**The State of New Jersey**

**Department of Environmental Protection**

**Enhanced Inspection and Maintenance (I/M) Program for the State of New Jersey**

**Revised Performance Standard Modeling**

**SIP Revision**

November 27, 2002

# Preface

This document is a revision to the State of New Jersey’s enhanced inspection and maintenance (I/M) program State Implementation Plan (SIP). Specifically, this document provides the United States Environmental Protection Agency (USEPA) with a revision to New Jersey’s enhanced I/M performance standard modeling. The primary reason for this revised performance standard modeling is to satisfy the USEPA's requirements for securing their approval for the State to extend the new vehicle emission inspection exemption from the current one inspection cycle (i.e., 2 years) to two inspection cycles (i.e., 4 years). Governor James E. McGreevey enacted this new car emission inspection exemption on July 1, 2002, however, implementation of this exemption is contingent on USEPA approval. In addition, this revised performance standard modeling takes into account several proposed changes to the I/M program that, if adopted, will impact the overall effectiveness of the program.

# Acknowledgments

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**Acronyms and Abbreviations****:**

### ASM Acceleration Simulation Mode

CIF Central Inspection Facility

CO Carbon Monoxide

Fed. Reg. Federal Register

gpm Grams Per Mile

HC Hydrocarbons

I/M Inspection and Maintenance

LEV Low Emission Vehicle

MY Model Year

NAAQS National Ambient Air Quality Standards

NJDEP New Jersey Department of Environmental Protection

NJDMV New Jersey Division of Motor Vehicles

NJDOT New Jersey Department of Transportation

NOx Oxides of Nitrogen

OBD On-Board Diagnostics

PI&TG Parsons Infrastructure and Technology Group

ppm Parts Per Million

RPM Revolutions Per Minute

SIP State Implementation Plan

USEPA United States Environmental Protection Agency

VOC Volatile Organic Compounds

# Executive Summary

This document revises the State of New Jersey’s enhanced Inspection and Maintenance (I/M) State Implementation Plan (SIP) to include an update to New Jersey’s performance standard modeling. The primary reason for revising the State's enhanced I/M performance standard modeling is to satisfy the USEPA's requirements for securing their approval of the State's plan to extend the current new vehicle emission inspection exemption from one inspection cycle (i.e., 2 years) to two inspection cycles (i.e., 4 years). This new car emission inspection exemption was enacted by Governor James E. McGreevey on July 1, 2002 as Public Law 2002, Chapter 34, however, implementation of this exemption is contingent on approval by the USEPA.

In addition to the extension to the new car emission inspection exemption, New Jersey has proposed several modifications to its enhanced I/M program design since the State's previous performance standard submittal on August 20, 2001. These proposed changes, if adopted, will impact the effectiveness of the overall I/M program. Specifically, the NJDEP has proposed the following changes to its enhanced I/M regulations in May 20, 2002 New Jersey Register (N.J.R.):

* Modify the framework, procedures and testing schedule by which model year 1996 and newer vehicles would be subject to on-board diagnostic (OBD) inspections. The proposed program modifications included changing the start date for mandatory OBD inspections (pass/fail determinations) from January 1, 2001, to June 1, 2003 and set forth the testing protocols for OBD inspections on 1996 and newer vehicles;
* Eliminate the end date for the use of the “initial” emission standards for the ASM5015 exhaust emission test to allow for the continued use of these initial standards;
* Remove the "final" emission standards for the ASM5015 exhaust emission test;
* Remove all references to the evaporative pressure and purge tests while retaining the evaporative fuel cap (or gas cap) leak test; and,
* Exempt from dynamometer testing those pre-1996 light-duty vehicles that are registered as school buses and that are under the jurisdiction of the NJDMV’s School Bus Inspection Unit. 1996 and newer light-duty vehicles registered as school buses will receive an OBD inspection.

This SIP revision revises the State's enhanced I/M performance standard modeling to account for the four-year new car exemption, as well as the NJDEP's May 20, 2002 proposed rule changes. This revision shows that for the evaluation years 2002, 2005 and 2007, the State's I/M program meets the low enhanced performance standard.

I. Introduction :

## A. Background

In accordance with the requirements of the Clean Air Act (CAA), the State of New Jersey implemented an enhanced inspection and maintenance (I/M) program on December 13, 1999. The implementation of this program continues to be an integral part of New Jersey’s plan to attainand maintain compliance with the health-based National Ambient Air Quality Standards (NAAQS) for ozone and for carbon monoxide (CO). Reducing the emissions of carbon monoxide, as well as emissions of volatile organic compounds (VOCs) and nitric oxide (NO) (precursors to ozone formation), will help the State in its efforts to improve its air quality and protect the health and welfare of its citizens.

The enhanced I/M program is designed to detect gasoline-fueled motor vehicles operating with excessive emissionsunder test conditions that represent more realistic driving conditions compared to New Jersey’s previous, basic I/M program. In addition, the enhanced program inspects vehicles to detect emissions of nitric oxide (NO), a pollutant that was not measuredas part of the basic I/M program. Oxides of nitrogen (NOx), along with volatile organic compounds (VOC)[[1]](#footnote-1), are precursors to the formation of ozone.

New Jersey’s enhanced I/M program design is a hybrid network system that consists of both centralized, test-only and decentralized test-and-repair facilities. A private contractor to the State operates the centralized portion of the inspection network. The decentralized network is comprised of over 1,400 Private Inspection Facilities (PIFs) that are privately owned and operated, and licensed by the NJDMV to perform vehicle inspections on behalf of the State. This hybrid network design gives motorists a choice as to where to have their vehicles inspected.

B. Purpose

The purpose of this document is to revise the State of New Jersey’s enhanced I/M SIP with a update to the performance standard modeling for the enhanced I/M program. The primary reason for this modeling revision is to accommodate the USEPA's need to insure that the 4-year new vehicle emission inspection exemption would not jeopardize the State's ability to continue to meet its enhanced I/M emission reduction goals. The USEPA's approval of this emission inspection exemption is required by the State's revised I/M legislation. To insure that the performance standard modeling reflects the latest design assumptions for the I/M program, this revised performance standard modeling also includes the major proposed program changes from the NJDEP's May 20, 2002 rule proposal.

II. History of New Jersey’s I/M SIP

A. Basic I/M SIP

In 1974, New Jersey, under commitments made in its basic I/M SIP, implemented its basic I/M program. At that time, the State’s basic I/M SIP consisted of an annual inspection program whereby all gasoline-fueled motor vehicles, unless specifically exempt through law or regulation, were subject to an idle exhaust emission test. Although several subsequent revisions were made to the State’s basic I/M SIP, the core program remained unchanged. Major changes in the State’s basic I/M program over time included: 1) the addition of a visual inspection for the presence of a catalytic converter, 2) the addition of an inlet restrictor test to determine whether a vehicle’s fuel inlet was sufficiently narrow as to preclude use of a leaded gasoline nozzle, thereby preventing the use of leaded fuel, and 3) modification of the program network design to allow for private inspection facilities (PIFs). This third major change expanded the inspection facility network to include non-state-operated inspection facilities that could do both inspections and repairs. Although these private facilities were originally only allowed to perform re-inspections, their responsibilities were later augmented to included initial inspections as well.

B. Enhanced I/M SIP

The Clean Air Act Amendments of 1990 require the implementation of enhanced I/M programs for areas meeting one or more of the following criteria:

1. designated as a serious, severe or extreme ozone non-attainment area with urbanized populations of 200,000 or more[[2]](#footnote-2) ;
2. designated as a carbon monoxide non-attainment area that exceeded a 12.7 ppm design value with urbanized populations of 200,000 or more[[3]](#footnote-3); or,
3. part of a Metropolitan Statistical Area with a population of 100,000 or more in the northeast Ozone Transport Region (OTR)[[4]](#footnote-4) .

New Jersey met all three of these criteria for required implementation of an enhanced I/M program. As part of this requirement, Congress established performance specifications that were further elucidated by the USEPA. Specifically, the USEPA’s promulgated rules and established guidance, including a performance standard and program administration features, for the implementation of enhanced I/M programs. The USEPA’s final rule on Inspection/Maintenance Program Requirements was promulgated on November 5, 1992.[[5]](#footnote-5) Subsequently, on June 29, 1995, New Jersey submitted a SIP to the USEPA that described its enhanced I/M program design. This SIP described an inspection program whereby all 1968 and newer gasoline-fueled motor vehicles, unless specifically exempt through law or regulation, would be subject to a steady-state dynamometer-based exhaust emission test known as the ASM5015. In addition, all 1975 and newer vehicles would receive evaporative pressure and purge tests designed to detect any malfunctions with the vehicle’s evaporative emission control system. All pre-1968 vehicles would continue to be subject to the idle exhaust emission test. New Jersey’s enhanced I/M SIP also accounted for a hybrid (i.e., both centralized, test-only and decentralized, test-and-repair facilities) inspection network, similar to the one established for New Jersey’s basic I/M program. This SIP stated that once the enhanced I/M program was fully implemented, all subject motor vehicles would be inspected at least once every two years (i.e., biennially).

C. Enhanced I/M SIP Revision - March 27, 1996

On March 27, 1996, New Jersey submitted a revision to its June 29, 1995 enhanced I/M SIP, modifying its enhanced I/M program design to take advantage of the additional flexibility afforded states by Congress in designing their enhanced I/M programs. Specifically, the National Highway System Designation Act of 1995, P.L. 104-59 [S.440], (NHSDA) prohibited the USEPA from automatically discounting decentralized program formats by 50 percent, as had previously been prescribed in the USEPA’s final rule on I/M program requirements.[[6]](#footnote-6) Rather, the NHSDA allowed states to claim any reasonable amount of credit for their decentralized programs that they deemed appropriate, so long as 18 months from the approval of their enhanced I/M SIP the state could show six months of full implementation enhanced I/M program data substantiating their credit claim. Consistent therewith, as part of its March 27, 1996 enhanced I/M SIP revision, New Jersey claimed 80 percent credit for the decentralized portion of its enhanced I/M program. Refer to Section II.F. for more information on New Jersey’s analyses to substantiate its 80 percent credit claim.

