the use of the weight of evidence method for demonstration of attainment, increases in percent reductions mean that the updated inventories predict lower ozone precursor emissions in the attainment year relative to the base year. Similarly, decreases in percent reductions mean that the updated inventories predict higher ozone precursor emissions in the attainment year relative to the base year. In Table 4 the magnitude that the ozone precursor emissions are lower or higher are represented by the calculated "increase" or "decrease", respectively.

[37] opcit, note 31.

For the Northern New Jersey/New York City/Long Island nonattainment area, the updated inventories predict increases in the percent reductions, i.e., lower emissions of both VOC and NO_x in the attainment year relative to the base year. In fact, if the updated MOBILE6 2007 emissions were higher by up to 17.84 tons per day (TPD) for VOC and 6.42 TPD for NO_x, the respective percent reductions between the base year and attainment year would still be higher than those in the ROP SIP. However, these increases in percent reductions cannot be reallocated to cover potential emission shortfalls in other areas without a more rigorous reassessment of the attainment demonstration.

Based on New Jersey's update of its transportation conformity budgets, the result of the test of the attainment demonstration for the on-road mobile source sector is that the New Jersey portion of the Northern New Jersey/New York City/Long Island nonattainment area is still predicted to achieve attainment by it's attainment date of 2007.

VI. Public Participation

Public Participation

The announcement on the proposed revision to New Jersey's State Implementation Plan for the Attainment and Maintenance for the Carbon Monoxide and One-Hour Ozone National Ambient Air Quality Standards - New Jersey Revised Motor Vehicle Transportation Conformity Budgets Using the MOBILE6 Model appeared in approximately six (6) newspapers throughout the State on or before March 14, 2004. The proposed SIP was transmitted to the USEPA Region II Administrator on March 12, 2004.

The Public Hearing on this proposed SIP Revision was held on April 14, 2004, at 10 A.M. in the 7th Floor Conference Room at the New Jersey Department of Environmental Protection, at 401 E. State Street in Trenton, NJ. The Notice of Availability of the proposed SIP Revision and Hearing Date and Location is provided in Appendix III (Attachment A) to this document. The comment period closed on April 16, 2004.

Appendix III has been updated to include the Legal Notice (Attachment B), the State's response to comment document (Attachment C) and verification that the advertisement did occur in compliance with 40 CFR 51.102 (Attachment D).