In addition to taking advantage of the flexibility afforded by the NHSDA, the March 27, 1996 enhanced I/M SIP revision modified the model year coverage of the ASM5015 exhaust emission test and evaporative system pressure and purge tests to the following: all 1981 and newer light-duty vehicles, other than low annual mileage and full-time four-wheel drive vehicles, would be subject to the steady-state dynamometer-based ASM5015 exhaust emission test, as well as evaporative system pressure and purge tests. Vehicles 1980 and older would continue to be subject to the basic idle exhaust emission test, as well as a gasoline cap pressure test for those vehicles with sealed gas cap systems.

Finally, as part of this March 27, 1996 revision to the State’s enhanced I/M SIP, the test frequency of the State’s current inspection process was slightly modified in connection with an enhanced demonstration phase. During this demonstration phase, vehicles that successfully passed a voluntary enhanced exhaust emission test would receive an inspection sticker valid for two years.

On May 14, 1997, the USEPA granted conditional interim approval to New Jersey’s enhanced I/M SIP.[[7]](#footnote-7) This conditional interim SIP approval, which became effective on June 13, 1997, addressed both the State’s original June 29, 1995 enhanced I/M SIP submittal and its subsequent March 27, 1996 SIP revision. New Jersey subsequently satisfied the conditions of this approval by rectifying the two major deficiencies in its enhanced I/M SIP identified by the USEPA (New Jersey cured the first major enhanced I/M SIP deficiency by providing final and complete test equipment specifications, test procedures and emission standards to the USEPA by January 31, 1997[[8]](#footnote-8); and cured the second major enhanced I/M SIP deficiency by providing enhanced I/M performance standard modeling to the USEPA by February 1, 1998[[9]](#footnote-9)). In addition, on December 14, 1998, New Jersey cured the eight (8) de minimis deficiencies identified by the USEPA[[10]](#footnote-10), even though the satisfaction of those de minimis deficiencies had no effect on the USEPA’s interim approval.[[11]](#footnote-11)

D. Enhanced I/M SIP Revision - June 5, 1998  D. Enhanced I/M SIP Revision - June 5, 1998

On June 5, 1998, New Jersey submitted a revision to its I/M SIP, clarifying the testing frequency during the transition between the basic I/M program and the full implementation of the enhanced I/M program. Although the previous SIP revisions clearly define the testing frequency of both New Jersey’s basic and enhanced I/M programs, they did not definitively specify the testing frequency during the transition period between the two programs.

As part of the June 5, 1998 SIP revision, the State determined that during the transition period, the basic I/M program would continue to operate, but on a biennial, rather than annual, test frequency. This was done to accommodate the decreased availability of centralized inspection lanes while they were being retrofitted for enhanced testing. To make this modification to the basic I/M program’s test frequency, this SIP revision quantified the emission reduction losses anticipated from this modification and provided an equivalency demonstration showing the State plan to offset those losses in emission reduction benefit. Specifically, to compensate for the loss in VOC emission reduction benefit from modifying the basic I/M program’s test frequency, New Jersey: 1) began administering fuel cap pressure tests as part of its basic I/M program in its centralized inspection facilities, and 2) began fuel cap/evaporative emission control system visual inspections as part of its basic I/M program in its decentralized inspection facilities. The loss in carbon monoxide emission reduction benefit from modifying the basic I/M program’s test frequency was offset by taking credit for emission reduction benefits gained through vehicle fleet turnover which had not already been claimed by the State in its carbon monoxide SIP.[[12]](#footnote-12) Vehicle fleet turnover results when newer vehicles with more advanced emission controls replace older, less advanced vehicles within the State vehicle population. The State submitted modeling analyses showing that both of the above strategies more than compensated for the loss in VOC and carbon monoxide emission reduction benefits from modifying the basic I/M program’s test frequency. The USEPA approved the State’s June 5, 1998 revision to its enhanced I/M SIP on August 26, 1998.[[13]](#footnote-13)

E. Proposed Enhanced I/M SIP Revision - June 9, 2001

On June 9, 2001, the State proposed to revise its enhanced I/M SIP to include amendments to the NJDMV’s rules governing the implementation and operation of the State’s I/M program. The proposed rulemaking[[14]](#footnote-14) made the following changes to the NJDMV’s I/M regulations that could impact the air quality benefits associated with the enhanced I/M program, and therefore impact the SIP:

* provide that if leasing companies and out-of-state new motor vehicle dealerships inspect a new motor vehicle’s safety and emission control devices to insure that they conform to the specifications established by the manufacturer and contained in the pre-delivery checklist, those facilities could issue a temporary inspection decal. This decal allows the motorist to present the vehicle at the exit end of any CIF and be issued a two-year inspection decal. This regulatory change gives these leasing companies and out-of-state new motor vehicle dealerships equivalent privileges to those previously given to in-state new motor vehicle dealerships;
* exempt gasoline-fueled school buses which are subject to inspection by the NJDMV’s School Bus Inspection Unit from the inspection requirements of the enhanced I/M program;
* allow any motor vehicle that passes an on-road inspection within the two-month period prior to its regularly scheduled biennial inspection to use the on-road inspection result in lieu of the complete biennial inspection, so long as the tests performed on-road are the same tests that would be performed on the vehicle as part of the biennial inspection process;
* exempt from dynamometer testing any motor vehicle “ with a chassis height that has been modified so as to make its operation on a dynamometer either impractical or hazardous, as will be determined in the discretion of the Director [of the NJDMV]”; and,
* change the minimum cost expenditure value needed for the issuance of a cost waiver from $200 to $450 as of January 1, 2002.

A hearing on this proposed SIP revision, as well as the NJDMV’s proposed rulemaking, was held on July 9, 2001. The NJDMV subsequently adopted its regulations on October 15, 2001.[[15]](#footnote-15) This State is in the process of finalizing the SIP revision that will provide the final adoption of this NJDMV rulemaking to the USEPA.

F. Enhanced I/M SIP Revision - August 31, 2001

On December 13, 2000, in compliance with its NHSDA credit claim, New Jersey submitted to the USEPA a qualitative analysis of four month of data showing the effectiveness of thedecentralized portion of its enhanced I/M program relative to its centralized test-only network.[[16]](#footnote-16) Subsequently, on May 4, 2001, New Jersey proposed its final report for NHSDA compliance, which evaluated six full months of program implementation data (the period from July 1, 2000 through December 31, 2000) using various analysis methodologies. On August 31, 2001[[17]](#footnote-17), the State of New Jersey submitted to the USEPA a revision to its enhanced I/M SIP that included:

1) the State’s final submittal for compliance with the National Highway Systems Designation Act (NHSDA); and,

1. a revision to New Jersey’s enhanced I/M performance standard modeling.

The first part of this SIP revision included New Jersey’s final NHSDA report. This report was designed to support the claim New Jersey made in its March 27, 1996 enhanced I/M SIP revision that its decentralized network (the private inspection facilities, or PIFs) is at least80 percent as effective as its centralized network (the centralized inspection facilities, or CIFs). The NHSDA report showed that both New Jersey’s centralized test-only and decentralized test-and-repair program networks are effectively identifying vehicles with unacceptably high levels of emissions, and that the State-registered Emission Repair Facilities (ERFs) are significantly reducing vehicle emissions through effective repairs. Specifically, the NHSDA analyses show overall emission reductions of 55 percent for hydrocarbons (HC), 58 percent for nitrogen oxide (NO) and 84 percent for carbon monoxide from the vehicles repaired and successfully passing re-inspections following initial inspection failures. These analyses show relatively uniform emission reductions attributable to both network types of New Jersey’s enhanced I/M program, indicating that the emission reductions attributable to the PIFs are at least 80 percent of those attributed to the CIF network. In fact, the analyses show that the State was conservative in this original credit estimation.

The second part of the August 20, 2001 enhanced I/M SIP revision addressed the State’s performance standard modeling for its enhanced I/M program. The State originally submitted its performance standard modeling to the USEPA on January 30, 1998, to satisfy a condition of the USEPA’s conditional interim approval of New Jersey’s enhanced I/M program SIP.[[18]](#footnote-18) At that time, the State had not yet implemented its enhanced I/M program, requiring the NJDEP to make certain assumptions about the program, such as the expected date for the implementation of final standards. After the State successfully implemented its enhanced I/M program, the USEPA requested that the State update its performance standard modeling to more accurately reflect the program as implemented. The August 20, 2001 revised performance standard modeling demonstrated that for an evaluation year of 2002, the State exceeded the applicable enhanced performance standard.

On September 11, 2001, the USEPA proposed to: 1) approve New Jersey’s August 20, 2001 SIP revision; and, 2) give final approval to New Jersey’s overall enhanced I/M SIP. Prior to this, the State’s enhanced I/M SIP has interim approval from the USEPA. On January 22, 2002, the USEPA finalized its approval of New Jersey’s August 20, 2001 SIP revision and gave final approval to New Jersey’s overall enhanced I/M SIP.[[19]](#footnote-19)

G. Proposed Enhanced I/M SIP Revision - December 31, 2001

On December 31, 2001, the State of New Jersey submitted a proposed revision to its enhanced I/M SIP to the USEPA.[[20]](#footnote-20) This proposed revision included the following:

1. a formal request to defer of the mandatory implementation date for inclusion of On-Board Diagnostic (OBD) inspections into the State’s I/M program from January 1, 2002 to January 1, 2003;
2. a formal request that the State be allowed to phase-in the mandatory OBD inspection portion of its I/M program;
3. submittal, for inclusion as part of the overall enhanced I/M SIP, of those proposed amendments to the Department of Environmental Protection’s (NJDEP) rules which establish the necessary test procedures and standards for implementation of an enhanced I/M program for gasoline-fueled motor vehicles in New Jersey; and,
4. submittal, for inclusion as part of the overall enhanced I/M SIP, of those emission-related portions of the Division of Motor Vehicles’ (NJDMV) proposed amendments to its rules governing school bus inspections in New Jersey.[[21]](#footnote-21)

The proposed NJDEP regulatory amendments were attached as Appendix I to the December 31, 2001 proposed SIP submittal and proposed the following major modifications to N.J.A.C. 7:27-15 (Control and Prohibition of Air Pollution from Gasoline-Fueled Motor Vehicles) and N.J.A.C. 7:27B-5 (Air Test Method 5: Testing Procedures for Gasoline-Fueled Motor Vehicles):

* modify the framework, procedures and testing schedule by which 1996 and newer model year vehicles will be subject to OBD inspections;
* extend the end date for the current initial ASM5015 standards for all 1981 and newer LDGVs, LDGT1s and LDGT2s from December 31, 2001 to December 31, 2002;
* replace the final standards for the ASM5015 exhaust emission test for all model year 1994 and newer Tier I light-duty gasoline-fueled trucks 1 and 2 (LDGT1 and LDGT2s), currently scheduled for implementation on January 1, 2002, with new "interim" standards that will go into effect on January 1, 2003;
* replace the final standards for theASM5015 exhaust emission test for all pre-1996 non-Tier I LDGT1s and LDGT2s, and for all 1981 and newer light-duty gasoline-fueled vehicles (LDGVs) with the current initial ASM5015 standards for those vehicles, and changes the implementation date from January 1, 2002 to January 1, 2003;
* remove all references to the evaporative pressure and purge tests, and;
* change the test procedure requirements for those gasoline-fueled motor vehicles registered as school buses by the NJDMV, and subject to inspection by the NJDMV's School Bus Inspection Unit.

A hearing on the proposed SIP revision, as well as both NJDEP and NJDMV’s proposed rulemakings, was held on February 25, 2002. The State received significant comments on two aspects of its January 22, 2002 proposal; the implementation plan for integrating mandatory OBD inspections, and the implementation of interim standards for the ASM5015 exhaust emissions test to replace the current final standards.

In addition to considering the comments, the NJDEP also took into account other factors with regard to OBD implementation, such as the determination that implementation of the USEPA's original OBD inspection component design without "second chance" testing would impose less of an burden on the State than implementation of a "phase-in" OBD inspection program that still required the motor vehicle to be repaired to pass an OBD inspection on re-inspection. After evaluating all of these issues, the State determined not to adopt the proposed OBD implementation plan or the interim standards for ASM5015 exhaust emission test. Although the State considered adopting the remaining changes proposed in its January 22, 2002 proposal, it determined that it would be clearer to the public if the NJDEP developed a new proposal that included the State's revised OBD implementation plan, and provided for continuation of the initial ASM standards without the implementation of final standards. As such, the NJDEP determined not to adopt its January 22, 2002 rule proposal and, on April 22, 2002[[22]](#footnote-22), the NJDEP submitted a SIP revision that took the following action with regard to the State’s enhanced I/M program:

1. withdrew the State’s request to phase-in OBD inspections into New Jersey’s enhanced I/M program;
2. withdrew the State’s submittal of the January 22, 2002 NJDEP rule proposal, and;
3. submitted a final SIP revision requesting a deferral of the mandatory implementation date for inclusion of OBD inspections into the State I/M program from January 1, 2002 to January 1, 2003. This request included a commitment to modify the rule date for OBD inspection.

In the letter transmitting this SIP revision to the USEPA, the State indicated that, should the NJDMV act to adopt its latest school bus rule proposal, the NJDEP would then submit to the USEPA for their review and approval, a final SIP revision that includes that adoption, as well as the NJDMV’s previous rule adoption which removed from the I/M program those gasoline-fueled vehicles registered as school buses, and thus subject to inspection by the NJDMV’s school bus inspection unit, from the enhanced I/M program requirements. This second rule adoption was submitted to the USEPA as a proposed SIP revision on June 9, 2001 and the adoption appeared in the October 15, 2001 edition of the New Jersey Register. The State is in the process of finalizing the SIP revision that will submit the relevant portions of this rulemaking, as well as the NJDMV's June 4, 2001 rulemaking, to the USEPA.

H. Proposed Enhanced I/M SIP Revision - April 24, 2002

On April 24, 2002, the NJDEP submitted a revision to its enhanced I/M SIP that consisted of proposed amendments to the NJDEP rules governing the implementation of the enhanced I/M program in New Jersey. Specifically, the NJDEP's rule proposal that makes the following major changes to the NJDEP’s rules governing the State’s enhanced I/M program:

* modifies the framework, procedures and testing schedule by which model year 1996 and newer vehicles would be subject to on-board diagnostic (OBD) inspections. The proposed program modifications include changing the start date for mandatory OBD inspections (pass/fail determinations) from January 1, 2001, to June 1, 2003. The proposal sets forth the testing protocols for OBD inspections on 1996 and newer vehicles;
* eliminates the end date for the use of the “initial” emission standards for the ASM5015 exhaust emission test. This would allow for the continued use of these initial standards;
* removes the "final" emission standards for the ASM5015 exhaust emission test[[23]](#footnote-23);
* removes all references to the evaporative pressure and purge tests while retaining the evaporative fuel cap (or gas cap) leak test; and;
* exempts from dynamometer testing those pre-1996 light-duty vehicles that are registered as school buses and that are under the jurisdiction of the NJDMV’s School Bus Inspection Unit. 1996 and newer light-duty vehicles registered as school buses will receive an OBD inspection.

A hearing on the NJDEP's new proposal, and the associated proposed SIP revision, was held on June 24, 2002 and the comment period ended on July 30, 2002.

III. Revised Performance Standard Modeling

A. Background and History

As part of its final rule for inspection and maintenance (I/M) requirements, the USEPA established a “model” program for areas required to implement enhanced I/M programs. This model program is termed by the USEPA as the “I/M performance standard” and is defined by a specific set of program elements.[[24]](#footnote-24) The purpose of the performance standard is to provided a gauge by which the USEPA can evaluate the adequacy and effectiveness of each state’s enhanced I/M program. As such, states are required to demonstrate that their enhanced I/M programs achieve applicable area-wide emission levels for the pollutants of interest that are equal to, or lower than, those which would be realized by the implementation of the model program. The USEPA allows for a margin of error of +/- 0.02 gpm in determining compliance with the performance standard.[[25]](#footnote-25)

On January 30, 1998, to satisfy one of the major deficiencies identified by the USEPA in its enhanced I/M SIP, the State submitted emission modeling that demonstrated that the State’s enhanced I/M program met the performance standard.[[26]](#footnote-26) This modeling was completed prior to the implementation of New Jersey’s enhanced I/M program on December 13, 1999. As such, in completing the modeling for the January 30, 1998 performance standard modeling, the State had to make certain assumptions regarding the I/M program’s parameters. For example, the State estimated the anticipated vehicle compliance rate under the I/M program, the centralized/decentralized inspection split and the number of vehicles that would be exempted from the ASM5015 enhanced exhaust emission test. The State also made assumptions regarding the implementation of the evaporative pressure test and final exhaust emission standards. In modeling the anticipated I/M program, the State demonstrated that its program design would result in lower emissions than that of the model program.

After the State worked through its initial implementation problems and had successfully implemented its enhanced I/M program, the USEPA requested that New Jersey re-model its program using the actual program design and programmatic data to represent a realistic portrait of New Jersey’s I/M program.[[27]](#footnote-27) This revised performance standard was submitted to the USEPA on August 20, 2001, as one of the final requirements needed for the USEPA to grant final approval to New Jersey's enhanced I/M SIP, which the USEPA did on January 22, 2002.

Originally, the USEPA only designed one enhanced performance standard, as specified at 40 C.F.R. 51.351, and required all enhanced I/M program areas to meet or exceed that standard. However, on September 18, 1995, the USEPA promulgated the “low” enhanced performance standard.[[28]](#footnote-28), [[29]](#footnote-29) The low enhanced performance standard is a less stringent enhanced I/M performance standard established for those areas that could meet the Clean Air Act's requirements for Rate of Progress (ROP) and attainment of the carbon monoxide (CO) and/or ozone ambient air quality standards without the benefits of the original enhanced I/M performance standard. Specifically, the USEPA's enhanced I/M rules state that compliance with the low enhanced performance standard is sufficient for those enhanced I/M areas that have an approved SIP for ROP for 1996, and do not have a disapproved ROP for the period after 1996 or a disapproved plan for attainment of the air quality standards for ozone or carbon monoxide.[[30]](#footnote-30)  For the State's January 30, 1998 performance standard submittal, New Jersey was required to meet the original enhanced performance standard, subsequently termed the “high” enhanced performance standard. This was due to the fact that the USEPA, on December 12, 1997, had disapproved the State’s 1996 15 percent ROP SIP, and as such, the State was not demonstrating compliance with the Clean Air Act (CAA) requirement for ROP and attainment.

On February 5, 1999, the State submitted a revised 1996 15 percent ROP Plan, which no longer relied on the emission reduction benefits from the enhanced I/M program.[[31]](#footnote-31)  Subsequently, on April 23, 1999, the USEPA approved this revised 15 percent ROP plan.[[32]](#footnote-32) On April 11, 2001, the NJDEP submitted its ROP SIP for the years 2002, 2005 and 2007. The State also relied on the full benefits from its enhanced I/M program in the ozone attainment demonstration it submitted to the USEPA on August 31, 1998. Both the State's ROP SIP for the years 2002, 2005 and 2007 and its ozone attainment demonstration were approved by the USEPA on February 4, 2002.[[33]](#footnote-33) As such, New Jersey is currently demonstrating compliance with the Clean Air Act requirements for ROP and attainment and is therefore now only required to meet the “low” enhanced performance standard. The State's August 20, 2001 revised performance standard modeling, as well as the revised performance standard modeling included as part of this submittal, are both designed to show attainment of the low enhanced performance standard.

Although the State updated, and the USEPA subsequently approved, performance standard modeling for the enhanced I/M program only a year ago, there have been several proposed changes to the design of the program that, if implemented, will impact the overall emission reduction potential of the I/M program. Specifically, on July 1, 2002, Governor James E. McGreevey enacted modifications to the enabling I/M legislation to require the NJDMV to exempt new vehicles from their emission inspection for two inspection cycles (4 years) instead of one inspection cycle (2 years).[[34]](#footnote-34) In addition to the legislative amendment to testing frequency, the State has proposed significant rule modifications to the overall program design. Specifically, the NJDEP, on May 20, 2002, proposed to: 1) no longer require the implementation of the evaporative pressure and purge tests, 2) no longer require the implementation of the existing final standards for the ASM5015 exhaust test[[35]](#footnote-35), 3) implement an OBD testing component for 1996 and newer vehicles, and 4) exempt vehicles registered as school buses from the enhanced program. To ensure that the net result of all these changes, if implemented, would not impact the overall effectiveness of the program beyond the performance standard goal, the USEPA has required that the State once again revise its performance standard modeling. The remainder of this document outlines the program design modeled as part of the State's revised performance standard modeling and presents the results of that modeling effort.

B. Performance Standard Modeling

In accordance with the USEPA’s final rule for I/M requirements, a state must design and implement its enhanced I/M program such that it meets or exceeds, within +/- 0.02 grams per mile (gpm)[[36]](#footnote-36), a minimum performance standard. The performance standard is expressed as emission levels in enhanced I/M program area wide average gpm achieved from highway mobile sources as a result of the enhanced I/M program.[[37]](#footnote-37)  Areas must meet the performance standard for the pollutants that cause them to be subject to the enhanced I/M requirements.[[38]](#footnote-38) As discussed in greater detail in Section II B, New Jersey was required to implement its enhanced I/M program because of its non-attainment status for two criteria air pollutants (that is, ozone (of which volatile organic compounds (VOCs) and oxides of nitrogen (NOx) are precursors) and carbon monoxide (CO)).

Since its initial designations, New Jersey has attained the carbon monoxide NAAQS in all of its carbon monoxide non-attainment areas and has been redesignated to attainment status in these areas by the USEPA. The Camden County carbon monoxide non-attainment area, as well as the nine not-classified areas, was redesignated by the USEPA on December 7, 1995.[[39]](#footnote-39) On August 7, 1998, the NJDEP submitted to the USEPA an attainment demonstration for its last remaining carbon monoxide area (the New York-Northern New Jersey-Long Island carbon monoxide non-attainment area, hereafter referred to as the Northeastern New Jersey non-attainment area). Subsequently, on January 15, 2002, the NJDEP submitted a maintenance plan and redesignation request for the Northeastern New Jersey carbon monoxide non-attainment area. On August 23, 2002, the USEPA approved New Jersey’s carbon monoxide attainment demonstration and request to redesignate the Northeastern New Jersey non-attainment area from non-attainment to attainment. This redesignation to attainment became effective on October 22, 2002.

Although the State's August 7, 1998 carbon monoxide attainment demonstration did not rely upon the benefits from the enhanced I/M program, its maintenance plan for the Northeastern New Jersey non-attainment area did rely upon the benefits from the enhanced I/M program. Therefore, the State is still required to include carbon monoxide in its performance standard modeling even though the State has been designated in attainment for all of its previously designated carbon monoxide non-attainment areas). This is because the enhanced I/M program is still relied on by the State to maintain carbon monoxide NAAQS attainment in the northern portion of the State.

The USEPA’s final rule on I/M requirements also requires that the equivalency of the emission levels achieved by the State’s enhanced I/M program design compared to those of the performance standard must be demonstrated using the most current version of USEPA’s mobile source emission model.[[40]](#footnote-40) Currently, the latest version is MOBILE6, which was released for use by the states on January 29, 2002. As such, New Jersey has completed its performance standard modeling using MOBILE6.

Table 1 outlines the main program parameters of the low enhanced performance standard model program. In addition, this table presents New Jersey’s enhanced I/M program design for the evaluation years 2002, 2005 and 2007.[[41]](#footnote-41)  These designs include whichever proposed design changes would be implemented in the given evaluation year to determine the impact of those changes on the overall effectiveness of the I/M program for that year. Although each state must model the performance standard using the parameters specified in Table 1, the performance standard emission factor results will vary for each state. This variation is mainly the result of the decision to use state-specific registration distribution and/or Vehicle Miles Traveled (VMT) mix or to rely instead on the model default values. New Jersey uses 1999 State-specific registration as well as a State-specific VMT mix for the various vehicle types. Other local parameters, such as fuel type, add to state variations in determining the emission factors from the USEPA’s model program.

Table 1: Performance Standard Comparison to NJ I/M Program Designs

| Program Element | **Low Enhanced** Performance Standard - Evaluation Year 2002 | New Jersey’s Enhanced I/M Program -Evaluation Year 2002 | New Jersey’s Enhanced I/M Program -Evaluation Year 2005 | New Jersey’s Enhanced I/M Program -Evaluation Year 2007 |
| --- | --- | --- | --- | --- |
| Network Type | 100% centralized | hybrid - 74% centralized/26%  decentralized | hybrid - 70% centralized/30%  decentralized | hybrid - 70% centralized/30%  decentralized |
| Credit Assumed for Decentralized Program | 50% | 80% | 80% | 80% |
| Program Start Date | 19831 | 1974 | 1974 | 1974 |
| Test Frequency | annual | biennial | biennial2 | biennial2 |
| Emission Standards | Those specified at 40 C.F.R. Part 85, Subpart W | Initial ASM5015 exhaust emission standards | Initial ASM5015 exhaust emission standards | Initial ASM5015 exhaust emission standards |
| Model Year (MY) Coverage | 1968 and later MY | all vehicles not specifically exempt | all vehicles not specifically exempt | all vehicles not specifically exempt |
| Vehicle Type Coverage | All light-duty gasoline-fueled vehicles and trucks (up to 8,500 lbs. GVWR) | All gasoline-fueled vehicles and trucks (both light and heavy duty vehicles) | All gasoline-fueled vehicles and trucks (both light and heavy duty vehicles) | All gasoline-fueled vehicles and trucks (both light and heavy duty vehicles) |
| Exhaust Emission Test | Idle - 1968-2050 MY | ASM5015 – 1981and newer MY amenable to dyno. testing  2500 RPM test – certain exempt vehicles and those 1981 and newer MY not amenable to dyno. testing  Idle - pre-1981 and HDGVs | OBD - 1996 and later MY beginning 6/1/03  ASM5015 – 1981-1995 MY amenable to dyno. testing  2500 RPM test – certain exempt vehicles and those 1981 and newer MY not amenable to dyno. testing  Idle - pre-1981 and HDGVs | OBD - 1996 and later MY beginning 6/1/03  ASM5015 – 1981-1995 MY amenable to dyno. testing  2500 RPM test – certain exempt vehicles and those 1981 and newer MY not amenable to dyno. testing  Idle - pre-1981 and HDGVs |
| Emission Control Device Inspections | N/A | Visual inspection of the catalytic converter, presence of a gas cap, and fuel inlet restrictor -- 1975 and newer (beginning calendar 1985) | Visual inspection of the catalytic converter, presence of a gas cap, and fuel inlet restrictor -- 1975 and newer (beginning calendar 1985) | Visual inspection of the catalytic converter, presence of a gas cap, and fuel inlet restrictor -- 1975 and newer (beginning calendar 1985) |
| Visual Inspections | Positive Crankcase Ventilation (PCV) valve -- 1968 – 1971 MY inclusive  Exhaust Gas Recirculation (EGR) valve – 1972 and newer | N/A | N/A | N/A |
| Evaporative System Function Checks | N/A | Gas Cap Testing – 1970 and later vehicles3 (beginning calendar year 1998) | Gas Cap Testing – 1970 and later vehicles3 (beginning calendar year 1998) | Gas Cap Testing – 1970 and later vehicles3 (beginning calendar year 1998) |
| Pre- 1981 MY Stringency | 20% | 30% | 30% | 30% |
| Waiver Rate | 3% | 0.4%4, 5 | 3%5 | 3%5 |
| Compliance Rate | 96% | 98% | 98% | 98% |
| Evaluation Date6 | January 1, 2002 | January 1, 2002 | January 1, 2005 | January 1, 2007 |
| On-Road Testing | 0.5% of the subject vehicle population or 20,000 vehicles (whichever is less) | 0.5% of the subject vehicle population or 20,000 vehicles (whichever is less) | 0.5% of the subject vehicle population or 20,000 vehicles (whichever is less) | 0.5% of the subject vehicle population or 20,000 vehicles (whichever is less) |

1 For programs with existing I/M programs, like New Jersey’s basic I/M program.

2 Except for new vehicles of model year 2000 or later purchased after January 1, 2003. These vehicles are exempt from their first emission inspection for two inspection cycles (i.e., four years) and thereafter must be inspected biennially (or once every other year).

3 Only those pre-1981 vehicles that were equipped with sealed gas caps will be subject to the gas cap check. The State estimates that model year vehicles prior to 1970 were not equipped with a sealed gas cap.

4 This is the actual waiver rate seen in the program for the year 2002.

5 The State assumed a zero percent waiver rate for pre-1981 vehicles as these vehicles are not eligible for a waiver based on the NJDMV inspection rules.

6 For all scenarios, summer season and temperatures were used for VOC/NOx evaluations, while winter season and temperatures were used for carbon monoxide evaluations.

The remainder of this section discusses in detail the various New Jersey program parameters used to determine compliance with the low enhanced performance standard. The State has also included, in Appendices I and II of this document, the MOBILE6 input and output files for New Jersey’s performance standard modeling and the spreadsheet used to complete the “off-model” calculations.

1. Network Type:

New Jersey’s enhanced I/M program is comprised of a hybrid network of both centralized test-only facilities and decentralized test-and-repair facilities. For evaluation year 2002, the State used real program data to calculate to CIF/PIF split of the enhanced I/M program. The results of this data analysis are included in Appendix VI. Based on programmatic data from January 1, 2001 through December 31, 2001, the CIF/PIF split for where vehicle passed inspection was 74/26. As such, for modeling the 2002 evaluation, the State assumed a 74/26 CIF/PIF split for its enhanced I/M network (that is, 74 percent of the vehicle owners are expected to pass inspection at a centralized inspection facility; the remaining 26 percent are expected to pass inspection at a decentralized private inspection facility). For the 2005 and 2007 evaluation years, the State assumed its original estimation of a 70/30 CIF/PIF split for its enhanced I/M network (that is, 70 percent of the vehicle owners are expected to pass inspection at a centralized inspection facility; the remaining 30 percent are expected to pass inspection at a decentralized private inspection facility).

As discussed in detail in Section II, New Jersey claimed, in accordance with the flexibility afforded states by the NHSDA, that the decentralized portion of its enhanced I/M program would be 80 percent as effective as the centralized portion of its program.[[42]](#footnote-42) As part of its August 31, 2001 enhanced I/M SIP revision submittal, New Jersey demonstrated that its private inspection network is achieving this 80 percent assessment. In fact, this analysis showed that the State was conservative in its initial 80 percent estimation. Therefore, New Jersey has assumed 80 percent credit for the decentralized portion of its program in its performance standard modeling for all three evaluation years (2002, 2005 and 2007).

To address the State's inspection facility type split and the 80 percent credit for the decentralized portion of the program, the NJDEP calculated an overall I/M effectiveness rate for each year. For evaluation year 2002, this I/M effectiveness rate was 94.8 percent (that is, 0.74 \* 100 percent + 0.26 \* 80 percent). For evaluation years 2005 and 2007, the I/M effectiveness rate was 94 percent (that is, 0.70 \* 100 percent + 0.30 \* 80 percent). These rates were then used as an input to the MOBILE6 model to account for State's specific network type.

2. Start Date:

According to a USEPA guidance memorandum on use of the mobile model[[43]](#footnote-43), the I/M program start date is defined as the date on which vehicles were first inspected using a tailpipe exhaust emission inspection in the State. As such, for New Jersey this date is 1974 (all modeling dates are assumed to be January 1 of the given year), the date when the State implemented its basic I/M program. Although this is New Jersey's start date as outlined in the low enhanced performance standard requirements, the NJDEP considers other programmatic start dates in determining the final emission factors associated with New Jersey's program. The State implemented its enhanced I/M program on December 13, 1999, which, for modeling purposes, is assumed to be January 1, 2000. As such, the January 1, 2000 date is assumed in modeling the enhanced portion of the State's program, while January 1, 1974 continues to be assumed for the basic (idle) portion of the State's program. Finally, the NJDEP needed to input a start date for the implementation of OBD testing. Although the State plans to integrate OBD testing into its I/M program on June 1, 2003, the MOBILE6 modeling limits the start date to January 1 of any given year. The NJDEP modeled the OBD start date as both January 1, 2003 and January 1, 2004 and there was no difference in the resulting gpm emission factors. As such, for modeling purposes, the State assumed a January 1, 2004 start date for OBD implementation.

3. Test Frequency:

The current test frequency of New Jersey’s enhanced I/M program is biennial (that is, vehicle inspections are required once every two years). However, on July 1, 2002, Governor James E. McGreevey, as part of modifications to the enabling enhanced I/M legislation, enacted changes stating

"… all motor vehicles required by the director, in accordance with the provisions of R.S. 39:8-1, to be inspected under this chapter shall be inspected biennially, except that (i) after certification by the director of the federal approval by the Environmental Protection Agency of the State waiver request, model year 2000 and newer motor vehicles shall be inspected no later than four years from the last day of the month in which they were initially registered and thereafter biennially …."

Essentially, this new legislation requires any new vehicle of model year 2000 and later to be exempt from its emission inspection for two inspection cycles (i.e., 4 years), and thereafter inspected biennially (i.e., every other year). This legislation supersedes the emission inspection test frequency currently set forth in the NJDMV's I/M rules. However, the NJDMV has indicated that they will, at a later date, update their rules to be consistency with the new legislation. After the NJDMV has adopted their regulatory amendments, the State will submit the NJDMV's rule amendments to the USEPA as part of the enhanced I/M SIP. The amended legislation is included as Appendix IV of this SIP revision. Please note that the only portion of Public Law 2002, Chapter 34 relevant to this SIP revision, and included as part of this SIP revision, is N.J.S.A. 39:8-2 (see Appendix IV).

As stipulated by the language of the legislation, the USEPA's approval of this exemption is needed prior to implementation. The revised performance standard modeling contained in this SIP revision is primarily designed to satisfy the USEPA's requirements for approval of this 4-year new vehicle exemption. Since it is the State's goal to implement this exemption on January 1, 2003, that is the assumed start date used to model the impact of this 4-year new vehicle exemption. This means that this exemption is only included in the 2005 and 2007 evaluations. The 2002 evaluation does not include a 4-year new vehicle exemption, since this exemption is not currently in place. For the 2005 and 2007 evaluations, the 4-year new vehicle exemption was modeling as a grace period with the age of vehicles first subject to mandatory I/M program requirements set to 4.

In addition to the recently adopted 4-year new vehicle emission inspection exemption (which would impact 2005 and 2007 evaluations only), New Jersey conducts several types of “off-cycle” inspections which, due to their nature, result in vehicles being inspected more frequently than biennially. Off-cycle inspections include random roadside inspections, retail and casual change of ownership inspections and courtesy inspections. In New Jersey’s original January 30, 1998 performance standard modeling, the State estimated the expected volume of “off-cycle” inspections and claimed credit for those inspections as annual, rather then biennial, inspections. Although all of these “off-cycle” inspections do occur as part of the enhanced I/M program as it was implemented in December of 1999, the estimated volumes were higher than what is actually occurring in the current program. As such, the State decided not to include the additional benefits achieved from “off-cycle” annual inspections in this revised performance standard modeling.

4. Model Year and Vehicle Type Coverage:

All gasoline-fueled vehicles in New Jersey, regardless of model year, receive some type of emissions inspection as part of the enhanced I/M program, unless specific legislative and regulatory exemptions apply. However, vehicles receive different types of emission tests, depending on the type and model year of the vehicle. Currently, 1981 and newer model year vehicles which are: 1) classified as light-duty gasoline-fueled motor vehicles (LDGVs), or light-duty gasoline-fueled trucks 1 and 2 (LDGT1s and LDGT2s)[[44]](#footnote-44), 2) amenable to dynamometer-based testing, and 2) not specifically exempted[[45]](#footnote-45) from enhanced testing, are subjected to the ASM5015 exhaust emission test. Those 1981 and newer vehicles which are not amenable to dynamometer testing currently receive a 2500 RPM test. Pre-1981 vehicles are given an idle exhaust emission test. As such, for the 2002 evaluation year modeling run, these are the model year and vehicle coverages used to establish program benefits.

Beginning June 1, 2003, all 1996 and newer vehicles that are amenable to OBD testing will receive an OBD inspection, unless exempt from that test in which case they will receive the exhaust emission test they are subject to currently. Model year 1981-1995 vehicles will continue to be subject to the ASM5015 exhaust emission test, unless exempt from that test for the reasons listed for the current program design (in which case they will receive a 2500 RPM test). Pre-1981 vehicles will continue to receive an idle exhaust emission test. As this will be the model year and vehicle coverage program design beyond June 1, 2003, the 2005 and 2007 evaluation year modeling runs use this scenario to establish program benefits.

Table 2 (in Section B.5) shows each vehicle category and the applicable OBD, exhaust and/or evaporative emission tests to which that vehicle category is subjected.

5. Exhaust Emission Test Type:

As discussed in Section B.4, the majority of gasoline-fueled motor vehicles inspected as part of the enhanced I/M program currently receive either an ASM5015 test or an idle test as their exhaust emission test. However, after June 1, 2003, that testing requirement will shift, with the majority of gasoline-fueled motor vehicle inspected as part of the enhanced I/M program receiving either an OBD inspection or an ASM5015 exhaust emission test. According to NJDMV calculations, by 2003, approximately 60 percent of the State's overall fleet will be 1996 and newer vehicles, while the remaining 40 percent will be pre-1996 vehicles.[[46]](#footnote-46) Table 2 outlines the different vehicle categories and the applicable tests for those categories.

Table 2: Various Vehicle Categories and Applicable Emission Tests

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Vehicle Category | Exhaust Emission Test | | **Evaporative Emission Test(s)** | |
|  | **pre-June 2003** | **post-June 2003** | **pre-June 2003** | **post-June 2003** |
| pre-1981 vehicles | idle | idle | gas cap test only1 | gas cap test only1 |
| 1981-1995 and newer vehicles | ASM50152 | ASM50152 | gas cap test only | gas cap test only |
| 1981-1995 vehicles not amenable to dynamometer-based testing | 2500 RPM | 2500 RPM | gas cap test only | gas cap test only |
| 1981-1995 low mileage vehicles3 | 2500 RPM | 2500 RPM | gas cap test only | gas cap test only |
| 1996 and newer low mileage vehicles3 | 2500 RPM | OBD | gas cap test only | gas cap test and OBD4 |
| 1996 and later vehicles | ASM50152 | OBD | gas cap test only | gas cap test and OBD |
| collector motor vehicles5 | exempt | exempt | exempt | exempt |
| historic motor vehicles | exempt | exempt | exempt | exempt |
| 1981 and newer vehicles registered as school buses6 | 2500 RPM | OBD | gas cap test only | gas cap testand OBD |

1 Only those pre-1981 vehicles that were equipped with sealed gas caps will be subject to the gas cap check. The State estimates that model year vehicles prior to 1970 were not equipped with a sealed gas cap.

2 Unless the vehicle is not amenable to dynamometer-based testing or is specifically exempt.

3 The “low mileage vehicle” category, as required by the enhanced I/M legislation, is defined and discussed at P.L. 1995, Chapter 112, Section39:8-2b.(1), approved June 2, 1995.

4 The OBD test includes checks for monitored failures of both the exhaust and evaporative systems,thereby substituting for traditional tailpipe and evaporative pressure and purge tests. In addition to these checks, the State will also perform a traditional gas cap pressurization inspection on these vehicles.

5 The “collector motor vehicle” category, as required by the enhanced I/M legislation, is defined and discussed at P.L. 1995, Chapter 112, Section39:8-1a., approved June 2, 1995.

6 All gasoline-fueled vehicles registered as school buses in the State are inspected by the NJDMV's School Bus Inspection Unit. These vehicles are inspected semi-annually (that is, twice a year). The table indicates that these vehicles will receive OBD inspections, if applicable, beyond the June 1, 2003 start date. However, since this commitment is not yet finalized in regulations by the NJDMV, the NJDEP in modeling for this revised performance standard, assumed all gasoline-fueled buses receive an idle exhaust test and a gas cap test for all modeling runs (2002, 2005, and 2007).

As shown in Table 2, certain vehicles are exempt from the ASM5015 exhaust emission testing. Those vehicles in this exempt group which are not exempted entirely from emission testing receive a 2500 RPM exhaust emission test. In addition, although not specifically outlined in Table 2, certain 1996 and newer vehicles may not be OBD-capable, and therefore, after June 1, 2003, would continue to be inspected using whichever exhaust emission test was previously required. To date, the USEPA's position is that all of the 1996 and newer vehicle population is OBD-testable. However, some of these vehicles have known readiness problems, which require modified OBD testing. The USEPA has identified those vehicles with known readiness problems, and has provided a list to states for use in their I/M programs. The USEPA plans to maintain this list. In addition, New Jersey will add to it any vehicles identified through in-use testing as having readiness problems or as being non-OBD-testable.

As part of its last performance standard modeling submittal, the State estimated the number of vehicles that would be exempt from the ASM5015 exhaust emission test because they were not amenable to dynamometer testing (i.e., either vehicles which employ full-time, four-wheel drive or which are installed with non-switchable traction control). This estimation was then used to determine the loss in credit attributed to these vehicles receiving a 2500 RPM test in lieu of the ASM5015 exhaust emission test. The State has updated this analysis for this revised performance standard modeling exercise with data from January 1, 2001 through June 30, 2002. The revised analysis showed that the percent of vehicles expected to receive an ASM5015 exhaust emission test but instead received a 2500 RPM test was 9.5 percent. This analysis also showed that the percent of vehicles expected to receive an ASM5015 exhaust emission but instead received an idle test for that time period was 0.1 percent. Since the idle test numbers were so small, the State did not consider them as part of this performance standard modeling. However, as explained in detail below, the State did consider the impact of the 2500 RPM tests, rounding this percentage to 10 percent to be conservative in its estimates.

Expanding on this analysis, the State also determined, for the time period of January 1, 2001 through June 30, 2002, how many 1981-1995 model year vehicles received either a 2500 RPM test or an idle test instead of the ASM5015 exhaust emission test. This analysis provides some indication as to how many of these non-dynomometer tests would occur after the State implemented its OBD inspection program, thereby eliminating from ASM5015 testing most 1996 and newer OBD-eligible vehicles. This analysis showed that 5.7 percent of the 1981-1995 vehicles received a 2500 RPM test instead of the ASM5015 test. As expected, this percentage is smaller than the total for all 1981 and newer vehicles, because these older vehicles were less likely to have full time four-wheel drive capabilities or non-switchable traction control. The analysis also showed that 0.1 percent of the ASM-eligible vehicles received an idle test. As with the full 1981 and newer analysis, the State did not consider the idle tests for 1981-1995 vehicles as part of this performance standard modeling. However, as explained in detail

below, the State did consider the 2500 RPM tests and, for modeling purposes, rounded this percentage to 6 percent to be conservative in its estimates.

To model the effects of subjecting 10 percent of the 1981 and newer vehicle population to the 2500 RPM exhaust emission test for the 2002 evaluation year, the NJDEP ran two sets of model scenarios (one run assuming that 100 percent of the 1981 and newer vehicles were receiving an ASM5015 exhaust test, the other run assuming that 100 percent of the 1981 and newer vehicles were receiving an 2500 RPM exhaust test). The direct differences between these run results were small. These resulting emission factors (EFs) were then weighted using the following equation to determine the final emission factor for New Jersey’s enhanced I/M program:

Equation 1: Final EF = (0.90\* 100% ASM5015 EF) + (0.10 \* 100% 2500 RPM EF)

For the 2005 and 2007 evaluation years, the State determined the impact of 6 percent of 1981-1995 vehicles (1996 and newer vehicles would now be receiving an OBD test) receiving a 2500 RPM test rather than an ASM5015 exhaust emission testing. This was done using a similar equation to Equation 1, but modifying it to account for the change in percent. Equation 2 shows how the final emission factors for the 2005 and 2007 evaluation years were determined.

Equation 2: Final EF = (0.94\* 100% ASM5015 EF) + (0.06 \* 100% 2500 RPM EF)

The NJDMV’s regulations and State statute specifically exempt several types of vehicles that would otherwise be subjected to enhanced I/M testing from either the enhanced tests (that is, subjecting these vehicles, instead, to a less stringent exhaust emission test) or from emission testing as a whole. These vehicles include: 1) low mileage vehicles, and 2) collector motor vehicles. To determine whether or not a vehicle qualifies for either of these categories, see the NJDMV’s definitions at N.J.A.C. 13:20-43.1. In addition, the NJDMV’s regulations maintain a vehicle category that exempts applicable vehicles from basic I/M emission testing. These vehicles are classified by the NJDMV as historic motor vehicles. To determine whether or not a vehicle qualifies as a historic motor vehicle, see the NJDMV’s definitions at N.J.A.C. 13:20-43.1 and N.J.S.A. 39:3-27.3. The NJDEP determine not to include these vehicles as part of this revised performance standard modeling for one of two reasons. Either the number of vehicles in these categories was so small that their emissions were not significant enough to impact the modeling, or the vehicles in the category, by definition, fell well outside the 25 model year analysis window examined by the mobile model.

Although the State acknowledges that certain 1996 and newer vehicles may not be OBD-testable, and as such will receive an alternative exhaust emission test (most likely the ASM5015 exhaust emission test), the State cannot at this time estimate how many of these vehicles are or will be in New Jersey's fleet. However, as the USEPA current indicates that some form of OBD testing can be performed on all OBD-eligible vehicles, the State believes that the number of vehicles exempt entirely from OBD testing will be small. The State is unable at this time to estimate the effects of subjecting these vehicles to an ASM5015 exhaust emission test instead of the OBD test for the 2005 and 2007 evaluation years.

6. Emission Standards:

The State assumed implementation of initial standards for the ASM5015 exhaust emission test for all three (3) evaluation years.[[47]](#footnote-47) In its May 20, 2002 proposal, the NJDEP proposed to remove the existing final standards from its rules governing the enhanced I/M program, and to instead allow for the continued use of the initial standards for this test. Although the NJDEP proposed the elimination of the final standards for dynamometer testing, the basis and background document for the proposal discusses the USEPA's intention to finalize a comprehensive set of revised final standards for the ASM5015 test, and the State's determination to consider including those final standards as part of its enhanced I/M program once they are made available. OBD standards are part of the vehicle's on-board computer monitoring system, and are established as one and half times Federal Test Procedure (FTP) emissions.

7. Emission Control Device Inspections:

A visual inspection to determine the presence of a catalytic converter is performed on all 1975 and newer motor vehicles. This was assumed in the State’s revised performance standard modeling. In addition, the State assumed that all vehicles subject to the gas cap inspection also receive a visual gas cap inspection for the presence of a cap and to examine the cap for any cracks, outside damage, etc. Finally, the State included in its revised performance standard modeling fuel inlet restrictor testing for all applicable model years. The purpose of the fuel inlet restrictor test is to determine whether or not a leaded gasoline pump nozzle could fit into the vehicle’s gasoline inlet, allowing for the possibility of leaded gasoline usage. Use of leaded gasoline interferes with effectiveness of the vehicle’s catalytic converter. Although the State began fuel inlet restrictor testing as part of its annual inspections in June 1990, New Jersey stopped performing inlet restrictor tests in 1994 because it was no longer possible for New Jersey motorists to obtain leaded gasoline. However, according to a USEPA guidance memorandum on highway source modeling[[48]](#footnote-48), states that have, in the past, performed fuel inlet tests for at least one full cycle (and have required catalyst replacement upon failure) may claim the SIP credit associated with this testing without future testing. Since New Jersey meets these requirements, the State took emission credit for the fuel inlet restrictor test in this revised performance standard modeling.

8. Evaporative System Function Checks:

In addition to outlining the exhaust emission tests applicable to each vehicle category, Table 2 also shows which vehicle categories are currently subject to the State’s only evaporative emission test, a pressurized gas cap inspection, as well as which vehicle categories will continue to receive that test in the future. The pressurized gas cap inspection is designed to insure that the gas cap seals properly and has no leaks. All gasoline-fueled motor vehicle manufactured with a sealed gas cap are subject to this pressured gas cap inspection, which the NJDEP determined is all 1971 and later vehicles. However, using the mobile model, the State can only estimate, from any given evaluation year, the impact from the last 25 model years. As such, for any vehicle 25 years older than the given evaluation year, the State cannot, and has not attempted to, estimate the additional benefit associated with administering of the pressurized gas cap inspection.

As noted in Table 2, the State will continue conducting pressurized gas cap inspections on 1996 and newer vehicles in conjunction with OBD inspection. Although OBD monitors a vehicle's evaporative system, and as such has a "self-contained" evaporative functional check, the USEPA has recommended that states needing significant hydrocarbon reductions to meet their attainment goals should supplement OBD-I/M testing with a separate gas cap inspection.[[49]](#footnote-49) This recommendation is based on the fact that when the USEPA compared failure rates for the evaporative portion of the OBD-I/M test to the failure rate for the stand-alone gas cap test, they found that the separate gas cap test was able to identify a substantial number of leaking gas caps that were not identified by the OBD monitors due to the different failure thresholds. The benefit from this additional testing on OBD-eligible vehicles is included as part of the modeling runs for the 2005 and 2007 evaluation years.

9. Stringency:

For modeling purposes, a 30 percent emission test failure rate was assumed for pre-1981 vehicles.

10. Waiver Rate:

In accordance with 40 C.F. R. 51.360(d)(1), each state’s SIP must include “a maximum waiver rate expressed as a percentage of initially failed vehicles.” The purpose of this waiver rate is to estimate emission reduction benefits in a modeling analysis. In the USEPA enhanced I/M performance standard, a 3 percent waiver rate was assumed.[[50]](#footnote-50) Using this 3 percent assumption as guidance for its own enhanced I/M program, New Jersey assumed a 3 percent waiver rate for 1981 and newer vehicles in its enhanced I/M SIP. Data from January 1, 2001 through June 30, 2002 shows an actual waiver rate of 0.4 percent. As such, for the 2002 evaluation year, the State assumed the real waiver rate of 0.4 percent. For the 2005 and 2007 evaluation years, the State continued to assume a waiver rate of 3 percent.

In should be noted here that under New Jersey’s enhanced I/M program, any vehicle that applies for a waiver must show compliance with the idle test, in addition to meeting the minimum cost expenditure. Since all pre-1981 vehicles receive the idle test as their official inspection test under the enhanced I/M program, these vehicles are not eligible for a waiver. Thus, the pre-1981 waiver rate is assumed to be zero. In addition, the State has determine to extend the waiver option to those vehicles failing an OBD inspection, in addition to those failing an ASM5015 exhaust emission test, so long as they meet the minimum cost expenditure and pass an idle exhaust emission test. As such, the waiver provisions will continue to be available to all 1981 and newer vehicles beyond June 1, 2003.

11. Compliance Rate:

For modeling purposes, a 98 percent compliance rate was assumed for the overall enhanced I/M program in the original performance standard modeling. At that time, the State assumed that transitioning from a sticker-enforced inspection program to a registration denial-enforced program would increase compliance with the program, which for the basic program was 96 percent. Since the State does not yet have any validated statistical evidence to contradict this assumed compliance rate, the NJDEP is again assuming a 98 percent compliance rate in this performance standard modeling exercise.

12. Evaluation Date:

The low enhanced performance standard model program includes an evaluation date. This was the date by which states had to demonstrate, through modeling, that their enhanced I/M programs could attain equivalent or lower emission levels than the performance standard program.[[51]](#footnote-51) Specifically, states had to demonstrate that the emission levels achieved by their enhanced I/M program were equivalent to, or lower than, those achieved by the performance standard program by 2000 for ozone (VOC and NOx) and 2001 for CO.

The USEPA, in its proposal for the conditional interim approval of New Jersey’s enhanced I/M SIP and its revision, modified these evaluation dates.[[52]](#footnote-52) The USEPA stated in this proposal that “based on the provisions of the NHSDA, the evaluation dates in the current [Federal] I/M rule has been superseded.” The provisions of the NHSDA allowed for state development of an enhanced I/M program commencing later than those dates set forth in the USEPA’s final rule on Inspection and Maintenance Requirements. Therefore, to be consistent with the intent of the NHSDA, the USEPA stated that the initial evaluation date, for all three criteria pollutants, would be January 1, 2002.

Based on conversations with staff from Region II of the USEPA, the USEPA decided that for this performance standard exercise the State needed to develop the baseline performance standard for January 1, 2002. Then, New Jersey's program was evaluated for January 1 of the years 2002, 2005 and 2007 and was compared back to the baseline 2002 performance standard run. Due to New Jersey's two distinctly different air quality problems, (ozone (that is, VOC and NOx) in the summer and carbon monoxide in the winter), the State determined to more realistically represent the different impacts the enhanced I/M program would have on those pollutants by using summer season and temperatures for VOC/NOx evaluations and winter season and temperatures for carbon monoxide evaluations.

C. Other Modeling Parameters and Assumptions :

In addition to the parameters and assumptions discussed previously in Subsection B, the NJDEP had to make other assumptions in order to complete its performance standard modeling. The following table shows what those assumptions were and what values where used to complete the modeling:

Table 3: Other Modeling Assumptions

|  |  |  |
| --- | --- | --- |
| **Modeling Parameters** | **Value Used for Summertime Runs (VOC and NOx)** | **Value Used for Wintertime Runs (CO)** |
| Maximum Temperature | 95 | 38 |
| Minimum Temperature | 71 | 38 |
| Speed | 19.6 | 19.6 |
| Mechanic Training and Certification assumed | yes - 100% | yes - 100% |
| Northeast NLEV program assumed | yes | yes |
| RFG program assumed | yes | yes |
| Wintertime oxygenated fuels assumed | N/A\* | N/A\* |

\* Northern RFG has been specified in the modeling runs. This assumes certain

default levels of oxygenated fuels to meet RFG requirements.[[53]](#footnote-53)

D. Performance Standard Modeling Results :

The following table shows the emission factors obtained from both the performance standard program and New Jersey’s enhanced I/M program for VOC, NOx and carbon monoxide, respectively.

Table 4: Modeling Results

|  |  |  |  |
| --- | --- | --- | --- |
| Program Type | VOC (gpm) | NOx (gpm) | CO (gpm) |
| Low Enhanced Performance Standard  2002 evaluation | 1.158 - 1.198\* | 1.790 - 1.830\* | 22.552 - 22.592\* |
| New Jersey Program  2002 evaluation | 1.152 | 1.745 | 22.398 |
| New Jersey Program  2005 evaluation | 0.964 | 1.416 | N/A\*\* |
| New Jersey Program  2007 evaluation | 0.817 | 1.114 | N/A\*\* |

\* The performance standard values are expressed as a range to account for the +/- 0.02

gpm margin for error allowed for by the USEPA. Therefore, the standards are met so long as they fall below the upper limit of the range.

\*\* The USEPA (see Appendix V) has stated that 2005 and 2007 modeling runs only need to include results

for VOC and NOx because their attainment dates have not yet passed. However, since

the attainment date for carbon monoxide has passed, it no longer needs to be included.

IV. Conclusion :

As can be seen from Table 4, New Jersey’s enhanced I/M program meets the low enhanced performance standard in 2002, and exceeds it in 2005 and 2007, for all applicable criteria pollutants. This demonstration meets the USEPA requirements to allow the State to move forward with implementation of its 4-year new car exemption. In addition, this modeling demonstrates that the implementation of an OBD inspection program, in addition to fleet turnover over time, will offset the negative impacts associated with the State's proposal to eliminate the requirements for the evaporative pressure and purge tests, as well as the elimination of the final standards for the ASM5015 exhaust emission test. Although the State has completed this revised performance standard modeling demonstrating that the I/M program will continue to meet the required standard even with the proposed changes to the overall design, the State is committed to conduct an overall analysis of the on-road mobile source sector as part of its MOBILE 6 SIP revision, including these I/M program modifications. The MOBILE 6 SIP is due to the USEPA in January of 2003.

1. VOCs are a subset of the hydrocarbons (HCs) category of pollutants, and HCs are directly measured by the enhanced I/M test analyzers. Similarly, nitric oxide (NO), a subset of the NOx category of pollutants, is measured by the enhanced I/M test analyzers. [↑](#footnote-ref-1)
2. 42 U.S.C.A. §7511a (c)(3). [↑](#footnote-ref-2)
3. 42 U.S.C.A. §7512a(a)(6). [↑](#footnote-ref-3)
4. 42 U.S.C.A. §7511c(b)(1)(A). [↑](#footnote-ref-4)
5. 40 C.F.R.§51, 57 Fed. Reg. 52950 (November 5, 1992).

   [↑](#footnote-ref-5)
6. 40 C.F.R. §51.353, 57 Fed. Reg. 52990 (November 5, 1992). [↑](#footnote-ref-6)
7. 40 C.F.R. 52, 62 Fed. Reg. 26401 (May 14, 1997). [↑](#footnote-ref-7)
8. These documents were submitted as an attachment to a letter dated January 31, 1997 from Commissioner Robert C. Shinn, Jr., New Jersey Department of Environmental Protection, to Jeanne M. Fox, Regional Administrator, USEPA, Region II. [↑](#footnote-ref-8)
9. This modeling and its supporting documentation were submitted as an attachment to a letter dated January 30, 1998 from Commissioner Robert C. Shinn, Jr., New Jersey Department of Environmental Protection to William J. Muszynski, P.E., Deputy Regional Administrator, USEPA, Region II. [↑](#footnote-ref-9)
10. The State of New Jersey Department of Environmental Protection, Revision to the State Implementation Plan (SIP) for the Inspection and Maintenance (I/M) Program for the State of New Jersey, December 14, 1998. [↑](#footnote-ref-10)
11. 61 Fed. Reg. 56172, (October 31, 1996). [↑](#footnote-ref-11)
12. The New Jersey State Implementation Plan (SIP) Revision for the Attainment and Maintenance of the Carbon Monoxide National Ambient Air Quality Standard, November 17, 1994. The State, on July 10, 1997, proposed a revision to this SIP. A hearing on this proposal took place on August 11, 1997 and the comment period closed on August 20, 1997. This SIP revision was submitted to the USEPA on August 7, 1998. To date, the USEPA has taken no action on New Jersey’s submittal. [↑](#footnote-ref-12)
13. 63 Fed. Reg. 45402 (August 26, 1998). [↑](#footnote-ref-13)
14. 33 N.J.R. 1894(a) (June 4, 2001). [↑](#footnote-ref-14)
15. 33 N.J.R. 3651(b) (October 15, 2001). [↑](#footnote-ref-15)
16. The State of New Jersey Department of Environmental Protection, Report on the

    Inspection and Maintenance (I/M) Program for the State of New Jersey, National Highway Systems Designation Act (NHSDA) Submittal, December 13, 2000. [↑](#footnote-ref-16)
17. Although this document was submitted to the USEPA on August 31, 2001, the date on the SIP submittal document is August 20, 2001. [↑](#footnote-ref-17)
18. 40 C.F.R. 52, 62 Fed. Reg. 26401 (May 14, 1997). [↑](#footnote-ref-18)
19. 67 Fed. Reg. 2811 (January 22, 2002). [↑](#footnote-ref-19)
20. Submitted December 31, 2001 under cover letter from then NJDEP Commissioner Robert C. Shinn, Jr. to Jane M. Kenny, Regional Administrator, USEPA Region II. [↑](#footnote-ref-20)
21. Please note that the NJDMV’s school bus rule proposal was forwarded to the USEPA under separate cover from the original proposed SIP revision. Specifically, this proposal was forwarded on March 26, 2001 from Chris Salmi, Manager of the Bureau of Air Quality Planning in the NJDEP to Raymond Werner, Chief of the Air Programs Branch, USEPA - Region II. [↑](#footnote-ref-21)
22. The State of New Jersey Department of Environmental Protection, Enhanced Inspection and Maintenance (I/M) Program for the State of New Jersey, Request to Defer the Integration of On-Board Diagnostic (OBD) Inspections into the State’s I/M Program, SIP Revision, April 22, 2002. [↑](#footnote-ref-22)
23. Although the NJDEP proposed the elimination of the final standards for dynamometer testing, the basis and background document for the proposal discusses the USEPA's intention to finalize a comprehensive set of revised final standards for the ASM5015 test, and the State's determination to consider including those final standards as part of its enhanced I/M program, once they are made available. [↑](#footnote-ref-23)
24. 40 C.F.R. §51.351. [↑](#footnote-ref-24)
25. 40 C.F.R. §51.351(g)(13). [↑](#footnote-ref-25)
26. The State of New Jersey Department of Environmental Protection, Enhanced Inspection and Maintenance (I/M) Program for the State of New Jersey, Performance Standard Modeling, January 30, 1998. [↑](#footnote-ref-26)
27. Letter dated April 23, 2001 from William J. Muszynski, P.E., Acting Regional Administrator, USEPA Region II, to Robert C. Shinn, Jr., Commissioner, NJDEP. [↑](#footnote-ref-27)
28. 60 Fed. Reg. 48029 (September 18, 1995). [↑](#footnote-ref-28)
29. On July 19, 1996, the USEPA also establishing an additional enhanced I/M performance standard for qualified areas in the Northeast Ozone Transport Region (OTR), often referred to as the OTR low enhanced performance standard. The emission reduction targets for the OTR low enhanced performance standard are less than both the low enhanced performance standard and the basic performance standard. The USEPA established two criteria that areas have to meet in order to be eligible for the OTR low enhanced performance standard: 1) the standard applies only in attainment areas, marginal ozone non-attainment areas and certain moderate ozone non-attainment areas with populations under 200,000 in an OTR and 2) the standard program must be supplemented by other measures in order to achieve emission reductions equal to or greater than that which would have occurred had a regular low enhanced I/M program been implemented. New Jersey did not meet the criteria to qualify for use of the OTR low enhanced performance standard. [↑](#footnote-ref-29)
30. 40 C.F.R. 51.351(g). [↑](#footnote-ref-30)
31. ## The State of New Jersey Department of Environmental Protection, Revision to the State Implementation Plan (SIP) for the Attainment and Maintenance of the Ozone National Ambient Air Quality Standards, Revision to the New Jersey 15 Percent Rate of Progress Plan, February 5, 1999.

    [↑](#footnote-ref-31)
32. 64 Fed. Reg. 19913 (April 23, 1999). [↑](#footnote-ref-32)
33. 67 Fed. Reg. 5152, February 4, 2002. [↑](#footnote-ref-33)
34. This legislative amendment supersedes the emission inspection test frequency currently set forth in the NJDMV's I/M rules. However, the NJDMV has indicated that they will, at some later date, update their rules to be consistency with the new legislation. After the NJDMV has adopted their regulatory amendments, the State will submit the NJDMV's rule amendments to the USEPA as part of the enhanced I/M SIP. [↑](#footnote-ref-34)
35. Although the NJDEP has proposed the elimination of final standards for the ASM5015 exhaust emission test, the basis and background document for that proposal discusses the USEPA's intention to finalize a comprehensive set of revised final standards for the ASM5015 test. It is the State intention to review these new standards once they are made available to determine whether or not they should be included as part of New Jersey's enhanced I/M program. [↑](#footnote-ref-35)
36. 40 C.F.R. §51.351(g)(13) allows for a margin of error of +/-0.02 gpm for each pollutant result. [↑](#footnote-ref-36)
37. 40 C.F.R. §51.351(a), 57 Fed. Reg. 52988 (November 5, 1992). [↑](#footnote-ref-37)
38. Ibid. [↑](#footnote-ref-38)
39. 60 Fed. Reg. 62741, (December 7, 1995). [↑](#footnote-ref-39)
40. 40 C.F.R.§51.351(d), 57 Fed. Reg. 52988, (November 5, 1992). [↑](#footnote-ref-40)
41. The USEPA required that the State compare its program in calendar years 2002, 2005 and 2007 to the performance standard results from 2002. See Appendix V for more details on the USEPA's requirements for this proposed revised performance standard modeling. [↑](#footnote-ref-41)
42. Revision to the State Implementation Plan (SIP) for the Control of Mobile Source Ozone Air Pollution--Enhanced Inspection and Maintenance (I/M) Program, March 27, 1996, Section 3, Network Type and Program Evaluation, pages 14-15. [↑](#footnote-ref-42)
43. Memorandum dated October 29, 1993 from Philip A. Lorang, then Director Emission Planning and Strategies Division, Office of Mobile Sources, USEPA to Air Management Division Directors, USEPA entitled “MOBILE5a Input of I/M Program Start Date." [↑](#footnote-ref-43)
44. To determine whether a vehicles is classified as a LDGV, LDGT1, LDGT2, or HDGV, please refer to the definition section of either of the NJDEP’s rules for the implementation of the enhanced I/M program at N.J.A.C. 7:27-15.1 and N.J.A.C. 7:27B-4.1. [↑](#footnote-ref-44)
45. Specifically exempted vehicles are those vehicles which have been exempted from enhanced emission testing, or alternatively, from emission testing all together, through NJDMV regulations and statute. These vehicles include collector motor vehicles, low mileage vehicles, and historic motor vehicles. [↑](#footnote-ref-45)
46. The majority of the pre-1996 vehicles are model years 1981-1995. Only about 1 percent of the pre-1996 fleet is pre-1981. Data source: email dated August 7, 2002 from Tom Bednarz, Project Manager for the Enhanced I/M Program for the NJDMV to Christine Schell, Principal Environmental Specialist for the NJDEP. [↑](#footnote-ref-46)
47. In a letter dated April 12, 2001 from Margo Tsirigotis Oge, Director, Office of Transportation and Air Quality, USEPA to Betty L. Serian, Deputy Secretary, Safety Administration, Commonweath of Pennsylvania Department of Transportation, the USEPA strongly advised Pennsylvania not to implement the existing ASM final standards on pre-1996 vehicles until the USEPA had completed its research regarding an alternative set of ASM standards and established guidance to the states. This letter sets a precedent for delaying final standard implementation in New Jersey as well. [↑](#footnote-ref-47)
48. Memorandum dated September 16, 1994 from Phil Lorang, then Director of the Emission Planning and Strategies Division, USEPA to All Regional Air Directors entitled “Discontinuation of Tail Pipe Lead and Fuel Inlet Tests.” [↑](#footnote-ref-48)
49. "Performing Onboard Diagnostic System Checks as Part of a Vehicle Inspection and Maintenance Program", EPA420-R-01015, June 2001. [↑](#footnote-ref-49)
50. 40 C.F.R. 51.351(a)(11), 57 Fed. Reg. 52989 (November 5, 1992). [↑](#footnote-ref-50)
51. 40 C.F.R. 51.351(a)(13), 57 Fed. Reg. 52988 (November 5, 1992). [↑](#footnote-ref-51)
52. 61 Fed. Reg. 56172 (October 31, 1996). [↑](#footnote-ref-52)
53. USEPA document dated January 2002 entitled “Users Guide to Mobile 6.0," 420R-02-001, pgs. 111-119. [↑](#footnote-ref-53)